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Redefining a Profession

Richard A. Danner

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Professor Danner examines the literature of the professions for insight into the workplace relationships among librarians and other information professionals, focusing on how increasing reliance on information technologies will affect the future roles of all information professions, while leading to greater convergence of responsibilities and practices for librarians and information technologists.

"I can now do personal research online. Am I more productive than if I had to go to the library? Of course, I am."[1]

"Information isn't powerful. Information isn't power. . . . Hey, who's got the most information? Librarians do! It's hard to imagine a group of people with less power than librarians."[2]

It has always been difficult for library users to understand precisely what librarians do, or why some of the people employed in libraries pointedly identify themselves as professional workers, while the work of other library employees is not considered to be professional.[3] Now, in a time of massive change in the ways that information is produced and distributed, located and used, the continued relevance of both librarianship and the library as an institution are increasingly called into question.[4]

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1. Andy Grove, *Only the Productive Survive*, FORBES ASAP, Dec. 1, 1997, at 22, 22.
2. JOHN BROCKMAN, DIGERATI: ENCOUNTERS WITH THE CYBER ELITE 280 (1996) (comments of Cliff Stoll).
3. *See, e.g.*, Kathy E. Shimpock, *Paralegal: Friend or Foe*, AALL SPECTRUM, Feb. 1998, at 6, 8 ("There are many people within the legal profession who are not clear about what a law librarian is, what our education, skills, and abilities should be and what we can do for them.").
4. *See, e.g.*, Jerry D. Campbell, *Choosing to Have a Future*, 24 AM. LIBR. 560, 560 (1993) (noting that librarians can see themselves being replaced by "a new breed of information professional who lacks our historical perspective and commitment to service"); Mark Sandler, *Transforming Library Staff Roles*, LIBR. ISSUES: BRIEFINGS FOR FAC. & ADMIN., Sept. 1996, at 1, 3 (describing how information technology has challenged the librarian's traditional skill base and "created an ascendant class of librarians and non-librarians with technological mastery"). *See also* David C. Churbuck, *Good-by, Dewey Decimals*, FORBES, Feb. 15, 1993, at 204, 204 ("When [full-text retrieval] comes, the local library as we know it all but disappears. In lieu of librarians we will have programmers and database experts.").

As ever greater amounts of information are directly accessible in interactive electronic environments, researchers in law and other disciplines are likely to modify their information-seeking behaviors to include more direct searching for information,[5] leaving librarians not only with the need to justify their claims to professional status, but also with the added burden of explaining why they are needed at all. What value will librarians add to the information-seeking process in an environment that seems to require less mediation between individuals and the information they seek? If intermediaries do continue to be needed, will they require knowledge and skills different from the traditional skills of librarians?[6]

Such issues are of as much concern to law librarians as to librarians with other specialties. In the United States, the traditional defining characteristics of the legal information professional[7] have included a graduate degree in library science, perhaps a law degree, and employment by a law library.[8] Because nearly all legal information professionals have been librarians, credentials and place of employment were enough to define the field, differentiating the law librarian from librarians working in other types of libraries and from other law library employees.[9] In 1998, however, law librarians no longer meet all information needs in law schools, courts, law firms, or other organizations using legal information. In organizations of all sizes, network computing and the demand for ready access to electronic information at the desktop have created and expanded the roles of information technologists, whose backgrounds and training fall outside librarianship, and who might be based either in the library or in any of several other places within the organization.[10] Whether employed by

5. *See* GARY MARCHIONINI, INFORMATION SEEKING IN ELECTRONIC ENVIRONMENTS 170–74 (1995).
6. A number of library schools have closed, and the most prominent survivors are transforming themselves to prepare students for new professions in new job markets. *See, e.g.*, Brian Caulfield, *Morphing the Librarians: Fighting Off Extinction in the Information Age*, WIRED, Aug. 1997, at 64, 64 (providing statistics on library school closings and reductions in annual degrees awarded, and describing new programs at the University of California-Berkeley and the University of Michigan).
7. In this article, I use the term "legal information professional" to include both law librarians and others in professional positions working to serve or support users of legal information. Questions of nomenclature pose tricky and emotional issues for librarians. Library futurists Walt Crawford and Michael Gorman have decried librarians' adoption of such generic labels as "information specialist," on grounds that "Every white-collar worker, professional or not, could be called an information specialist," and that "It is a bland, meaningless term that weakens the position of the people who carry it." WALT CRAWFORD & MICHAEL GORMAN, FUTURE LIBRARIES: DREAMS, MADNESS & REALITY 105–06 (1995). *See also* Anne Wordsworth, *The Dean's List: Librarianship: The Hot Profession*, LIBR. J., Oct. 15, 1997, at 42, 42.
8. And, for a few, work as an independent contractor.
9. Excepting, of course, those occasional other law library staff members considered to be professionals because of experience or because they held another credential (probably the JD). These individuals could be recognized as law library professionals because in their work, they did essentially the same things as the law librarians did. It is less clear that such individuals would be recognized as professionals in other types of libraries.
10. The library itself is likely to have at least some technologically trained staff, professional or otherwise. For a history of the development of such positions in academic libraries, see Merri

the library or not, information technologists do not think of themselves as librarians. Yet, like librarians, they, too, work with information and assist users in locating and accessing information.

How will the relationships between these groups evolve? Will information needs in law continue to be met primarily by librarians, or will the technologists responsible for facilitating users' direct access to digital legal information take on a primary role? Perhaps an information environment that is increasingly dependent on networked access to digital information will require a whole new breed of legal information professional. Will librarianship or another profession provide the foundation for this new profession?

To begin to answer these questions, this article considers the work of librarians and information technologists within the context of the literature of the professions. A recurring theme is that competition is a constant of professional life for librarians, and for other information professionals. I take this theme from the work of Andrew Abbott, whose book on the topic is referenced throughout the article.[11] Because the environment in which all professionals work is continually changing as new professional groups emerge, new technologies are invented, and the political environment in the workplace shifts, competition is inherent in professional life.[12]

In the long run, competition should be healthy for any profession, because of the challenges it poses. For librarianship, the major issues involve what we need to compete and, indeed, to thrive as a profession in a time when information appears to be ever more readily accessible to information seekers, and when other groups may be seeking to play roles that librarians have traditionally played. This article focuses on those challenges and suggests ways for law librarians and other information professionals working with legal information to think about their futures.[13]

Beth Lavagnino, *Networking and the Role of the Academic Systems Librarian: An Evolutionary Perspective*, 58 C. & RES. LIBR. 216 (1997). *See also* Margaret Foote, *The Systems Librarian in U.S. Academic Libraries: A Survey of Announcements from* College & Research Libraries News, *1990–94*, 58 C. & RES. LIBR. 517 (1997).

11. ANDREW ABBOTT, THE SYSTEM OF PROFESSIONS: AN ESSAY ON THE DIVISION OF EXPERT LABOR (1988). Published in 1988, Abbott's book does not fully envision the extent to which developments in desktop computing and network communications have affected the information professions. Many of his comments on the information professions, as well as his analysis of relationships among information workers, remain insightful, however.
12. In a recent article dealing specifically with librarianship, Abbott characterizes the system of professions as "a world of pushing and shoving, of contests won and lost." Andrew Abbott, *Professionalism and the Future of Librarianship*, 46 LIBR. TRENDS 430, 433 (1998). See Leigh Estabrook, *The Growth of the Profession*, 50 C. & RES. LIBR. 287, 285–96 (1989), for a discussion of competition theories in the library workplace.
13. This article is the final part of a project exploring the impacts of information technology on law librarianship and legal education. For previously published segments, see Richard A. Danner, *Facing the Millennium: Law Schools, Law Librarians, and Information Technology*, 46 J. LEGAL EDUC. 43 (1996); Richard A. Danner, *The Effects of Information Technology on Law Librarianship: An American Perspective*, 27 LAW LIB'N 203 (1996). *See also* Richard A. Danner, *Defining a Profession: Some Initial Problems, in* ON THE EDGE: PROCEEDINGS OF THE SEVENTH ASIAN PACIFIC SPECIALS, HEALTH AND LAW LIBRARIANS' CONFERENCE 529 (1997).

The Information Professions

Librarians, together with information technologists and several other professional groups, make up what Andrew Abbott has called "the information professions." For Abbott, "groups that provide others with information [occupy] a general information area of the system of professions.... [I]n general, information professionals help clients overburdened with material from which thay [sic] cannot retrieve usable information."[14] Writers on the professions have identified the following representative information professionals: accountants, archivists, librarians, records managers, information systems analysts, management scientists, museum curators, publishers, and information scientists.[15] Richard O. Mason notes that, regardless of their area of specialization, all information professionals are mediators and have one purpose in mind: "to get the right information from the right source to the right client at the right time in the form most suitable for the use to which it is to be put and at a cost that is justified by its use."[16]

What distinguishes one information profession from the others? Abbott finds that, historically, there have been two general types of information professionals: those who work with qualitative information (an area generally occupied by librarians) and those who work with quantitative information (the domain of cost accountants, management engineers, statisticians, operations researchers, systems analysts, and others). He notes that the rapid development of computer technologies after the Second World War encouraged the development of "[a] sort of computer profession" involved in both the traditional qualitative and quantitative areas,[17] but presumably with greater affinities for the quantitative area.

As the development and growth of desktop and network computing technologies in the modern workplace have made nearly everyone in an organization dependent on a desktop computer to be productive, computing staffs have grown in size while becoming more active and visible as providers of user assistance and support. In this environment, distinctions among the tasks performed by members of traditionally separate information professions are often expressed in terms of whether the work primarily involves *information content* (the domain of librarians) or *the technologies used to communicate, access, or deliver information content* (the domain of technologists).[18] Librarians assist the user in determining where and how to search for information, while

14. ABBOTT, *supra* note 11, at 216.
15. *See* Richard O. Mason, *What Is an Information Professional?* J. EDUC. LIBR. & INFO. SCI., Fall 1990, at 122, 125; MICHAEL F. WINTER, THE CULTURE AND CONTROL OF EXPERTISE: TOWARD A SOCIOLOGICAL UNDERSTANDING OF LIBRARIANSHIP 3 (1988).
16. Mason, *supra* note 15, at 125.
17. ABBOTT, *supra* note 11, at 241.
18. See, for example, the perspectives of librarians and computing professionals on their common and specialized roles reported in the proceedings of a 1994 conference organized "to explore ways to move both professional groups through the present environment of turmoil and change to a more stable future:" "Library professionals are responsible for providing the infrastructure

technologists provide the means through which the search takes place and ensure that they work properly.

The distinction between content and access technologies may be helpful as a means for allocating support responsibilities within an organization, but it cannot be carried too far as a principle for provision of services. In a network environment where the computer is used for information-seeking and research as well as for other purposes, technologists may find themselves providing content assistance, while librarians may be asked for help with research and access technologies. Users in need of assistance cannot be expected to make these kinds of distinctions in an environment that is increasingly dependent on networked information and in which it is increasingly difficult to establish clear boundaries between information content and the technologies (such as the World Wide Web) that provide access to the content and make it useable.[19]

Information professionals in both groups may also find the distinction too limiting. A special librarian argues in terms that might well be employed by an information technologist:

> This distinction is false, misleading, and dangerous. It is false because content is meaningless until communicated; thus content and access technology are inextricably linked. It is misleading because it suggests that roles may be clearly confined based on this distinction. It is dangerous because it removes from our control some of the most important tools we have to do our fundamental job: connecting people with the information they need.[20]

Because of the wide diffusion in the workplace of both information technology and the skills necessary to use and develop it, the lines between content and access technologies are no longer as bright as they might have seemed in the past. As a result, the boundaries between the information professions are increasingly indistinct, and the content/access distinction can no longer provide the basis for differentiating among them. New relationships among the information professions are developing and will evolve in their common workplace. As they do, it

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that links the *content* of the information resources; computing professionals are responsible for the physical, technological infrastructure that *transmits* the information resources." Anne G. Lipow & Sheila D. Creth, *Preface* to BUILDING PARTNERSHIPS: COMPUTING AND LIBRARY PROFESSIONALS, at v, v–vi (Anne G. Lipow & Sheila D. Creth eds., 1995). The distinction is also referred to as "content v. conduit." *See* Larry Hardesty, *Library and Computer Center Relations at Smaller Academic Institutions*, LIBR. ISSUES: BRIEFINGS FOR FAC. & ADMINISTRATORS, Sept. 1997, at 1, 3.

19. "[Information technologists] are increasingly involved in information management and tend to approach information tasks without hesitation, regarding them as just another manifestation of the IT work they have always done.... The bottom line is that end-users do not care what department provides content and service. Whoever delivers what is needed gets the nod." Ulla de Stricker, *Marketing with a Capital S: Strategic Planning for Knowledge Based Services*, INFO. OUTLOOK, Feb. 1998, at 28, 29–30.

20. Susan Charkes, *Information Technology: Beyond the Toolbox*, 86 SPECIAL LIBR. 265, 266 (1995).

will become increasingly less useful for any group to justify its claims for jurisdiction on earlier understandings about allocations of responsibility.[21]

The following section discusses the dynamics of workplace relationships among professional groups from the perspective of the librarian's typical relationships with others in the workplace.

Librarians' Workplace Relationships

According to Abbott, professions seek recognition from society through claims for exclusive rights, or jurisdiction, over specific areas of work.[22] Claims of jurisdiction can be made by: (1) obtaining powers of licensing and regulation controlling who may perform the work; (2) building a public image associating the profession with the area of work; and (3) competing with other groups in the workplace itself for control. Because librarianship is not a regulated or licensed profession,[23] librarians must assert claims of jurisdiction in the arenas of public opinion and the workplace. Because they are members of only one of several information professions, librarians face competition over their claims of jurisdiction from other information specialists, as well as from other sources. This section looks at the librarian's workplace environment in terms of relationships with three groups: library users (clients), coworkers in the library, and other information professionals.

Relationships with Clients

Client relationships are central to success in any profession. Like other information professionals, librarians must know their clients well enough to be able to anticipate their information needs and to exercise judgment on their behalf. According to Mason, judgment is enhanced by the information professional's "intellectual empathy" with the client's needs and situation.[24]

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21. *See, e.g.*, Joanna OBrien, *Through the Looking Glass*, 4 AUSTRALIAN L. LIBR. 303, 305 (1996) ("Our fear is that [the information sector] is being hijacked by the information technologists, who know NOTHING about content or how it needs to be organized or how it is to be used."). An information technologist might be tempted to respond along the lines of a comment comparing New York City multimedia developers unfavorably to developers working in Silicon Valley: "In New York, 'content' always has been a euphemism for lack of technical knowledge." Gary Andrew Poole, *Dream On, Silicon Alley*, FORBES ASAP, Aug. 25, 1997, at 85, 86.
22. ABBOTT, *supra* note 11, at 59.
23. For an argument that librarians should be certified and licensed, see Bryan Carson, *Librarians Need Certification and Licensing*, AALL SPECTRUM, June 1997, at 13. For counter arguments, see John N. Berry, *"Professional" is Only a Label*, LIBR. J., July 1995, at 6, 6 ("To suggest that one must be licensed or certified to help people find and use information that they have paid for with their taxes is undemocratic and, thus, contrary to the public interest."). Andrew Abbott notes that "all the licensing in the world does not protect an occupation when new knowledge transforms the nature of its work, when other occupations take parts of its work away, when the capital requirements of its work gradually force it to be organized in different ways." Abbott, *supra* note 12, at 432.
24. Mason, *supra* note 15, at 130.

Abbott differentiates among librarians on the basis of what clientele they serve, noting that the work of academic and special librarians has generally been in workplaces shared with other professional groups, such as faculties, attorneys, and physicians.[25] As one result, academic and special librarians have long been engaged in interprofessional conflicts with other groups in the workplace. As Abbott puts it, this is at least in part because the "elite special librarians"[26] emphasize their own content expertise and skills in identifying what information is useful or relevant to solving a problem.

> The special librarians claimed that they knew the sources and means to find material that working professionals didn't have the time (and sometimes the ability) to find. They held further that "what you ought to know to solve a problem" could be better defined by a practical knowledge of what the sources make it possible to know than by a theoretical knowledge of what it is in principle necessary to know.[27]

But the decision about what information is relevant to a problem's solution "is a central part of the [client's] claim of professional jurisdiction." Therefore, as Abbott notes, "Deciding what is relevant information inevitably embroils the information client and the information professional." Because the "information professions are in some sense specialists in diagnosis [they] . . . represent a general threat to all professions," and are, *by definition,* involved in continuously negotiated and contested professional divisions of labor.[28]

The potentially transformational impacts of the Internet and the World Wide Web indicate that these sorts of conflicts are likely to intensify as technology becomes more and more important in all workplaces. Discussions of the impact of information technology on higher education often start with library analogies as they anticipate a greater role for individualized approaches

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25. ABBOTT, *supra* note 11, at 222. In a brief, but interesting, history, Abbott notes that "the disunity fostered by the variety of organizations for which librarians worked" has been a central problem in librarianship's development as a profession. Differentiation by library type also enters into discussions of librarianship's possibly changing orientation away from being a "service culture" toward what has been termed an "entrepreneurial, infotech culture." Sheila Bertram & Hope Olson, *Culture Clash*, LIBR. J., Oct. 15, 1996, at 36. The apparent shift to more entrepreneurial client relationships in librarianship is presumably driven by the activities of librarians in special and research libraries, not by those in public and school libraries.
26. ABBOTT, *supra* note 11, at 223. That group would certainly include law librarians.
27. *Id.* at 223–24. *See also* Ross Atkinson, *Library Functions, Scholarly Communication, and the Foundation of the Digital Library: Laying Claim to the Control Zone*, 66 LIBR. Q. 239 (1996). After defining his use of the term "information services" to include "especially libraries," Atkinson notes that "the fundamental purpose of all information services has always been, and will always be, to, reduce the time needed by individual client-users to gain access to that information they need to accomplish their personal or institutional work objectives." *Id.* at 241.
28. ABBOTT, *supra* note 11, at 223 (emphasis in original). In a column discussing competition for resources within organizations, Herbert White notes that special and academic librarians "need to understand . . . that their clients are not only their customers, but also their rivals." Herbert S. White, *The Perilous but Also Opportune Future for Special Librarians*, LIBR. J., Jan. 1996, at 59, 60.

to learning supported by library-like services.[29] Some forecast potential conflict between librarians and university faculties as instructional technologies become more important in higher education.[30]

The point to be drawn from this is that, at least in academic and special libraries, the relationship between librarians and clients is not purely one of service, but bears resemblance to relationships with other groups in the workplace. Interprofessional conflicts of various types are not a new phenomenon for librarians, nor are they likely to diminish in the future.

Relationships with CoWorkers in the Library

To compete in the arena of public opinion, a profession must establish a clear identity vis-a-vis other groups in the workplace.[31] Abbott notes that discourse about jurisdiction in the public arena is usually about discrete and homogeneous groups: in the public mind, the roles of doctors and nurses are clearly distinguished (nurses assist doctors). The same may be observed in the relationships among attorneys, paralegals, and law librarians in the legal workplace.[32]

According to Abbott, there is a "tremendous inconsistency between the public and workplace realities of professional life."[33] Discussions in the public arena do not usually acknowledge that on the job there might be significant overlapping in the tasks that members of individual groups perform. This can be observed both in the extent to which separate professions share tasks and in the degree to which nonprofessionals perform tasks that the public assumes are professional in nature. This process of knowledge transfer, called workplace assimilation, "reflects the actual complexity of professional life" in the workplace:

> If a professional is incompetent, organizational function demands that his or her work be done by someone else who is probably not officially qualified to do it. Or if there is too much professional work, nonprofessionals do it.... Subordinate professionals, nonprofessionals, and members of related, equal professions learn on the job a craft version of given professions' knowledge systems.... In the jurisdictional system of the

29. "[O]ne major reason why the characteristics of the Internet are so compatible with those of universities, is that some of the Internet's most significant capabilities resemble, and dovetail with, the capabilities of university research libraries." Neil Rudenstine, Remarks at the Harvard Conference on the Internet and Society, Cambridge, Mass. (May 29, 1996) (on file with author). *See also* Eli M. Noam, *Electronics and the Dim Future of the University*, 270 SCI. 247 (1995).

30. *See, e.g.*, David W. Lewis, *Traditional Reference is Dead, Now Let's Move on to Important Questions*, J. ACAD. LIBRARIANSHIP, Jan. 1995, at 10,12 (arguing that libraries' central place in development and spread of information technologies on university campuses will create conflicts with faculty who resist using communications and other technologies in instruction); RICHARD A. LANHAM, THE ELECTRONIC WORD: DEMOCRACY, TECHNOLOGY AND THE ARTS 121, 135 (1993) (noting that the library "seems a logical place" for renegotiation of the basic educational contracts between students, faculty, and the university).

31. ABBOTT, *supra* note 11, at 61.

32. *See* Shimpock, *supra* note 3, at 8.

33. ABBOTT, *supra* note 11, at 67.

> workplace, it is the real output of an individual, not his credentialed or noncredentialed status, that matters.[34]

These comments certainly resonate in the context of librarianship, where there is much blurring of boundaries between the work of professional and support staff, as evidenced by the difficulties that even regular library users often have in telling who is a librarian and who a clerk on the library staff,[35] and by the comments of library support staff members that their work is no different from that of the higher paid professional staff.[36] In larger libraries, it is probably more common for nonprofessionals to do specialized professional-level tasks than it is in smaller libraries, where professional librarians are often required to perform a wide range of professional and nonprofessional tasks.

Some also question whether, as librarians focus increasingly on management, they will lose touch with the traditional groundings of the profession. Mark Sandler notes that librarians have generally been able to distinguish themselves from other library workers on the basis of "their links to content and the broader principles underlying information services."[37] Sandler points out, however, that, as libraries have grown larger and more complex, the librarian's relationship to content and user service has been weakened. Librarians are increasingly unable to maintain control over the qualifications needed to perform library work, in part because information technology has challenged the traditional skill base of librarians. But Sandler also emphasizes the effects on librarianship of the societal trend toward "business models," which place greater premium on efficiency and cost-effectiveness than on traditional assumptions regarding the role of the library professional.[38]

Abbott notes that "[i]f the public knew the extent of workplace assimilation, it would profoundly suspect professionals' claims of comprehensive jurisdiction." He points out that "the central public argument [professionals

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34. *Id.* at 65–66.
35. *See* Herbert S. White, *Pseudo-Librarians and Semi-Teachers: Part 1*, 21 AM. LIBR. 103, 103 (1990) ("In academia, even highly educated faculty members consider student circulation clerks to be 'librarians.' Librarians are the people who work in libraries. Such is not the case in hospitals, where confusion between doctors, nurses, orderlies, and candy stripers is rare.").
36. For discussion of how these questions play out in the library workplace, see *Librarian and Support Staff Roles Need Clearer Definition*, LIBR. PERSONNEL NEWS, Sept.-Oct. 1995, at 3 (summarizing comments of Larry Oberg in the program, "Who's Who or Who's on First?: Defining the Role of Support Staff and Librarians," Association of College and Research Libraries National Conference, Pittsburgh, Pa., 1995).
37. Sandler, *supra* note 4, at 1.
38. *Id.* at 1. *See also* Sheila S. Intner, *The Good Professional: A New Vision*, AM. LIBR., Mar. 1998, at 48, 49. Intner does not appear to view these developments negatively, but does note their effects on paraprofessional library workers, citing the example of a paraprofessional cataloger who had noted "that her boss didn't do much real work anymore," because of increased managerial responsibilities. *Id.* Librarians' tendency to emphasize their managerial roles changes the dynamic of the relationship with other library workers: rather than seeing themselves as doing the same work as librarians for less pay, paraprofessionals may see themselves as doing professional work that librarians no longer do at all.

make] against workplace assimilation holds that subordinates lack the theoretical education necessary to understand and use what they know by assimilation."[39] As discussed later in the section entitled "Librarianship as a Profession," this argument may be difficult for librarians to make because librarianship does not have a fully articulated theoretical basis for the professional tasks that librarians either perform or control in the workplace.

Relationships with Other Information Professionals

The greatest threat to any profession's claim of jurisdiction over tasks in the workplace is competition from other professions. Disputes over jurisdiction can be settled in any of several ways, ranging from successful claims for full jurisdiction over an area of work (e.g., the licensing mechanisms that control the practice of law and medicine) to more limited settlement mechanisms that divide jurisdiction over segments of the area. Among the common mechanisms for resolving jurisdictional disputes are *subordination* (e.g., the formal relationship of nursing to medicine) and *division of labor* (e.g., the relationships among architects, engineers, and others in the design of buildings).

Between subordination and division of labor are two weaker and less stable forms of relationships between professions claiming jurisdiction in the same area of work: *intellectual jurisdiction,* in which one profession controls the cognitive knowledge of the area but shares practice with several competitors (e.g., the relationship in psychotherapy between psychiatry and psychologists, social workers, and the clergy); and *advisory jurisdiction,* a "weaker form of control," based on relationships between two professions already possessing independent jurisdictions of their own.[40]

As discussed previously, distributed computing and access to networked information have blurred the boundaries between librarians' and technologists' established jurisdictions in the information area. Neither librarians nor information technologists have subordinated the other group, and neither group has established intellectual jurisdiction over information provision. Nor is there a formal and stable division of labor. Rather, there seems to be in place the less stable relationship of advisory jurisdiction. Under advisory jurisdictions, "one profession seeks a legitimate right to interpret, buffer, or partially modify actions another [profession] takes within its own full jurisdiction."[41] As played out in the workplace, advisory jurisdictions might manifest themselves in open battles for turf, but are more likely seen in requests from one or the other group for improved communication, consultation, and coordination, either made directly from one group to the other, or through higher authority in the

39. ABBOTT, *supra* note 11, at 68.
40. *Id.* at 75.
41. *Id.*

workplace.[42] They also involve what Abbott calls "treatment substitution," which takes place when "a profession accepts another's diagnoses and perhaps treatments, while claiming to carry them out faster or more effectively than the other." Abbott, writing in the late 1980s, saw treatment substitution as the essence of the competition between librarians and computing specialists, with technologists arguing that "since computers can carry out information retrieval much faster than can the other technologies, specialists in the computer area should dominate the information area."[43]

For Abbott, an advisory jurisdiction is "the bellwether of interprofessional conflict" and can be "maintained only by constant attention."[44] Should we expect the current set of relationships between librarians and information technologists to continue indefinitely, or will one group eventually come to take precedence over the other in a more stable relationship?

Undoubtedly, a more stable relationship will develop. But it is unlikely that either librarians or information technologists will come to control the area either by subordinating the other group or by establishing intellectual jurisdiction. Reliance on either content or access—the traditional bases for distinguishing the two professions—will not establish jurisdiction in an evolving workplace environment where the boundaries between the two areas are increasingly less distinct. The following sections look at what might develop, starting with an examination of each group's development as a profession.

Librarianship as a Profession

Most writers on the subject of the professions would agree with Talcott Parsons that "the boundaries of the group system we generally call the professions are fluid and indistinct,"[45] as well as with his suggestion that there are several core criteria that distinguish professional work from the work of

42. Herbert White points out that these kinds of strategies might be particularly attractive to librarians. White notes that the 1995 Special Libraries Association Conference featured a program on getting along with computer systems people, then asks whether more computer and technology specialists are invited to speak at library conferences than librarians are asked to speak at meetings of computing specialists. "Does anyone think that computer systems people, or teachers, or professors, purchasing agents, or government officials have meetings on how to get along better with librarians?" White, *supra* note 28, at 60.
43. ABBOTT, *supra* note 11, at 224.
44. *Id.* at 76.
45. Talcott Parsons, *Professions*, *in* 12 INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL SCIENCES 536 (David L. Sills ed., 1968). *See also* MAGALI S. LARSON, THE RISE OF PROFESSIONALISM: A SOCIOLOGICAL ANALYSIS xi (1977) ("In fact, the professional phenomenon does not have clear boundaries.").

other occupations.[46] Parsons identified the following "core criteria": (1) a "requirement of formal technical training . . . giving prominence to an *intellectual* component," (2) the development of "skills in some form of its use," and (3) the means to ensure that professional competence "will be put to socially responsible uses."[47]

Following Parsons, this section examines the professional groundings of librarianship by applying the generally accepted functional characteristics of the professions under the three headings:

1. Knowledge—the intellectual component of professional work;
2. Skills or competencies—the practical application of professional knowledge; and
3. Shared values—the idea that professional work is done not only for profit, but for socially beneficial purposes.

Knowledge

Most writers on the professions acknowledge the need for the presence of academic or abstract knowledge in order for work to be considered professional. In the introductory essay to his collection on the history of American professions, Nathan O. Hatch defines the professions as occupations "based on a definable body of organized knowledge, an expertise that derives from extensive academic training."[48] In a recent work on the integrity of the professions, William Sullivan notes that the professions are typically characterized by "specialized training in a field of codified knowledge usually acquired by formal education and apprenticeship."[49] In discussing definitions of the professions, Andrew Abbott ultimately chooses "the very loose definition that

46. Many writers on the subject of the professions attempt to define the professions in terms of the distinguishing traits or characteristics of professional work, an approach attributed to Abraham Flexner's early twentieth-century studies of the medical profession. *See* Mason, *supra* note 15, at 123. Others take functional approaches, which concentrate on the societal roles of particular occupations and define them as professions based on the purposes to which the work of the profession is put. "A functional statement for a profession describes the kind of special knowledge it possesses and the purposes to which this knowledge is put. These purposes must include improving or empowering a class of people who are its 'clients.'" *Id.* at 123. According to Mason, a functional statement for information professionals (including librarians) might be: "Information professionals possess specialized knowledge about knowledge itself which they use to improve the intellectual state of people . . . information professionals empower their clients to understand and to know. . . ." *Id.* at 123–24. *See also* WINTER, *supra* note 15, at 42–44 for a discussion of functionalist approaches. In his 1968 essay in the *International Encyclopedia of the Social Sciences*, Talcott Parsons combined the two approaches in terms of what have been described as "functional characteristics." *See* WINTER, *supra* note 15, at 42 for a discussion of Parsons's combination of the traits and functionalist approaches.

47. Parsons, *supra* note 45, at 536. Later writers provide similar lists. Some note that most professions have degrees of independence or autonomy to regulate their affairs and define standards. *See, e.g.*, NATHAN O. HATCH, THE PROFESSIONS IN AMERICAN HISTORY 2 (1988).

48. HATCH, *supra* note 47, at 1–2.

49. WILLIAM M. SULLIVAN, WORK AND INTEGRITY: THE CRISIS AND PROMISE OF PROFESSIONALISM IN AMERICA 2 (1995).

professions are exclusive occupational groups applying somewhat abstract knowledge to particular cases."[50]

For Abbott, the characteristic of "abstraction" is what sets the professions apart from other occupational groups. As he points out, "control of an occupation lies in control of the abstractions that generate the practical techniques"[51] The techniques may be delegated to others, but "only a knowledge system governed by abstractions can redefine its problems and tasks, defend them from interlopers, and seize new problems. . . . Abstraction enables survival in the competitive system of professions."[52]

The Knowledge Base of Librarianship

Larry Ostler and Therrin Dahlin note that Melvil Dewey, who is generally considered to be the dominant figure in establishing librarianship as a profession, had little interest in the theoretical issues of librarianship. In the late nineteenth century, they argue, American higher education in general responded to the industrial revolution by emphasizing practical training to increase productivity.[53] Dewey followed suit and as a result:

> library education moved ahead with the accepted practice of its time without first getting its theoretical bearings. As long as the social and economic conditions remained the same, the profession would enjoy some degree of success and acceptance; *but if conditions were to change, there was no unified body of theory to provide "conceptual lenses" to look at a completely new set of problems and suggest ways to deal with them.*[54]

Of course, conditions did change. As information grew in quantity and complexity, "the industrial solutions to organizing and storing information, developed by Melvil Dewey and others . . . did not scale well."[55]

Today, of course, the challenges that widespread diffusion of information technology and access to information pose for users of information and for librarianship as a profession are of much greater magnitude than those posed simply by increases in the quantity of available information. Does librarianship have a critical base in theory to help deal with these challenges?

In their review of the theoretical underpinnings of librarianship, Ostler and Dahlin discuss the question raised by Sidney Pierce in a 1992 *American*

50. ABBOTT, *supra* note 11, at 8.
51. *Id.*
52. *Id.* at 9.
53. Larry J. Ostler & Therrin C. Dahlin, *Library Education: Setting or Rising Sun?* 26 AM. LIBR. 683 (1995).
54. *Id.* at 683 (emphasis added).
55. Lewis, *supra* note 30, at 10. Lewis also notes that this created the need for reference service in libraries to assist users unable to deal with the information or the complexities of card catalogs and other finding aids: "Reference service was begun and has survived, even with its failings, because reference librarians are sympathetic, understand the difficulties of using paper libraries, and are generally helpful in overcoming them." *Id.* at 11.

Libraries article:[56] "Where are the 'Dead Germans' of librarianship?"[57] Pierce compared the lack of theoretical underpinnings in librarianship to sociology, a discipline in which graduate students take a basic theory course requiring them to read the classic works of the field. The course is often called "Dead Germans," and for Pierce, "Dead Germans" is what sociology students have in common: "a common body of theory shaping the intellectual traditions of the field."[58] Pierce notes that the library curriculum has plenty of courses on current trends, but few on reading the classic works of the field. Does librarianship have seminal thinkers? Pierce thinks so and a sidebar to her article surveys current library educators for their examples.[59] But Ostler and Dahlin ask, if librarianship has important thinkers, "why are we floundering without adequate theory to direct library education successfully into the next century?" They answer that the "more penetrating theoretical thinkers were not listened to or nurtured in any significant way.... Perhaps because we have ignored some of our deeper thinkers over the years, we now find ourselves without a unifying vision of who we are and where we are going as a profession."[60]

Others have focused less on defining an abstract knowledge base for librarianship than on identifying specific elements of the knowledge that characterizes and distinguishes the librarian's work. Mark Sandler found that the job qualifications distinguishing librarians from other library workers are largely knowledge-based, including: understanding the principles of bibliographic organization and having an in-depth knowledge of information tools.[61]

A similar approach was taken in the final report of AALL's Special Committee on the Renaissance of Law Librarianship, which discusses professional knowledge within the context of the mission of law librarianship: "to serve the information needs of the legal profession and the legal information

56. Sidney Pierce, *Dead Germans and the Theory of Librarianship*, 23 AM. LIBR. 641 (1992).

57. Ostler & Dahlin, *supra* note 53, at 683. *See also* Jim Zwadlo, *We Don't Need a Philosophy of Library and Information Science—We're Confused Enough Already*, 67 LIBR. Q. 103 (1997). Zwadlo notes that, for librarianship, "obtaining a philosophy is something like borrowing a book from our libraries. But, like the borrowed books, the borrowed philosophies do not really belong to us, always seem to need to be renewed, and we end up returning them, only to borrow others." *Id.* at 105.

58. Pierce, *supra* note 56, at 641.

59. Among the librarian names suggested (some dead, some living): Lester Asheim, Ralph Beals, Pierce Butler, Thomas Childers, John Cotton Dana, Antonio Panizzi, Edmund Lester Pearson, Lawrence Clark Powell, Herbert Putnam, Ralph Shaw, Jesse Shera, Louis Round Wilson, and Patrick Wilson. *See id.* at 643.

60. Oster & Dahlin, *supra* note 53, at 684. Others have a less pessimistic view. *See, e.g.*, Woodsworth, *supra* note 7, at 42 (arguing that librarianship has "a healthy theoretical and research knowledge base, sufficient to provide the needed underpinnings for doctoral-level programs [in schools of library and information studies]"). The profession is also not ignoring the importance of research, as evidenced by the efforts of professional associations, such as the Special Libraries Association and the American Association of Law Libraries, to establish research agendas and to provide research grants, prizes, and other encouragements.

61. Sandler, *supra* note 4, at 1.

needs of the public."[62] The report lists eight elements essential to the knowledge base of the profession. To be effective, law librarians must (1) have a solid grounding in the liberal arts; (2) understand the legal system and legal profession; (3) be well informed about information and library science theory; (4) be knowledgeable about legal resources and legal research; (5) be well informed about commercial, governmental, and nonprofit information providers, including Internet sources; (6) be knowledgeable about information technologies; (7) be well versed in the culture and likely future of the organization in which they work; and (8) be well versed in management and administration.[63]

The report suggests that the knowledge base can be expected to change in response to changes in the information environment *as new technologies grow in importance,* and suggests specific areas where this will happen: library selectors will need to be knowledgeable about many more sources of information; acquisitions librarians will need to know how to choose among such alternative information formats as hard copy, microform, CD-ROM, online, video, and multimedia; reference librarians will play greater roles as information analysts, establishing profiles of individual users' information needs and providing information filters for their clients; catalogers will need to organize access to a new variety of information sources, including materials that the library may not own; and administrators will need to negotiate new kinds of contracts and licenses, maintain different kinds of accounting records, seek alternative sources of support and funding, and be prepared to market library services in the face of new kinds of competition.

These changes, all of which arguably stem from the growing role of technology in librarians' work, will expand the knowledge base required to succeed in the profession, and will perhaps alter the list of most desirable traits and characteristics of persons wishing to work as law librarians.

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62. *Toward a Renaissance in Law Librarianship: Report of the AALL Special Committee on the Renaissance of Law Librarianship in the Information Age, in* TOWARD A RENAISSANCE IN LAW LIBRARIANSHIP 3, 8–9 (Richard A. Danner ed., 1997) [hereinafter RENAISSANCE REPORT].

63. *Id.* at 9–10. The Renaissance Report does not ask who are the dead Germans of law librarianship. Nor does it argue that there is an agreed upon body of knowledge for our special area of librarianship. If there were, what would it be? For attorneys, it is the law; for physicians, it is medicine. Is there a similar definable area in which law librarians can claim professional primacy? Is it legal research? Attorneys, paralegals, and others perform legal research as well, and might not readily yield the terrain to law librarians. Remember, too, that legal research can be defined as a process, only part of which involves the kinds of "library research" with which law librarians are normally involved. *See* CHRISTOPHER G. WREN & JILL ROBINSON WREN, THE LEGAL RESEARCH MANUAL 29–32 (2d ed. 1986). Clearly, the activities of locating and selecting documents needed for a research problem can be segmented from a larger legal research process that includes everything from fact-gathering to analogical reasoning to creating work product in the form of a brief, law review article, or judicial opinion. Also, if legal research is our area of expertise, must it be mastered by everyone currently defined as a law librarian? Does it exclude current law librarians who are neither law-trained or who have not studied legal research? Are law librarian cataloging specialists librarians, but not *law* librarians?

Obtaining Professional Knowledge

How is professional knowledge obtained and developed? For most professions, the university is the principle seat of training.[64] Academic professional knowledge "legitimates professional work by clarifying its foundations and tracing them to major cultural values."[65] But, is a degree in the field the only way to obtain professional knowledge? Can the knowledge required to work as a professional be gained through appropriate work experience and self-study without formal education? Historically, this has certainly been the case. In law, for example, before the juris doctor degree gained full acceptance as a requirement for licensing, prospective lawyers read law while learning from experienced practitioners prior to attempting the bar examination.

According to a 1996 survey, 85 percent of AALL members hold the M.L.S. degree.[66] The question of whether the M.L.S. should be required of everyone working as a law librarian was debated via e-mail in the spring of 1997 on the law-lib listserv.[67] The listserv exchanges were perhaps more notable for the number of comments arguing that the M.L.S. degree was not essential to perform professionally as a law librarian than for persuasive arguments that the degree should be required for all librarians.[68] The most insightful comments came near the end of the exchanges, from a librarian (with the job title of information resources manager for her law firm) who noted that her profession was not "law librarianship," but "librarianship," and the fact that law librarians without the M.L.S. would have only limited career opportunities beyond law libraries. "The MLS indicates that those who have earned it are Librarians in the broadest sense, not the narrowest, and that their theoretical knowledge and practical skills and experience should be transferable to any environment."[69]

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64. *See* Laurence Veysey, *Higher Education as a Profession: Changes and Continuities, in* HATCH, *supra* note 47, at 16; SULLIVAN, *supra* note 49, at 159.
65. ABBOTT, *supra* note 11, at 54. According to Abbott, for most professions, these cultural values are those of rationality, logic, and science. *Id.*
66. AM. ASS'N L. LIBR., 1996 SURVEY OF MEMBERS REPORT OF RESEARCH 19 (1996) [hereinafter AALL MEMBERSHIP SURVEY].
67. LAW-LIB DISCUSSION LIST. Available e-mail: law-lib@ucdavis.edu. The exchanges culminated in a pair of *AALL Spectrum* articles published under the heading: "Librarian: Who's Entitled to the Title?" *See* Janet Reinke, *Should Librarians Have the MLS Degree?* AALL SPECTRUM, June 1997, at 12; Carson, *supra* note 23. For a perspective from outside law librarianship, see Kathleen Low, *Confessions of an M.L.S. Librarian*, 25 AM. LIBR. 882 (1994).
68. Some participants, however, noted the importance of professional education in helping M.L.S. holders understand the place and role of libraries in society, preparing new librarians for their first positions, and providing a context for librarians' specialized work.
69. Lee Nemchek <lnemchek@mofo.com>, Re: Librarian Credentials, April 25, 1997, <LAW-LIB@ucdavis.edu> (on file with author). These comments echoed those in an earlier message arguing against certification of law librarians: "Certifying someone as a law librarian simply because they work in a law library will never be a valued activity." J. Lamar Woodard <woodard@hermes.law.stetson.edu>, Re: Librarian Credentials—Reply, April 24, 1997, <LAW-LIB@ucdavis.edu> (on file with author). Certification may make sense only at the professional level, not for specializations within a larger profession.

What about degrees in other fields? Law librarianship has itself had many distinguished practitioners and leaders who held professional degrees in law, but not in librarianship. In her "revisionist" history of American law librarianship, Christine Brock provides a number of examples of law librarians expressing preferences for law training over training in librarianship,[70] including a 1957 comment from an academic law library director, stating her "own feeling that the less library science you have here [in a library of fewer than 100,000 volumes], the better. It will only foul things up."[71] Brock argued that the survival of this attitude among law librarians resulted in isolation from the general developments in knowledge and practices of librarianship. As an example she noted that, when she wrote in 1974, law libraries were still struggling with problems of classification "long after everyone else has dealt with it and moved on."[72] As Brock noted, too, the divisions over the relative importance of law and library education made it difficult for law librarians to define and identify themselves as a profession.[73]

Yet, the influence of law-trained librarians on the development of the profession led ultimately to law librarianship's emergence as a clearly identifiable specialization within librarianship, and to the early development of specialized programs in education for law librarianship,[74] many of which continue today.

At the present time, when 85 percent of AALL members hold library degrees, questions about the value of law training are less likely to arise in an either/or context than in discussions of whether the law degree is a necessary *additional* qualification. In the late twentieth century, the more likely question in law libraries, as well as other libraries, is whether subject knowledge from other information fields, such as computer science or electrical engineering, should be allowed to substitute for the M.L.S. in defining a librarian.[75]

However professional knowledge is obtained by particular individuals, the

70. Christine A. Brock, *Law Libraries and Librarians: A Revisionist History; or More than You Ever Wanted to Know*, 67 L. LIBR. J. 325, 353–55 (1974).

71. *Id.* at 353 (quoting the remarks of Harriet L. French, law librarian at the University of Miami Law School, at an AALL annual meeting panel discussion on education for law librarianship).

72. *Id.* at 354.

73. *Id.* at 354–55.

74. *Id.* at 357.

75. Librarianship is the "chief exception" among the information professions in having a single degree requirement—the ALA-accredited M.L.S.—as a nearly essential credential for initial employment and job mobility. Thomas J. Galvin, *Convergence or Divergence in Education for the Information Professions: An Opinion Paper*, BULL. AM. SOC FOR INFO. SCI., Aug./Sept. 1995, at 7, 8. *But see* Abbott, supra note 12, at 441 ("Like engineering, [librarianship] has also always involved multiple types of credentials, accepting not only its own several levels of credentials but also the credentials of other fields."). The recent report of the AALL Special Committee on the Renaissance of Law Librarianship, however, defines the term "law librarian" to include "any individual whose primary career is to work with legal information sources of any type in any way and to provide those sources for use by others," whether or not an individual holds the usual credential of a librarian: the M.L.S. degree. RENAISSANCE REPORT, *supra* note 62, at 14.

existence of a body of knowledge is essential for any group wishing to be recognized as a profession.

Skills

Abstract and academic professional knowledge legitimizes a profession to outsiders and provides the basis for the training of practicing professionals. However, according to Abbott, professional knowledge in academia exists in "a peculiarly disassembled state that prevents its use,"[76] while in the workplace, "theoretical education . . . is often irrelevant to practice."[77] In practice, professionals and clients alike are more likely to be concerned with whether a practitioner has the current skills or competencies needed to serve the client's needs than with the practitioner's academic knowledge base.

What is the relationship, then, between knowledge and skills? The dean of the University of California-Berkeley's School of Information Management and Systems (SIMS) provides a simple distinction.[78] *Knowledge* is something that will be useful to students throughout their careers. Thus, in the SIMS program, knowledge is conveyed through conventional semester-length courses. *Skills,* on the other hand, are more ephemeral than knowledge: they are "things that everyone knows will be replaced by something different down the road." As an example, Varian notes the shifting levels of demand for training in Web applications from HTML to Java to newer Java development tools. In order to maintain flexibility and responsiveness, skills such as these will be taught in the new Berkeley program through one- or two-day short courses.

William M. Sullivan, however, sees a more complicated relationship between abstract professional knowledge and the practical knowledge or skills needed to practice the profession. Following the work of Donald Schon, Sullivan argues that "the full dimensions of expertise are only revealed when a professional must respond to new, less defined situations." For Sullivan, the "good practitioner" in such situations operates reflectively, reopening "communications between the technical and the practical dimensions of expertise" and thereby reconnecting abstract and practical professional knowledge.[79]

It is common, in a time when the technologies we rely upon in daily professional life are frequently altered or "upgraded," to speak of the need to maintain and enhance our sets of professional skills. The development of highly specialized skills is by itself not enough to establish professional status,

76. ABBOTT, *supra* note 11, at 53.

77. *Id.* at 68. In a more recent article, Abbott notes the extent to which professionals now train their successors within the commercial organizations for which they work and that "there is no guarantee that this training will take place in the free and open university context." Abbott, *supra* note 12, at 440.

78. *See* Hal R. Varian, *The Next-Generation Information Manager*, EDUCOM REV., Jan./Feb. 1997, at 12, 14.

79. SULLIVAN, *supra* note 49, at 175.

because specialization in work is not limited to the professions. Laurence Veysey notes that the specialization of the professions is "of a kind that seems intricate and somewhat intellectually interesting, often awesomely arcane to outsiders, and which it requires a long time to acquire."[80] He uses the automobile assembly line worker as an example of a highly specialized, but nonprofessional occupation.[81] In another automotive analogy, Abbott notes that, despite their specialization, automobile mechanics remain nonprofessionals because they do not have the abstract knowledge of the engineering profession.[82]

Knowledge and Skills

The literature of librarianship frequently focuses on skills or competencies, usually with the aim of identifying the competencies that librarians will need for success in the future.[83] Two comprehensive recent efforts are the list of "Competencies for Special Librarians of the 21st Century," prepared by a special committee of the Special Libraries Association[84] and the discussion of law librarian "traits, attitudes and skills" in the final report of the AALL Special Committee on the Renaissance of Law Librarianship in the Information Age.[85]

The SLA report defines competencies broadly as "the interplay of knowledge, understanding, skills, and attitudes required to do a job effectively,"[86] in order to show the interrelationships between knowledge, skills, and other characteristics. *Professional* competencies are most closely connected to the special librarian's knowledge base "in the areas of information resources, information access, technology, management, and research," while *personal* competencies "represent a set of skills, attitudes, and values that enable librarians to work effectively. . . ."[87] Professional competencies include such things as expert knowledge of the content of information resources; specialized subject knowledge appropriate for the organization or client; use of appropriate technologies to acquire, organize, and disseminate information; ability to evaluate outcomes and conduct research; and participation as an effective member of the senior management team of the organization.[88] Personal com-

80. Veysey, *supra* note 64, at 15.
81. *Id.*
82. ABBOTT, *supra* note 11, at 9.
83. This literature often demonstrates the conceptual difficulties involved in distinguishing clearly among knowledge, skills, and values, not to mention competencies, traits, and attitudes. *See, e.g.*, Anne Wordsworth, *The Dean's List: New Library Competencies*, LIBR. J., May 15, 1997, at 46; Marydee Ojala, *Core Competencies for Special Library Managers of the Future*, 84 SPECIAL LIBR. 230 (1993).
84. The list, along with supplementary materials, is in COMPETENCIES FOR SPECIAL LIBRARIANS OF THE 21ST CENTURY 11–16 (Barbara M. Speigelman ed., 1997), *available in Special Libraries Association* (visited May 27, 1998) <http://www.sla.org.professional/comp> [hereinafter SLA COMPETENCIES].
85. *See* RENAISSANCE REPORT, *supra* note 62, at 10–13.
86. SLA COMPETENCIES, *supra* note 84, at 7.
87. *Id.* at 10.
88. *Id.* at 11–13.

petencies include commitment to excellent service, interest in seeking out challenges and new opportunities, effective communications skills, the ability to both provide leadership and work in teams, personal business skills, flexibility, etc.[89]

The report of the AALL Renaissance Committee begins with the premise that the primary activities of law librarians are format- and medium-neutral. Despite changes in how legal information is published, law librarians will continue to acquire, organize, retrieve, preserve, and disseminate information, and assist users in retrieving and using it.[90] To be able to work successfully in a changing information environment, however, law librarians will need to have personal competencies similar to those outlined in the SLA report. Law librarians will need to be versatile, creative, adaptable, flexible, and comfortable with change. They will need to be skilled and articulate instructors, able to work collaboratively within both the library and their larger organization, and able to show equanimity in the face of the frustrations of a rapidly changing work environment.[91] Indeed, as the report puts it, the overarching characteristic of the model law librarian in the information age will be "reveling in change."[92]

The reports of both professional organizations place their highest emphasis on personal competencies that can be applied in a variety of work settings. Changes in technology will transform not only the specifics of the librarian's skill set, but the library work environment. In a changing work environment, the successful and effective professionals will be those with the personal skills to adapt and deal with change.[93]

Skills and Values

It is worthwhile for librarians and other information professionals to examine the relationships between professional skills and values expressed in the report of the ABA Section on Legal Education and Admissions to the Bar Task Force

89. *Id.* at 13–16.

90. RENAISSANCE REPORT, *supra* note 62, at 4. A similar perspective is expressed in Eric Cooper, *The Indispensability of Law Librarians in Tomorrow's Electronic Environment*, TRENDS L. LIBR. MGM'T & TECH., Mar./Apr. 1997, at 1.

91. RENAISSANCE REPORT, *supra* note 62, at 11–12.

92. *Id.* at 11.

93. The importance of personal traits is also emphasized in recent articles by Jose-Marie Griffiths and Sheila S. Intner. Griffiths identifies five characteristics that are key to professional success: to be able to guide in the face of an uncertain future; to be able to collaborate; to be able to prioritize and recognize when priorities need to change; to be able to empower others; and to understand the core capabilities of the organization. Jose-Marie Griffiths, *The New Information Professional*, BULL. AM. SOC. FOR INFO. SCI., Feb./Mar. 1998, at 8, 8–9. Intner suggests that the effective twenty-first-century professional will get the most patron service for the library's buck; act objectively; shoulder responsibility; keep an open mind; welcome learning from others; seek new ideas; read widely; want to experiment; empower staff; and inspire trust. Intner, *supra* note 38, at 49.

on Law Schools and the Profession, best known as the MacCrate Report.[94] Perhaps most important is the task force's approach to the problems of maintaining "the traditional vision of law as a unitary profession whose members share a common calling," while acknowledging "the phenomena of specialization and division of labor."[95] These are key problems for librarianship as well. The MacCrate Report resolves the dilemma by linking a comprehensive skills list to "fundamental values of the profession,"[96] which "inform and shape the lawyer's use of professional skills."[97] Shared values, therefore, will sustain a unified profession even if a high degree of specialization differentiates the actual work performed by its practitioners.

The MacCrate Report also acknowledges specialization in its recognition that lawyers often work in concert to resolve problems. Not every lawyer will possess every identifiable professional skill, but that is of less importance "so long as the team as a whole can mobilize and effectively apply the full range of skills and values in representing a client and making professional judgments."[98] This approach, too, is applicable to a highly specialized profession like librarianship: presumably, if the staff of the Duke University School of Law Library possess the full range of skills needed to fulfill the library mission, it doesn't matter how skilled the director is at Web searching or at cataloging a book.

Thus, while there may be value in compiling comprehensive lists of professional skills, it is not necessary to insist that all librarians possess the full set, as long as the skills they do possess are underpinned by a shared set of values. A perspective that places greater emphasis on shared professional values than on lists of skills allows the profession to grow and develop, and to create new relationships with other groups. In this light, it is worth noting that the list of skills and values in the MacCrate Report was not meant to be definitive, but to facilitate a process of discussion in all sectors of the profession.[99]

Shared Values

The MacCrate Report identifies four fundamental values of the legal profession: provision of competent representation; striving to promote justice, fairness, and morality; striving to improve the profession; and professional self-

94. LEGAL EDUCATION AND PROFESSIONAL DEVELOPMENT—AN EDUCATIONAL CONTINUUM: REPORT OF THE TASK FORCE ON LAW SCHOOLS AND THE PROFESSION: NARROWING THE GAP (1992). The MacCrate Report notes that, despite its focus on skills and values, the task force did not mean to downplay the importance of substantive knowledge in the practice of and training for the legal profession. It simply notes that this is a distinct issue. *Id.* at 125.
95. *Id.* at 124.
96. *Id.* at 140–41.
97. *Id.* at 124.
98. *Id.* at 125.
99. *Id.* at 124.

development.[100] A recent president of the American Bar Association has defined professionalism in law largely in terms of values, noting that lawyers practice their profession "as part of a common calling to promote justice and public good."[101] For him, the defining elements of professionalism are fidelity to ethics and integrity; service with competence, dedication, and independence; education as a means for growth and replenishment; civility and respect for authority; and commitment to improving the justice system and advancing the rule of law.

In librarianship, discussions of professional values often begin with the Five Laws of Library Science set out by the Indian librarian, S. R. Ranganathan.[102] Ranganathan's principles are captured in five brief statements: "Books are for use"; "Every reader his (or her) book"; "Every book its reader"; "Save the time of the reader"; and "The library is a growing organism."

In an eloquent commentary on professional philosophy written while he served as AALL president, Morris Cohen cited Ranganathan's laws for both their brevity and their wisdom, noting that "One could spend many hours pondering the implications of these brief aphorisms."[103] More recent writers have studied Ranganathan's insights and attempted to update them for the changing environment in which librarians now work. Michael Gorman has offered "Five New Laws of Librarianship,"[104] some of which are colored by Gorman's concerns about the uncritical adoption of information technologies in libraries.[105] Others are useful statements of the values of the profession, e.g.: service "both to the individual seeker of truth and to the wider goals and aspirations of the culture"; protecting free access to knowledge; and preservation " not only of the best of the past but also a sense of the history of libraries and of human communication."

In a brief article deserving of wider circulation, Richard Leiter has elaborated upon Ranganathan's laws to show the practical implications of values and principles in the daily work of librarians.[106] He notes ways in which such library practices as limited access to special collections, off-site storage, and licensing of materials in formats available only to designated classes of users

100. *Id.* at 140–41.
101. Jerome J. Shestack, *President's Message: Defining Our Calling*, A.B.A. J., Sept. 1997, at 8, 8.
102. S. R. RANGANATHAN, FIVE LAWS OF LIBRARY SCIENCE (1931).
103. Morris L. Cohen, *President's Page: Toward a Philosophy of Law Librarianship*, 64 L. LIBR. J. 1, 1 (1971).
104. Michael Gorman, *Five New Laws of Librarianship*, 26 AM. LIBR. 784 (1995) (published in slightly modified form in CRAWFORD & GORMAN, *supra* note 7, at 7–12).
105. For example, one of Gorman's laws calls for respecting all forms (actually formats) by which knowledge is communicated and for applying cost-benefit analysis when choosing between newer and older communications technologies, Gorman, *supra* note 104, at 784; another directs librarians to "use technology intelligently," *Id.* at 785. While both points are valid, they seem not to be of the same order of value as the other principles he sets forth.
106. Richard Leiter, *The Five Laws of Library Science*, LEGAL ASSISTANT TODAY, Nov./Dec. 1996, at 72.

violate Ranganathan's first principle: Books are for use. Leiter also makes clear that "Every reader his (or her) book" and "Save the reader's time" are about "the fundamental issue of access" to information. In his discussions of those laws, he identifies the things that librarians do to ensure access (employ standard classification systems; shelve materials in open stacks; provide reference service, handbooks, and guides for library users; maintain set convenient hours, etc.). Noting that his favorite of Ranganathan's laws is the fifth—"The library is a living organism"—Leiter makes the point that, while specialization is necessary to allocate work among library departments and among staff, each specialized function must be performed in order for the library to fulfill its mission. This is an argument for the ultimate unity of the profession despite the inevitability of specialization.

Law librarianship's principal writings on professional values are Morris Cohen's previously cited thoughts on the fundamental principles of law librarianship, and his later article, "Tradition and Change in Law Library Goals," which examines the sometimes contradictory influences of both tradition and change on law librarians' professional work and goals, and concludes with a statement of general goals common to law libraries of all types.[107]

In his earlier article, Cohen begins by listing Ranganathan's laws, but relies more on the thinking of the English librarian D.J. Foskett than on Ranganathan. He concludes with his own list of six principles for law librarianship.[108] The first two principles state the importance of knowing and carrying out the purposes and policies of the organization a law librarian serves, as well as knowing the library's users and their work. The third states the case for the law librarian's role as teacher of legal bibliography and research methodology.

The final three principles are more concerned with values. Cohen's fourth principle focuses on access to information. Starting from Foskett's point that librarians are not the owners of knowledge, but its guardians, Cohen states the principle that law librarians must not only provide but *assure* access to the information they collect and administer. The librarian has to be conscious of both administrative and bibliographic issues of access, and (using today's terminology) must be proactive in both areas. The fifth principle highlights the librarian's responsibility for developing and organizing a law library's collections, noting that the responsibility must be exercised consciously and with critical intelligence. The final principle states the duty of law librarians to advance their art and profession through scholarship and innovation.

Professional values are also a focus of the AALL Renaissance Committee report, which notes that subscribing to a set of essential values or principles is necessary for accomplishing the mission of the profession. As a contemporary

107. Cohen, *supra* note 103; Morris L. Cohen, *Tradition and Change in Law Library Goals*, 75 L. LIBR. J. 192 (1982).

108. Cohen, *supra* note 103, at 4.

statement of professional values for law librarianship, the Renaissance Committee list includes:

- Genuine belief that the world is a better place when people and institutions have optimum access to information;
- Faith that the world is also a better place when the rule of law prevails;
- Conviction that serving the information needs of the legal profession is a noble calling;
- Belief that democracy is the best political order;
- Conviction that an effective democracy requires ready public access to law;
- Opposition to censorship;
- Commitment to fostering the equal participation of diverse peoples in library services and library employment, especially those who have been previously excluded or marginalized.[109]

This list, too, fits well with Lee Finks's point that professional values:

> represent a level in our belief system that is deeper and more substantial than mere attitudes, or hunches, or opinions—a level that is less influenced by time and circumstances, one that is concerned more with ends than with means. . . . The value of values . . . is that they point us toward what is important and worthy in the long run, and lift us out of our preoccupation with the mundane and bureaucratic.[110]

Computing Professions

In his book on librarianship as a profession, Michael Winter notes that, as a group, the information professions have only recently developed such distinctly modern characteristics of the professions as university training, professional associations, licensing procedures, and codes of ethics.[111] Even more than librarianship, the computing professions can be seen as what Winter and others would characterize as "emerging" professions. Abbott traces the beginnings of the computing profession to World War II.[112] Others, too, have noted how quickly computing "emerged" as a field and as a profession: "as soon as computer technology was developed, it was recognized as marketable, useful for individuals (at the corporate level) and vital for the military. Overnight the elements of a profession were in place."[113]

Some observers have pointed out similarities between computing professionals and librarians. At least one study of librarians' personality types, using

109. RENAISSANCE REPORT, *supra* note 62, at 9.
110. Lee W. Finks, *Values without Shame*, 20 AM. LIBR. 352, 352 (1989).
111. WINTER, *supra* note 15, at 3.
112. ABBOTT, *supra* note 11, at 241. *See also* Peter J. Denning et al., *Computing as a Discipline*, COMM. ACM, Jan. 1989, at 9, 16.
113. Lisa M. Newton, *Lawgiving for the Professional Life: Reflections on the Place of the Professional Code*, BUS. & PROF. ETHICS J., Fall 1981, at 41, 45.

Myers Briggs indicators and other data, found that computer professionals, electrical engineers, and librarians shared prominent personality types.[114] Tom Davenport, of the University of Texas business school, suggests that the two groups also may have common problems: "Many [librarians] like books more than people, just as some of us prefer computers to humans. Studies . . . suggest that bosses of corporate librarians don't have a good understanding of what librarians do. IS types also have that problem. Both librarians and IS people are somewhat passive, waiting for someone to ask for the information they provide."[115]

One could also note the apparent vulnerability of some segments of each group to having their services outsourced by their parent organization,[116] and difficulties in establishing standards for professional recognition.[117]

But there are differences. Librarianship remains a female-dominated profession, at least in numbers.[118] On the other hand, the stereotypical information technologist continues to be male. A recent survey of network managers found

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114. *See* Mary Jane Scherdin & Anne K. Beaubien, *Shattering Our Stereotype: Librarians' New Image*, LIBR. J., July 1995, at 35, 37. Mary Jane Scherdin conducted her own study of librarian personality types, then compared her results to studies of other occupational groups. She found that for librarians and members of the professions noted, the two most common Myers Briggs types were ISTJ (Introverted/Sensing/Thinking/Judging) and INTJ (Introverted/Intuitive/Thinking/Judging). An earlier study of special librarians also found ISTJ and INTJ to be most common. *See* Tobi A. Brimsek & Dolores Leach, *Special Librarians to the Core: Profiling with the MBTI*, 81 SPECIAL LIBR. 330 (1990). Others report that MIS personnel are more likely to be "Perceptive" than "Judging" on the Myers Briggs scale. *See* Lynne Davis-Gabriel, *Library/MIS Communication: Results of a Survey*, TRENDS L. LIBR. MGMT. & TECH., Feb.1996, at 1,4. *See also* Bryce Allen, *Academic Information Services: A Library Management Perspective*, 43 LIBR. TRENDS 645, 654 (1995) (reviewing studies of both groups and concluding that librarians should be able to "collaborate well" with technologists).

115. Tom Davenport, *Management Agenda: Learning From The TV Set*, INFO. WK., Sept. 25, 1995, at 130, 130.

116. *See, e.g.*, Emily Kay, *Holy Help Desk! Outsiders to the Rescue*, INFO. WK., Jan. 22, 1996, at 48. For a discussion of outsourcing in corporate libraries, see Gloria Dinerman, *The Angst of Outsourcing*, INFO. OUTLOOK, April 1997, at 21. On outsourcing in law libraries, see Janis L. Johnston, *Outsourcing: New Name for an Old Practice*, 88 L. LIBR. J. 128 (1996); Donna Tuke Heroy, *Outsourcing Library Services: Death Knell for the Profession or An Idea Whose Time Has Come?* 26 AALL NEWSL. 381 (1994). *See also* materials cited in AM. ASS'N L. LIBR., LAW LIBRARIES IN THE INFORMATION AGE: A SELECTED AND ANNOTATED BIBLIOGRAPHY 6–9 (n.d.) (distributed as part of the kit: *Law Librarians Making Information Work*).

117. *See* Ron Foyer, *A Few Reasons Why There is No IS Profession*, COMPUTING CANADA, June 20, 1996, at 11, 11 ("I am sure there is no one in this [information technology] industry who does not know someone who does the same work as people with a Computer Science degree and at a comparable level of quality."). For discussions of credentialing of law librarians, see *President's Briefing: Law Librarian Competencies*, AALL SPECTRUM, Apr. 1998, at 17; Eric A. Cooper, *Credentialing Challenges and the MLS*, TRENDS L. LIBR. MGM'T & TECH., Feb. 1998, at 5.

118. Government figures indicate that, in 1996, 82.7 percent of employed librarians were women. STATISTICAL ABSTRACT OF THE UNITED STATES 1997, at 410 tbl. 645 (1997). The 1996 AALL membership survey indicated that 79 percent of the members were women. *See* AALL MEMBERSHIP SURVEY, *supra* note 66, at 18. See William Fisher, *The Question of Gender in Library Management*, 11 LIBR. ADMIN & MGMT. 231 (1997), for the results of a study questioning the perception that males are over-represented in managerial positions in libraries.

that 17 percent of respondents were women and that women as a group expressed more dissatisfaction with their salaries and treatment than males.[119] There is also evidence that the number of women preparing for careers in information technology is not rising in pace with the growth of employment opportunities in the area.[120]

Because of their common educational qualifications and the fact that they have traditionally worked in easily identifiable workplaces, librarians have generally had few problems maintaining professional identity, even as they became highly specialized in terms of tasks performed or subject knowledge.[121] Computing professionals, who are also faced with increasing specialization within the profession, have traditionally based their identity in the disciplines of mathematics and engineering.[122] A 1989 task force of the Association for Computing Machinery (now more commonly known simply as ACM) declared that:

> Computing sits at the crossroads among the central processes of applied mathematics, science, and engineering. The three processes are of equal—and fundamental—importance in the discipline, which is a unique blend of interaction among theory, abstraction, and design.[123]

Since 1989, however, networking and communications technologies have become increasingly integrated into all aspects of contemporary business and professional life, and the demand for skilled information technologists has grown exponentially. Computing has become much less a "back office" operation, and the backgrounds and experiences of those working in the field have become much more heterogeneous. In business, government, and education, many people have attained responsible computing or networking positions with little or no training in the traditional academic disciplines of computing, building new careers upon the discovery that they had the talent for working with technology. Citing the example of "well-paid" MIS directors who have reached their positions without formal academic preparation in information or computer science, Thomas Galvin notes that: "So long as the information professions remain, for the most part, careers 'open to the talents,' they will

119. *See* Melanie McMullen, *Net Managers Show Net Gains*, LAN MAG., Mar. 1996, at 142, 142.

120. *See* Tracy Camp, *The Incredible Shrinking Pipeline*, COMM. ACM, Oct. 1997, at 103, 104 (noting that the percentage of computer science bachelor's degrees awarded to women has "decreased almost every year over the last decade" despite "a critical labor shortage in CS"). *See also* Amy Harmon, *Software Jobs Go Begging, Threatening Technology Boom*, N.Y. TIMES, Jan. 13, 1998, at A1 ("[M]any women who demonstrate both the aptitude and appetite for programming are turned off by the nature of the work."). Harmon suggests that a more proportional representation of women in the field would go a long way toward meeting the current and projected shortages of skilled technologists. *Id.*

121. *See* White, *supra* note 35, at 103 ("If you work in a library, you are a librarian.").

122. *See* Bo Dahlbom & Lars Mathiassen, *The Future of Our Profession*, COMM. ACM, June 1997, at 80, 89.

123. Peter J. Denning et al., *supra* note 112, at 11. *See also* ABBOTT, *supra* note 11, at 241.

likely continue to be characterized by highly diverse entry pathways, and by the absence of common educational requirements either for initial employment or career advancement."[124]

The ability to enter the field without the traditional academic backgrounds is also encouraged by what the chief information officer of Cisco Systems calls the "unprecedented level of standards" in Web and communications computing technologies.[125] He points out, too, that "when people can learn HTML in a half-day class," it is hard to tell the "developers" from the "users."[126] Others have noted that "there are few models for computer-related jobs."[127] The result is that, in some areas at least, skilled users can readily translate their skills into job opportunities. In light of forecasts of long-term shortages in the number of IT workers, it is likely that increasing numbers of people without formal technology backgrounds will enter the IT work force.[128]

Like other professions faced with a rapidly changing work environment, computing professionals have struggled to define the professional knowledge base of a highly specialized and developing field, and to maintain meaningful relationships between academic knowledge and the practice of the profession. Writing in 1988, Abbott attempted to describe computing knowledge in terms of programming, noting the "phenomenal rate" at which this knowledge created new expertise: "In thirty years there have been four or five generations of experts in programming, each one rapidly outmoded by software that made its knowledge a commodity."[129] Already at that time, however, the nearly contemporaneous ACM task force was attempting to downplay the importance of programming as a core element of the field, while asking whether computer science was actually a science, an engineering discipline, or "merely a technology, an inventor and conveyor of computing commodities?"[130] In the end, the task force concluded that computing had matured into a field with intellec-

124. Galvin, *supra* note 75, at 8. *See also* Hardesty, *supra* note 18, at 2 (noting that many academic computer center administrators started as faculty members). For an example from law librarianship, see Kathleen Daily-Hermann, *Melding the Library and Network/Computer Services Worlds*, AALL SPECTRUM, Apr. 1998, at 6.

125. *Hit the Web, Fast!* INFO. WK., Oct. 21, 1996, at 49, 49 (interview with Peter Solvik).

126. *Id.*

127. Harmon, *supra* note 120.

128. *See, e.g.*, Edward Cone, *Short Supply*, INFO. WK., Nov. 3, 1997, at 44, 48 (describing efforts to fill the need for IT workers by hiring and training people without formal degrees). *See also* Rochelle L. Stanfield, *Computer Hackers Need Apply*, 30 NAT'L J. 176 (1998); Katie Hafner & Michael Meyer, *Help Really Wanted*, NEWSWEEK, Dec. 8, 1997. Arguing for increasing the immigration quotas for foreign information technology workers in February 1998, the Information Technology Association of America stated that the technology industry was facing "a national labor shortage of historic proportions," estimating that 10 percent of all jobs for computer programmers, engineers, and systems analysts were vacant. Robert Pear, *Higher Quota Urged for Technology Workers*, N.Y. TIMES, Feb. 23, 1998, at A13.

129. ABBOTT, *supra* note 11, at 241.

130. Peter J. Denning et al., *supra* note 112, at 9.

tual substance that could be defined as "the systematic study of algorithmic processes that describe and transform information: their theory, analysis, design, efficiency, implementation, and application."[131]

In 1995, Peter Denning reported strong agreement about the core elements of the field as set forth in the ACM task force report,[132] but also noted growing concerns about the competencies of the graduates of university programs in computer science and engineering. According to Denning, few undergraduate programs were able to state what competencies their graduates should have, fewer knew what competencies prospective employers required, and "even fewer" could demonstrate whether or not their graduates were competent.[133]

The concern about competencies demonstrates that, like librarians and others, practicing professionals in computing think of the academic base of their profession as remote and divorced from the everyday practice of the field. In librarianship, this concern is often manifested in debates over whether the M.L.S. or an equivalent degree should be required of those working in librarian positions, or whether on-the-job training and appropriate experience, perhaps combined with a subject degree (e.g., in law), can substitute for the professional degree.[134] In computing, however, the issues are less abstract than they might be in librarianship. For computing professionals and those who hire them, the need to be able to identify, measure, and demonstrate competencies and skills is a matter of immediate practical concern. More than librarians, computing professionals have been forced to deal with rapid and continual changes in their work and in the skills needed to show competency in it.[135] For computing professionals, the competencies and skills needed for success in the workplace are most often attained through specialized, short-term training programs, rather than entry-level or advanced degrees. As a result, the field is characterized by a variety of certification programs, many of which are specialized both by job function and by software product or vendor.[136]

An example is certification of network specialists. A 1997 *LAN Magazine*

131. *Id.* at 12.

132. Peter J. Denning, *The University's Next Challenges*, COMM. ACM, May 1996, at 27, 27.

133. *Id.* at 28. For a take on the "industry/academe chasm" that focuses on attitudinal issues, see Robert L. Glass, *Revisiting the Industry/Academe Communication Chasm*, COMM. ACM, June 1997, at 11. In response to this problem (as well as to a shortage of qualified IT staff), a number of companies have begun working directly with academic institutions. *See* Marianne K. McGee, *School Daze*, INFO. WK., Feb. 2, 1998, at 44.

134. *See supra* text accompanying note 69.

135. Moore's Law—the idea that every eighteen months the performance of a new computer chip doubles relative to its cost—is well known, but change in Internet technologies is probably even more rapid, because it remains a "grassroots phenomenon." *See* BROCKMAN, *supra* note 2, at 19 (quoting Stewart Brand).

136. *See* Emily Leinfuss, *Choosing the Right Internet Training*, INFOWORLD, Feb. 17, 1997, at 55, 56 (counting over one hundred information technology certification programs offered by vendors, training companies, professional associations, and colleges and universities).

article pointed out that the "most recognized and sought after" certificates for networking professionals were those provided by Novell and Microsoft.[137] Novell's Certified Novell Engineer (CNE) credential is well established because of the substantial market presence of the company's Netware network operating system and has led Novell to develop additional specialized certification programs related to its core products.[138] Microsoft's network certification programs have risen in popularity as its competing network products have penetrated those markets.[139]

There is debate among computing professionals about the appropriate locus for professional certification programs, and specialized certification programs are increasingly provided by third parties, as well as by vendors.[140] Advocates of "vendor neutral" certification argue that the approach allows technologists to demonstrate higher levels of professionalism and breadth of knowledge.[141] Yet, so many of the skills needed are application-specific that clear lines are hard to draw. One example of an independent training company, Learning Tree International, offers a number of networking and support certification programs, as well as programs in operating systems, programming, and database applications.[142] Though many Learning Tree programs are application-specific, the president of the company claims that the independent programs complement the vendors' training programs and focus on "the broader view of the technology and how it applies to a specific job function," while offering "more objectivity in terms of what a product can and can't do."[143]

Surveys show that the educational qualifications of computing professionals are increasing and changing. A growing percentage of network managers now have advanced degrees in business or in information systems, as well as or in place of electrical engineering or computer science degrees.[144] Employers

137. Melanie St. Clair, *Certification Answers,* LAN MAG., Mar. 1997, at 103, 103. For a history and critique of certification programs for network managers, see Anita Karve, *Making the Grade: The Evolution of LAN Management Certification,* LAN MAG., Mar. 1996, at 101.

138. For a list and description of Novell's certification programs, see Novell Education, *Professional Certifications Index* (visited May 28, 1998) <http://education.novell.com/certinfo/index.htm>.

139. For Microsoft's programs, see Microsoft, *Training and Certification* (visited May 28, 1998) <http://www.microsoft.com/train_cert/>.

140. *See generally* Leinfuss, *supra* note 136. AALL consultants Cox and McKillip suggest that for most professions, certification is handled by an independent professional organization rather than by proprietary or third-party vendors. *See* Carol Cox & Jack McKillip, *Certification, Context and Development,* AALL SPECTRUM, Dec. 1997, at 12, 12.

141. *See* Leinfuss, *supra* note 136, at 56.

142. Learning Tree's certification programs are listed at *Learning Tree International* (visited May 28, 1998) <http://www.learningtree.com>.

143. St. Clair, *supra* note 137, at 104–05 (quoting Alan Salisbury). In its own course descriptions, Novell claims that its network engineer certification program qualifies CNEs to support non-Novell products. Novell Education, *CNE: Solving Company-Wide Support Problems* (visited May 28, 1998) <http://education.novell.com/cne/cnebroch.htm>.

144. McMullen, *supra* note 119, at 148.

are looking for technologists who are broadly educated and who demonstrate a range of skills beyond the technological.[145]

This trend is reflected as well in current thinking about educating computing professionals. An article in the June 1997 *Communications of the ACM,* entitled "The Future of our Profession," emphasizes the need to develop more social, organizational, and communications skills and to move away from an exclusive focus on machines, thinking about themselves instead as facilitators and emancipators, acknowledging that the power of information technology lies in its dependence on human beings and the many ways—as tools, networks, media, information—in which information technology involves human actions and interactions. Because this role requires assisting users, education must include more to help computing professionals develop strong social, organizational, and communications skills.[146]

All of these developments show a recognition that computing support in an organization is no longer a back office operation, and that information technologists are fully conscious of their roles as active intermediaries involved both in making sure that technology is functional and in helping clients use technology effectively.[147] A recent "prescription for the well-educated IS professional" cites communications skills, critical thinking, creativity, [knowledge of] content, courage, candor, and commitment as essential characteristics.[148] The list shows a clear recognition of the need for precisely the same kinds of "soft skills"and personal competencies highlighted for librarians in the SLA and AALL reports discussed previously. As pointed out in an examination of the emerging roles of computing specialists in Mexican universities: "The evolution of the computer specialist to the information specialist requires skills that have long been the specialty of librarians."[149]

Content, Access, or Context?

Librarians and information technologists both face challenging and uncertain futures, in part because of the pace of change in the information environment, and in part because ready access to information technology has blurred the

145. Over half of the respondents to a recent survey of senior IS executives say that positions for "business-savvy IT professionals" are the hardest to fill. Cone, *supra* note 128, at 54.

146. Dahlbom & Mathiassen, *supra* note 122, at 80.

147. Dahlbom and Mathiassen note that: "Over the years, the attention of our profession has shifted from numerical analysis to programming to software engineering to human-computer interaction to networking." *Id.* at 89.

148. *See* James I. Cash, *Take to the Seven Cs*, INFO. WK., Feb. 5, 1996, at 86, 86. *See also* Hardesty, *supra* note 18, at 4 (noting that newer academic computer center directors will possess "'softer' skills of leadership, vision, interpersonal relationships, and an understanding of the educational mission").

149. Scott Van Jacob, *The Academic Computer Specialist in Mexico: A Preliminary Investigation*, 5 INTERNET RES.: ELECTRONIC NETWORKING APPLICATIONS & POL'Y 74, 74 (1995).

traditional distinctions among areas of jurisdiction in the workplace. Continuing development of the access technologies that provide the means for finding information will continue to affect and change the librarian's work, and require more of the librarian's attention and understanding. At the same time, the computing professional is likely to continue to interact more frequently and directly with end users of networked computing services. As end users increasingly use computers and networks both to gain access and to use information, the lines between access technologies and content will become increasingly indistinct. It is a decidedly different experience for a law school faculty member to run a Web search to locate an article published in the *Duke Law Journal,* then click a mouse button to pull up the text of that article on the *Journal*'s Web site, than it is to learn about the article's existence through other means, then choose among several print delivery options, and finally end up with an issue of the *Journal* or a photocopy of the article, neither of which the professor can readily use for more than reading.[150]

In this environment, the librarian's professional grounding in content expertise will remain important, but in a new sense. There is now and will be a growing need for professionals who can sift and sort through information, not only to locate pieces of information, but to put those pieces into context, to weigh and compare different items, identify, authenticate, and validate them. As put by Paul Saffo: "in a world of hyper abundant content, point of view will become the scarcest of resources."[151] Librarians and technologists alike should be thinking more about *context* and point of view than about content and access as separate concepts. The ability to provide context to the client's process of information seeking will be key to the future of the information professions, but context is a product of both content and access and can be provided only through consideration and understanding of both elements.

Complexity is inherent in most information seeking, resulting from both the abundance of content and the crude methods available to access it.[152] It is unnecessary to say much about the problems posed by the sheer masses of potentially useful information available on any topic, the difficulties in knowing whether any search has found everything that might be useful, or the problems involved in weighing and authenticating what is found. Historically, these all are reasons for the development and endurance of the library as an

150. The examples are provided not to argue that one approach is superior to the other, but to show that the distinctions between accessing and using information are less clear in the Web example. Similarly, it is a different matter for a researcher to locate a book or other document through a library catalog, retrieve the object from the stacks, and take it somewhere to read, than it is to pull a lengthy document from a Web site, print the file, and read it.

151. Paul Saffo, *It's the Context, Stupid*, WIRED, Mar. 1994, at 74, 75.

152. See Trudi Bellardo Harm, *Text Retrieval Online: Historical Perspective on Web Search Engines*, BULL. AM. SOC. INFO. SCI., Apr./May 1998, at 7, for an historical summary of the capabilities of online search systems.

institution and librarianship as a profession. But will the institution and the profession continue to endure when information seeking increasingly takes place in an environment where researchers have ubiquitous access to networked information of all kinds?

As we think about the future of libraries and librarianship, it is necessary to keep in mind that not only the forms of published knowledge usually held in libraries, but also less formal (and formerly less accessible) sources of information have been reduced to common digital formats. As a result, the information content that can be brought to bear to solve a problem can often go well beyond the traditional materials of library research in either print or electronic formats. For many, the promise of the digital library lies in its capacity to provide integrated access to material that is of less permanent value and less archival in nature than the usual library holdings:

> Seen from this new perspective, the digital library is a seamless blend of the conventional archive of current or historically important information and knowledge, along with ephemeral material such as drafts, notes, memoranda and files of ongoing activity.[153]

The potential for blending digitally formatted information of various types provides the impetus for the current interest of corporations (and librarians) in "knowledge management."[154] The idea of knowledge management, the "process of capturing a company's collective expertise wherever it resides—in databases, on paper, or in people's heads—and distributing it to wherever it can help produce the biggest payoff,"[155] is made possible because information of all sorts can be collected, stored, and distributed in a common digital format. Of course, this also adds to the rapid growth in the amount of information potentially available for any situation, leaving "knowledge workers feeling both

153. Mark Stefik, INTERNET DREAMS: ARCHETYPES, MYTHS, AND METAPHORS 34 (1996) (quoting Robert E. Kahn & Vincent G. Cerf). *See also* Bruce R. Schatz, *Information Retrieval in Digital Libraries: Bringing Search to the Net*, 275 SCI. 327, 327 (1997) ("The primary purpose of digital libraries is to enable searching of electronic collections distributed across networks"); David M. Levy & Catherine C. Marshall, *Going Digital: A Look at Assumptions Underlying Digital Libraries*, COMM. ACM, Apr. 1995, at 77, 80–81.

154. *See generally* Justin Hibbard, *Knowing What We Know*, INFO. WK., Oct. 20, 1997, at 46; Jeff Jurvis, *Serving Up Knowledge*, INFO. WK., Nov. 17, 1997, at 141. For discussions of librarians' interest in knowledge management, see, e.g., Richard C. Lucier, *Towards a Knowledge Management Environment: A Strategic Framework*, EDUCOM REV., Nov./Dec. 1992, at 33; Steven Abram, *Post Information Age Positioning for Special Librarians: Is Knowledge Management the Answer?* INFO. OUTLOOK, June 1997, at 18; Susan DiMattia & Norman Oder, *Knowledge Management: Hope, Hype, or Harbinger?* LIBR. J., Sept 15, 1997, at 33; Jo Lyon, *Knowledge Management: Get in on the Action*, MARKETING LIBR. SERVICES, Dec. 1997, at 1; Marianne Broadbent, *The Phenomenon of Knowledge Management: What Does it Mean to the Information Profession?* INFO. OUTLOOK, May 1998, at 23. For a study of how individual knowledge and experience (or "know-how") serve as central information resources in British law firms, see SYLVIA P. WEBB, "KNOW-HOW" AND INFORMATION PROVISION IN LEGAL FIRMS (1996).

155. Hibbard, *supra* note 154, at 48.

overwhelmed by information and fearful that they're missing important details."[156]

It is easy to argue, therefore, that ready access to personal and informal information in electronic formats, as well as improved direct access to formally published information, have only increased researchers' needs for assistance of some sort in identifying and obtaining useful content. "The problems inherent in any information system—disorientation, navigation inefficiency, and cognitive overload—are multiplied on the Internet."[157] But how will this need for assistance be met?

Part of librarians' concern for their future is prompted by talk of "disintermediation," the idea that, as more and more useful information is directly accessible via the Internet, researchers will do their own information seeking, perhaps with the assistance of intelligent search agents devoted to finding and delivering information tailored to a researcher's specific needs. In this context, discussions of disintermediation often employ particularly simplistic ideas of the relationship between information content and the technologies that create access to content. As Nicholas Negroponte described the future of information seeking in his book *Being Digital:* "Like an army commander sending a scout ahead or a sheriff sending out a posse, you will dispatch agents to collect information on your behalf. Agents dispatch agents. The process multiplies."[158] For Negroponte, agent interface technology "is distinctly different from a *human factors approach* to interface design. The look and feel of the interface certainly count, but they play a minor role in comparison to intelligence."[159]

But such purely technological solutions to the problem rely on the proposition that access technologies can be readily separated from content. As a result, they too readily dismiss the importance of "human factors" in interface

156. *Id.* For a wide-ranging discussion of the effects of information overload, see generally DAVID SHENK, DATA SMOG: SURVIVING THE INFORMATION GLUT (1997). ("[The computer] is not a filter, but a pump." *Id.* at 75.)

157. D. Scott Brandt, *Constructivism: Teaching for Understanding of the Internet*, COMM. ACM, Oct. 1997, at 112, 112. As Brandt notes: "Novice users of databases or online catalogs are confused about how to search and what they will find. The Internet is even more disorienting because it is difficult to tell what is being searched or browsed—a single Web page, a series of pages, or a database of links." *Id.*

158. NICHOLAS NEGROPONTE, BEING DIGITAL 158 (1995). As envisioned in the agent environment, not only will information seekers no longer need the immediate help of human intermediaries, but content producers will no longer need the assistance of traditional online search services (Dialog, LEXIS-NEXIS, Westlaw) to bring their information to users. *See* Barbara Quint, *Quint's Online: Reality Check for Traditional Online*, INFO. TODAY, Feb. 1997, at 7. See also the comments of Lewis Perelman regarding whether in-house lawyers will be needed in an environment where all legal information is readily available online. *Barnstorming with Lewis Perelman*, EDUCOM REV., Mar./Apr. 1997, at 18, 21. On agent technology generally, see Donna S. Haverkamp & Susan Gauch, *Intelligent Information Agents: Review and Challenges for Distributed Information Sources*, 49 J. AM. SOC. FOR INFO. SCI. 304 (1998).

159. NEGROPONTE, *supra* note 158, at 158–59 (emphasis added).

design, revealing both too much faith in the abilities of intelligent interfaces to overcome the difficulties and complexities of the information-seeking process and too little understanding of the actual needs of human information seekers, who require context to be successful in their quest.[160]

Before relying too heavily on automated devices to navigate through masses of digitized personal and archival research information, it is worth examining the computing industry's track record for developing interface and other access software. It has become commonplace to observe that the usual effect of software upgrades and improvements is to provide additional features and options at the cost of increased complexity in the software interface. Microsoft's introduction of Windows '95 was greeted in the technology, corporate, and general media with a chorus of concern about the value of software upgrades, not only because of their cost and disruption, but because for most users upgrades are more likely to complicate their normal work than to add useful functionality.[161]

Since then, commentators in a variety of forums have contributed to this discussion in articles and columns with titles such as: "Unnecessary Complexity," "Taking Computers to Task," and "Why Is Everything So Damn Complicated?"[162] In 1997, when Michael Dertouzos, director of the MIT Computer Science Laboratory, published *What Will Be,*[163] a book-length commentary on the transformational effects of information technology, he received the most media attention for

160. The desire to structure one's own information seeking and to be able to take advantage of serendipitous findings along the way will also be a factor contributing to the ultimate success or failure of intelligent agents. Do most users actually want to cede to their "agent butlers" the decision-making power they need to operate effectively in anticipating information needs? *See* Steven Johnson, INTERFACE CULTURE: HOW NEW TECHNOLOGY TRANSFORMS THE WAY WE CREATE AND COMMUNICATE 180 (1997). ("The original graphic-interface revolution was about empowering the user—making 'the rest of us' smarter, and not our machines. Agents work against that trend by giving the CPU more authority to make decisions on our behalf.")

161. *See, e.g.*, Tom Davenport, *Beware the Upgrade Frenzy*, INFO. WK., Aug. 7, 1995, at 104; Ron Erickson, *More Software. Gee.*, N.Y. TIMES, Aug 4, 1995, at A27; Eddie Russell, *Time to Stop the Carnival*, INFO. WK., Oct. 16, 1995, at 116.

162. Thomas Sowell, *Unnecessary Complexity*, FORBES, July 7, 1997, at 64, 64 (noting software designers' "preoccupation with bells and whistles rather than usability," and the evolution of easily usable software over time "into something so burdened with complicated (and trivial) features that it is a challenge to figure out how to do the simplest thing); W. Wayt Gibbs, *Taking Computers to Task*, SCI. AM., July 1997, at 82, 87 ("But when it comes to software, new is not necessarily improved. Behavioral studies have shown that 'creeping featurism' is often counterproductive."); Owen Edwards, *Why Is Everything So Damn Complicated?* FORBES ASAP, Aug. 25, 1997, at 137, 137 (arguing that, while basic programs already do everything most users require, "the software business can thrive only if people are cajoled into upgrading. . . . The result of creating the illusion of newness is ever more complexity."). *See also* Edward Tenner, WHY THINGS BITE BACK: TECHNOLOGY AND THE REVENGE OF UNINTENDED CONSEQUENCES 193–97 (1997); Jef Raskin, *Looking for a Humane Interface: Will Computers Ever Become Easier to Use?* COMM. ACM, Feb. 1997, at 98; Bill Howard, *Whatever Happened to Ease of Use?* PC MAG., Nov. 18, 1997, at 97.

163. MICHAEL L. DERTOUZOS, WHAT WILL BE: HOW THE NEW WORLD OF INFORMATION WILL CHANGE OUR LIVES (1997).

his comments[164] on the complications of current incarnations of the personal computer and its software. An article in the fifth anniversary issue of *Wired* magazine observed that, since the magazine began publication:

> Software has gotten worse; computers have gotten slower. The drive to coerce users into buying unneeded upgrades has resulted in bloated tools to do simple things. Bad software has often canceled out gains in hardware speed. . . . A computer might be faster in theory, but it's not more convenient from a human perspective, the gain is illusory. . . . Meanwhile, the desktop interface is becoming more cluttered and confusing. . . .[165]

Interface design is clearly not easy from a technological standpoint,[166] and the likelihood of success is further limited without concern for the "human factors" that Negroponte seems to dismiss in his discussion. For information seekers, these factors include stability and constancy of approach, which to date have not proven to be important factors in software and interface development. There was more to consider in Nicholson Baker's defense of the library card catalog[167] than his concerns about the ill-considered destruction of a cultural artifact. In *Trapped in the Net,* University of California-Berkeley professor Gene Rochlin describes the "mini-rebellion"of a group of scholars to a demonstration of new online search tools designed to improve access to information,[168] then notes: "What was . . . lost with the card catalog was respect for a certain way of looking for information that was, for many of us, a well-developed and efficient research skill. With experience, the card catalog was a flexible instrument of incredible versatility."[169]

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164. See *id.* at 254–64. *See also* James Gorman, *Unlikely Warrior Leads the Charge for a Simplified Personal Computer*, N.Y. TIMES, June 24, 1997, at C1 (including comments of Dertouzos, Negroponte and others on the complexities of personal computers and the development processes which discourage simplification).
165. Jaron Lanier, *Taking Stock: So, What's Changed in the Last Five Years?* WIRED, Jan. 1998, at 60, 62. By 1998, as news mounted of actual and potential government legal actions against Microsoft, much of the criticism was at the failure of Microsoft's products to achieve simplicity of design. *See, e.g.*, Steven Levy, *Microsoft vs. The World*, NEWSWEEK, Mar. 9, 1998, at 36, 40 ("This is a company that asks you to turn off your computer by pushing a button labeled START. Every new version of its software products is bigger and more complicated."); John Heileman, *The Sun King: How Scott McNealy became the Anti-Gates*, NEW YORKER, Mar. 16, 1998, at 29, 32–33 (quoting Sun Microsystems CEO—and Microsoft foe— Scott McNealy: "Computers shouldn't be unusable.... You don't need to know how to work a telephone switch to make a phone call, or how to use the Hoover Dam to take a shower, or how to work a nuclear power plant to turn on the lights.").
166. "'User interfaces only work if every detail works. If you get one button wrong, people can easily waste half an hour recovering from a mistake.' Because most interfaces are designed by technologically savvy programmers and are rarely tested on typical users, he says, more often than not they contain dozens of significant flaws." Gibbs, *supra* note 162, at 88 (quoting a Sun Microsystems interface expert). *See also* Steve G. Steinberg, *Schumpeter's Lesson: What Really Happened in Digital Technology in the Past Five Years*, WIRED, Jan. 1998, 80, at 84 (noting that, despite longstanding efforts to change how software is written, the process "remains more of an art than a science").
167. *See* Nicholson Baker, *Discards*, NEW YORKER, April 4, 1994, at 64.
168. GENE I. ROCHLIN, TRAPPED IN THE NET: THE UNINTENDED CONSEQUENCES OF COMPUTERIZATION 36 (1997).
169. *Id.* at 37.

But the card catalog's time has passed. Will such high praise be reserved only for such low-tech, traditional, and now obsolete interfaces? Perhaps not. In *Machine Beauty: Elegance and the Heart of Technology,* David Gelernter rhapsodizes over the beauty and the utility of elegantly designed software. For Gelernter (though "beautiful programs" are rarely encountered):

> A beautiful program's way of doing things is so close to your own that creative symbiosis develops, a thought-amplifying feedback loop. You have an idea and the machine accommodates it immediately—no backtalk, no bargaining. The machine's transparency and willingness might even nudge your thinking a step forward.[170]

To support his point, Gelernter devotes a chapter of his book to describing the elegance of the original Apple desktop interface, arguing that, in part, the beauty of Apple's innovation was in its recognition of the importance of providing "context." The Apple breakthrough was in allowing users "to keep a bunch of documents or tasks in view simultaneously." But, "although the key ideas of the Apple desktop are not at all obvious, *people tend to grasp them immediately and learn readily how to use them.*"[171]

The growing complexities of the information and research environments will demand increasingly powerful and sophisticated interfaces and research tools. To be used successfully either directly by researchers or by intermediaries, these tools must be designed with human factors in mind, and with the beauty and elegance that meet Gelernter's criteria. Gelernter himself has little hope that "ordinary technologists" can understand the place for beauty and elegance in software development.[172] Can librarians bring something to this process? Herbert White writes: "I believe that the capable people in the hardware, software, and database development industries . . . do not understand what [librarians] presumably do understand: information access is a means to an end, not simply an end in itself."[173] Yet, even if these (and similar comments from nonlibrarians)[174] are comforting to librarians, they should not lead to complacency. Access technologies are indeed the "means" to the information content at the end of the search, but means of access are vital to the success of the search process. And librarians may pay too little attention to them.

There was a time at the last turn of the century, when librarians were not only guardians of information, but were the primary creators of indexes and other finding tools used by readers to locate information. Somewhere along the line, however, librarians gradually gave up responsibility for that work, first to the

170. DAVID GELERNTER, MACHINE BEAUTY: ELEGANCE AND THE HEART OF TECHNOLOGY 28 (1998).
171. *Id.* at 33 (emphasis added).
172. *Id.* at 28.
173. Herbert S. White, *White Papers: The Passion To Be in Fashion*, LIBR. J., June 15, 1997, at 48.
174. *See, e.g.*, R. Anders Schneiderman, *A Non-Librarian Explains "Why Librarians Should Rule the Net,"* INFO. OUTLOOK, Apr. 1997, at 34.

publishing industry and now to information technologists.[175] As we near the start of a new century, in which content and access are less easily distinguished and when successful information seeking will require increasingly sophisticated technologies, librarians need to think hard about re-entering the tool-building arena. Paul Saffo points out that the predicament of "information overload" is a consequence of "the gap between the volume of information and the effectiveness of the sense-making tools that technology has built for us." Yet, while Saffo acknowledges that "Better tools can narrow the gap," he warns of the dangers of relying too much on increasingly more sophisticated tools and substituting tools for human judgement.[176] If librarians truly are experts in the human elements of the information-seeking process, as well as in the content of information, we need to become more involved in tool building in order to be sure that content is accessible in ways that are meaningful to users.

This will require significantly greater commitment to the development of skills in access technologies and the acknowledgment that those skills are as important for librarians as for technologists. As Jerry Campbell notes: "Increasingly, librarians need deep technical proficiency. Without it, we are a step removed from being able to conceptualize, design, and re-engineer the information and knowledge delivery systems of the near future."[177] We need to be in position to add value to information for researchers and other information seekers. This will require that new sets of technological skills be added to our arsenal. Content expertise alone will be increasingly less useful without the "deeper" technological proficiencies needed to provide effective access to information and help users work with it in a variety of formats.[178]

The need to develop greater proficiencies in technology does not mean that

175. *See* Stuart A. Sutton, *Core Competencies for the Information Professions and the Evolution of Skill Sets*, 18 EDUC. LIBR. 6, 9 (1995) ("[After the First World War], the profession went ... to sleep and its practitioners became mere tool-users. . . . As a result, we lost much of the power to enable the profession."). *See also* Cheryl LaGuardia, *Desk Set Revisited: Reference Librarians, Reality, & Research Systems' Design*, J. ACAD. LIBRARIANSHIP, Jan. 1995, at 7, 9 ("As the information age has advanced over the past 20 years, we have been busily staffing desks at the expense of *devising* tools for organizing and accessing information."). This change away from active involvement in the development of tools may have also affected librarians' efforts to gain professional recognition. Library historian Kenneth Carpenter has argued that, as American universities have come increasingly to focus on the creation of knowledge rather than its dissemination, academic occupations focusing on dissemination have been devalued. Within this environment, librarians have not helped their situation by being passive disseminators, rather than "pursu[ing] an active, intellectual role in providing access to the contents of material." Kenneth E. Carpenter, *A Library Historian Looks at Librarianship*, DAEDALUS, Fall 1996, at 77, 87, 88.

176. Paul Saffo, *Are You Machine Wise?* HARV. BUS. REV., Sept./Oct. 1997, at 28, 30. *See also* Trudi Bellardo Hahn, *Text Retrieval Online: Historical Perspective on Web Search Engines*, BULL. AM. SOC. FOR INFO. SCI., Apr./May 1998, at 10 ("The underlying philosophy of Web search engines seems to be that the system knows best, and users would be well off not to interfere.").

177. Campbell, *supra* note 4, at 562.

178. See Bill Stahl, *Librarians and Technology: A Penguin Marriage?* 54 N.C. LIBR. 151 (1996), for an enlightening presentation of the role of the librarian in adding value to the information-seeking process.

librarians should abandon the roots of their own profession. Rather, it is essential to revisit those roots and to consider what might already have been forgotten as librarians have concentrated on gaining professional recognition and dealing with the challenges of the information environment.

Librarianship developed as a service-oriented, client-centered profession: one in which meeting the client's needs *as the client sees them* was of more importance than the expertise of the professional. This perspective has differentiated librarianship from other professions, such as law or medicine.[179] Roma Harris has written eloquently about the differences between these perspectives in her book, *Librarianship: The Erosion of a Woman's Profession,*[180] and her insights are worthy of attention as librarians stake out a place in a new and competitive workplace environment. Bertram and Olson, too, note that the service culture, which "represents the historical culture of librarianship," is one in which clients and the institutions where librarians work define the librarian's role. It is a more feminine culture than those of "the predominantly male professions, [in which] members of the profession define the client."[181] Continuing focus on this service orientation will be of increasingly greater value to librarians working in a rapidly changing environment that requires new and different skills for continued success.[182]

Librarians must also consider the effects of their growing roles as managers within their organizations. Performance of the skills associated with professional work is a highly visible manifestation of professional status. Members of the public can probably readily identify a number of activities (reference, cataloging, selecting materials, etc.) as "things that librarians do" and probably as things that require professional skills to perform well. Yet, as larger libraries

179. An example of expertise-centered approaches in the legal profession may be found in a popular account of defense strategies in the Unabomber case, which indicates that, despite their client's opposition, attorneys for Ted Kaczynski pursued a defense based on his mental illness. See William Finnegan, *Defending the Unabomber*, NEW YORKER, Mar. 16, 1998, at 52, 57.

180. ROMA M. HARRIS, LIBRARIANSHIP: THE EROSION OF A WOMAN'S PROFESSION (1992).

181. Bertram & Olson, *supra* note 25, at 36.

182. Does this support librarians' interest and involvement in applying concepts of knowledge management in the workplace? There seems to be a natural fit between the librarian's and the technologist's skills in developing and implementing systems to gather, preserve, and make accessible an organization's stock of internal knowledge. *See generally* DiMattia & Oder, *supra* note 154. Yet, some cautions might be noted. For one, it seems increasingly clear that the primary cultural obstacles to sharing knowledge within an organization are not easily overcome. Employees prefer to hoard rather than to share information. *See* Justin Hibbard & Karen M. Carrillo, *Knowledge Revolution*, INFO. WK., Jan. 5, 1998, at 49. It is also worth considering the observations of Peter Drucker, who emphasizes the importance of developing "rigorous methods for gathering and analyzing *outside information*," as part of a winning organizational strategy. Peter Drucker, *The Future That Has Already Happened*, HARV. BUS. REV., Sept./Oct. 1997, at 20, 22 (emphasis added). See also Drucker's comments in *InformationWeek*'s "Behind the News" column: "The single biggest challenge you face is to organize outside data, because change occurs from the outside." INFO. WK., Feb. 16, 1998, at 180. For skeptical comments on knowledge management technologies, see Justin Hibbard, *Knowledge Tools Debate*, INFO. WK., Mar. 16, 1998, at 36, 36 ("some describ[e] knowledge management as the software industry fad of 1998").

have become more complex organizations and have placed a greater weight on managerial skills, much apparently professional library work is performed by nonlibrarians. Mark Sandler provides examples in cataloging, reference, systems, and collection development to show how the larger managerial role played by librarians in research libraries has increased opportunities and visibility for nonlibrarian staff members in those areas of specialty.[183] Sheila Intner observes that "Professional practice has changed into something that sounds much more like management than cataloging, selecting, answering reference questions, or creating programming."[184] If librarians think of themselves as managers (or see management as a career goal) more than they think of themselves as librarians, they risk becoming increasingly more distanced from the knowledge base of their profession just as that knowledge base needs to reconsidered and expanded. As a result, they may well be less able to provide the context that will be needed by information seekers.

Conclusion

At the end of the twentieth century, while librarianship may have established a successful claim to recognition as a profession, librarians are faced with challenges to their traditional roles. Developments in information technology will continue to impact librarians' relationships with clients and others in the workplace, regardless of whether the profession attempts to control and manage those changes, or merely responds to them.

What kinds of futures can librarians and other groups in the information professions create from the increasing commonalities in their work? One may not wish to carry Andrew Abbott's emphasis on competition for jurisdiction as far as Abbott himself does, but it is certain that librarians and information technologists will not work in isolation from each other. Will they be able to move beyond the incentives to compete for jurisdiction and solidify their present positions in the workplace to create something new based on common interests and skills?

Two recent articles in professional journals deal with the future roles of academic librarians[185] and the computing profession.[186] Not surprisingly, the first article focuses on the dramatic changes that information technology has made in the role of the academic librarian, both in the library and in the demands and requirements of information seekers. The second article is concerned with the education of future computer professionals, arguing that new

183. Sandler, *supra* note 4, at 2.
184. Intner, *supra* note 38, at 49.
185. Mary Lynn Rice-Lively & J. Drew Racine, *The Role of Academic Librarians in the Era of Information Technology*, J. ACAD. LIBRARIANSHIP, Jan. 1997, at 31.
186. Dahlbom & Mathiassen, *supra* note 122.

curriculums should emphasize the importance of the computer professional's role as a facilitator. Ultimately, neither article is particularly remarkable for its subject matter, or for what it has to say about its profession's position in the workplace relative to other information professionals: the academic librarians foresee a future in which technology will continue to create many of the structures within which they work; the computing professionals understand that more of their work will be directly with users, ensuring that equipment and applications meet users' needs. However, it is remarkable that, after a decade in which the two groups have worked in close proximity, neither article makes more than passing mention of the roles that other information professions will play in the future evolution of the group under discussion.

In 1997, the AALL Renaissance Committee report urged the association to open its membership to anyone with an interest in law librarianship or legal information, whether or not an individual holds the usual credential of a librarian: the M.L.S. degree.[187] One result of open membership would be to encourage the participation and involvement of information technologists working in legal organizations. At its next annual meeting, however, the AALL membership failed to pass a bylaw amendment that would have eliminated professional employment in a law library as a qualification for active membership in the association.[188] The defeat and tabling of the AALL proposal were perhaps to be expected. The issue is complicated and emotional, and there are acknowledged risks involved in broadening memberships in any professional association.[189] Yet, neither the decision nor the debates on the issue showed much enthusiasm for risk taking, or for building structures for the future from the position of strength among the information professions that librarianship's established base of knowledge, skills, and values should provide.[190]

Of course, the future of the information professions may not be left for the current generation of practicing professionals to resolve. As the kinds of

187. RENAISSANCE REPORT, *supra* note 62, at 14.

188. *Proceedings of the 90th Annual Meeting of the American Association of Law Libraries*, 89 L. LIBR. J. 467, 494 (1997). At its February 1998 meeting, the AALL Executive Board decided to commit the question for further study rather than bringing it again to the membership in 1998. *See* Susan Siebers, *From the Secretary*, AALL SPECTRUM, Apr. 1998, at 16.

189. See Judy Meadows, *Presidential Proclamation*, AALL SPECTRUM, May 1998, at 12.

190. *See* Robert C. Berring, *Editorial*, LEGAL REFERENCE SERVICES Q., No. 1-2, 1994, at 1, 3 (noting that librarianship's philosophy of service and commitment to access to information could be the foundation upon which a new field is built). In contrast to the AALL decision is a 1997 recruitment flyer of the American Society for Information Science with the headline: "Only ASIS Bridges the Gap Between All Information Professionals. . . ." Claiming that ASIS is the only professional society bridging the gap "between the diverse needs of researchers, developers and end users," the flyer notes the "irony, that a *profession* advocating the development, sharing and use of information remains so isolated." According to the brochure, the targeted "profession" includes "the fields of library and information science, communications, networking technologies, and computer science" (emphasis added) (brochure on file with author).

knowledge and skills required for successful practice in the information professions grow more similar, regardless of whether one works as a librarian or a technologist, there will inevitably be fewer differences among the information professions either on the job, or in the professional education and training programs that provide entry into those fields.

Thomas Galvin outlined the historical, political, practical reasons for the divergence and separatism that have characterized educational programs for the information professions, then listed several pragmatic reasons for their eventual convergence. Among them, of course, is the reality that, within the academy: "[d]ivergence and fragmentation commonly result in weak, inadequately staffed, underfunded academic programs [which are] easy targets for elimination in difficult financial times."[191] Perhaps more important for the long run, though, are Galvin's observations about the real world of work: first, that divergence among the information professions confuses employers and the public as to what information professionals do, and second, that specialization and unique academic credentials serve to narrow and limit career options and job mobility for information professionals themselves.[192]

Ultimately, therefore, the future of the information professions could be determined by the realities of the workplace and market forces. This is not a given, however, because librarianship and the other information professions have not developed along the lines of traditional professions like medicine and law. As a result, the information professions should be better positioned for adapting to changes in work and organizations than professions still organized around nineteenth-century models. Andrew Abbott has observed that librarianship is best thought of as a "loose aggregation of groups doing relatively different kinds of work, but *sharing a common orientation,*"[193] and that librarians should think of themselves in those terms. Unlike the traditional professions, such "federated professions" give up full control over professional credentials, monopolies of service, and "a certain clarity of identity," but in exchange they gain "the generalist's ability to have some members of the profession ready for any contingency, some knowledge available to follow any

191. Galvin, *supra* note 75, at 11. The forces of convergence are already seen in evolving programs at Michigan, Berkeley, and elsewhere. The mission statement of the University of Michigan School of Information highlights the school's goal of educating "librarians, information service providers, human-interface specialists, information systems developers, archivists, and information administrators" through "[r]ichly intertwined programs." *See* Univ. Mich. Sch. Info., *Mission Statement of the School of Information* (last modified Feb. 20, 1998) <http://www.si.umich.edu/welcome/mission.html>. Initial descriptions of the programs at Berkeley's School of Information Management and Systems focused on the goal of turning out "information managers" whose skills will be sought by a range of employers wider than the traditional library market. *See* Varian, *supra* note 78, at 14.

192. Galvin, *supra* note 75, at 11–12.

193. Abbott, *supra* note 12, at 441 (emphasis added).

new development, . . . the ability to absorb subfields that challenge them [and] the ability to coopt organizational resources for their own ends."[194]

Yet, without attention, foresight, and the willingness to take advantage of these capabilities, librarians could find that market forces alone will control and limit the future development of the profession. The outcomes will be unpredictable for librarianship, which is the best-established of the information professions, has played the largest and most important role among them, and should have the confidence to recognize its strengths and define its own future.

194. *Id.* at 442.