
Meeting the Information Needs of Interdisciplinary Scholars: Issues for Administrators of Large University Libraries

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ABSTRACT

LARGE UNIVERSITY LIBRARIES FACE particular challenges in selecting information resources, organizing them, and providing direct services to support interdisciplinary scholarship. The tension between generalization and specialization is manifested in these core activities and in the debate over branch versus centralized libraries. External factors affecting library strategies include the organization of interdisciplinary research and teaching, institutional downsizing, new management theories, changes in scholarly communication, and the forthright political nature of some interdisciplinary fields. Although this article focuses on describing the challenges posed by interdisciplinarity rather than recommending solutions, examples of innovative approaches are noted.

INTRODUCTION

Interdisciplinary research and teaching is blossoming in North American universities. Enrollments in programs designated as interdisciplinary have increased dramatically, while the revival of general education requirements has helped to mainstream interdisciplinary approaches to undergraduate learning (Gaff, 1989; Casey, 1994). This trend has triggered a crisis within traditional disciplines. From art history to physics, the utility of "discipline" as both concept and practice is now widely questioned (Klein, 1993). As Michael T. Ryan (1994) notes: "The 'I word' is all-pervasive; its consequences are everywhere: in the curriculum, in hiring decisions, in research, in the organization of institutions" (p. 100).

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Despite its prevalence, however, this trend has failed to attract the attention of academic library leaders. A search of the literature on librarianship and higher education yields few publications that grapple with the implications of interdisciplinary research and teaching on academic libraries.

The frog-in-the-soup-pot metaphor seems apt here. A frog tossed into a pot of boiling water will instantly leap out, but a frog immersed in a pot of lukewarm water, being a cold-blooded creature, will contentedly simmer to death as the water climbs to the boiling point. Librarians sit in the middle of the soup pot of higher education. They make incremental changes in library policies and practices in response to changing realities in research and teaching on and off campus. The curriculum bubbles around them, and so much else is going on in the busy kitchen—the delivery of new high-tech gadgets, the temperamental antics of knife-wielding budget chefs, the demanding special orders of influential diners—that it is easy to overlook the obvious.

Challenges for Library Administrators

This article aims to provide an overview of administrative issues in supporting interdisciplinary library use at large universities. Most librarians still conceptualize their responsibilities in terms of major library functions:

1. the selection, acquisition, and management of information resources, still dubbed “collection development” although the stress on local ownership is fading;
2. the organization of information, encompassing cataloging, classification, and their variants in the electronic environment;
3. direct services to users, including reference and its younger sibling, library instruction.

The scant literature on the impact of interdisciplinary scholarship on research libraries circles around these three themes; consequently, this article employs these as useful lenses for examining current thinking and practice. All three areas reveal a tension between generalization and specialization, which is written large in the organizational structure of multi-library universities. After looking at the issues internal to libraries, this article turns its vision outward toward the broader domains of higher education and the scholarly community, with particular attention to the politics of interdisciplinarity. Although this article focuses on describing the challenges posed by interdisciplinarity rather than recommending solutions, examples of innovative approaches are noted.¹

INFORMATION RESOURCES

The university library is obligated to provide knowledge resources in support of the intellectual pursuits of faculty and students. How can library

policies and procedures assure that interdisciplinary subjects do not slip through holes in the collecting net?

Ryan (1994) describes the challenges that selectors face in keeping abreast of new ideas, vocabularies, and research methods in the disciplines. The emergence of hybrid interdisciplinary fields exacerbates the problem for the individual selector and adds a problem of coordination for the library overall. Generally speaking, the work of collection development is organized to mirror the organization of knowledge within the university, with materials budgets linked to specific academic departments. At libraries with a number of selectors on the staff—all seeking to maximize the impact of their limited budgets—a constant redrawing of boundaries between one's subject domain and another's often ensues. A subject can easily be "lost" if no one accepts responsibility for it—a particular danger in interdisciplinary and "supradisciplinary" knowledge areas (Metz & Foltin, 1990).

One solution is to establish a full- or part-time position to focus on building the collection in a new field. The Diversity Librarian at the University of Michigan, for example, is responsible "for developing and managing interdisciplinary collections in areas variously described as minority studies, sexual orientation studies, and multicultural studies" (*University of Michigan*, 1994). Other examples include the Women's Studies/Women in Development Librarian at the University of Illinois at Urbana-Champaign and the Environmental Resources Librarian at Harvard. The latter takes a proactive role in the creation of electronic information services as well as acquiring published resources.

Michael F. Winter calls for restructuring and strengthening the subject specialist approach in libraries (in this issue of *Library Trends*). But the prospect of hiring a new subject specialist for every new interdisciplinary program troubles senior library managers, who "conjure up a Pandora's box full of unwanted staffing increments and budget-busting program costs" (Ryan, 1994, p. 102). Some libraries are experimenting with creative solutions. For example, the University of Minnesota and the University of Michigan are sharing a selector for South Asian Studies. He is based in Minneapolis but makes frequent visits to Ann Arbor; his responsibilities include collection management, in-depth reference service, faculty liaison, and library instruction using distance education methods. A different approach has been taken at New York University, where an oversight bibliographer has been designated to monitor interdisciplinary acquisitions across several subjects.

A convincing argument for "dedicated expertise concentrated in a single person" cannot always be made. While new academic programs usually bring new service needs, "their impact on collection development policy may be marginal, since the literatures they use and to which they in turn contribute already exist somewhere in the library" (Ryan, 1994,

p. 104). In the early days of women's studies, for example, attention was focused on rediscovering forgotten texts by and about women and reassessing the classics, from Shakespeare to Freud. As the field matured, it generated more and more original literature, and the need for specialist librarians became evident (Searing & Ariel, 1987). The difficult question for library administrators is: when does it become more cost-effective to centralize decision-making in a single expert instead of coordinating it across several people? Because there are no simple criteria for determining this, campus politics can play a prominent role in the creation or continuation of specialist positions.

Collection development in interdisciplinary fields often hinges on collaboration among existing staff with traditional subject backgrounds. Individualistic selectors must undergo a "resocialization" process to learn cooperative work styles (Ryan, 1994, p. 104). Good communication is essential to avoid gaps in the collection, and detailed collection development policies are desirable, especially at multi-library institutions (DeFelice & Rinaldo, 1994). Libraries are no different than other university units where scholars and researchers pool their talents and erudition in collaborative interdisciplinary projects.

A small body of practical literature is available to assist selectors in assessing and building interdisciplinary collections. The hurdles they face include crafting effective approval plan profiles (Cox, 1987; Allen, 1987), identifying relevant items from small presses and noncommercial publishers (Fisher, 1987; Gregory, 1987), choosing nonscholarly materials (Metz & Foltin, 1990; Searing & Ariel, 1987), and keeping abreast of "invisible" subliterations (Faries & Scott, 1995; Porter, 1995). The lack of standards, core bibliographies, and assessment tools, like the RLG conspectus, amplifies the difficulty (DeFelice & Rinaldo, 1994). Additional challenges arise when interdisciplinary fields themselves overlap and converge, as do area studies and women's studies (Mitchell, 1995).

While these problems confront the individual selector, larger managerial issues also loom. For instance, how can new interdisciplinary fields be incorporated into an existing fund allocation matrix? Of course one may ask a selector to expand his or her intellectual horizons, but if dollars do not accompany the assignment, it will be difficult to carry out. If the collection development budget mirrors the university structure of schools and departments, as is frequently the case, how will new transdepartmental interdisciplinary units be folded into library planning? The competition for resources that pits traditional departments against new research institutes and cooperative teaching programs may be carried over into the library setting.

The administrator's job would be simpler if there were consensus on the best model for organizing and staffing collection development activities in research libraries, but there is none (Cogswell, 1987; Pitschmann,

1991). Some libraries rely primarily on full-time bibliographers, while others disperse collection responsibilities to part-time selectors with additional assignments; many combine the two approaches. No organizational model appears inherently better for interdisciplinary studies. The process of collection development may be more critical than its organization. Hur-Li Lee (1995) argues that interdisciplinary studies spotlight deep flaws in the ways librarians approach collection development. Insisting that "collections are built as the result of social interaction over time," she argues for abandoning the piecemeal attention to the various components of collection building—i.e., evaluating sources, writing policies, calculating funding formulas—to focus on the overall process and the factors that shape it (p. 186).

The "overall process" of collection development and management includes acquiring materials in all formats, enabling access to remote resources, and preserving deteriorating print and media collections. Interinstitutional partnerships have great potential to stretch library budgets and guarantee scholars access to specialized information. It is telling that three of the six subjects chosen by the CIC for cooperative collecting are interdisciplinary in scope: South Asian studies, African studies, and gay and lesbian studies.²

CATALOGING AND CLASSIFICATION

Interdisciplinary scholars rely on the information structures provided by library catalogs. Their productivity as researchers and teachers often depends on convenient and effective bibliographic access to multiple bodies of literature. In turn, they create new ideas and new literatures, which catalogers attempt to fit into existing schema or, failing that, endow these with new categories and terminology.

With recent experiments in outsourcing, debates about cataloging as a core library activity have again flared into brushfires (Gorman & Holt, 1995; Waite, 1995). Arguments over standards and quality feed the flames. Limited budgets dictate a trade-off between bibliographic completeness and streamlined record production, but where should the line be drawn? This is not a new question, but it is posed with renewed urgency as serials prices continue their steep rise and library administrators face pressures to reallocate resources away from traditional functions to fund the information access enabled by new technologies.

Libraries have long sought both to control costs and to assure quality by sharing bibliographic records. Sharing can only succeed when standards are accepted and maintained. For library users seeking materials on interdisciplinary subjects, however, the standards pose problems. The two standards that cause the most difficulty for research library clientele in the United States are the subject headings and classification system promulgated by the Library of Congress.

These standards serve a gatekeeping function by maintaining knowledge frameworks into which new branches of study and new ideas must

be fit. LC subject headings are derived from the works cataloged for the Library of Congress collection and thus are, in their genesis, reactive to and reflective of the real universe of published works. Once established, however, subject headings quickly become prescriptive. Holding a newly acquired work in her hands, a cataloger seeks first to match it with existing headings. Although the *Library of Congress Subject Headings* is a dynamic authority in a constant state of revision, critics claim its slowness to change inhibits its usefulness (Berman, 1993; Rogers, 1993). Online catalogs typically offer keyword searching as an alternative to searching for LC-sanctioned subject terms; unfortunately, many library users do not grasp the difference between the two methods and do not conduct effective subject searches (Markey, 1984).

Even less hospitable to interdisciplinary works than the subject heading system is the LC classification system, for the simple reason that a catalog record may have multiple subject headings while a book carries only a single call number. The classification structure is a theoretical map of human knowledge, but in practical terms, it is a map of the stacks, guiding readers to places where works on similar topics can be found in physical proximity. In the electronic environment, texts are freed from the limitations of physicality, so in theory, any number of classes can be assigned. However, few catalogers are bothering to classify electronic resources, even when they do enter them in the online catalog.

Many writers have commented on the failure of current cataloging and classification practices to adequately describe interdisciplinary materials, and some have proposed alternatives or reforms (in the field of women's studies, for instance, see Marshall, 1977; Capek, 1987; Mowery, 1989; Olson, 1992). But as Klein (in this issue of *Library Trends*) points out, "categories of knowledge are institutions, not in the conventional sense of buildings and organizations but a set of constructed and maintained marks in cultural space." It is the nature of institutions to resist change, but fortunately institutional foot dragging has not completely silenced the critics and visionaries.

New approaches to subject headings are gradually being implemented, as the long-held dream of enriching catalog records with keywords from tables of contents and back-of-the-book indexes has garnered support from vendors of bibliographic data. This improvement will especially benefit the seekers of interdisciplinary writings, because cutting-edge articles and symposium papers are often gathered in collective volumes. Recent research by the ACRL Women's Studies Section, for example, has confirmed Searing's (1992) contention that anthologies constitute a significant portion of the total book output in women's studies, and that bibliographic access via standard indexes and catalog records is incomplete.

New approaches to classification are less common in practice, but some interesting ideas have been advanced. Charlene S. Hurt (1991) suggests that electronic bibliographic access may someday replace shelf

browsing, even for traditional print collections, and thus free us to shelve books in new ways:

By devising software that helps library users move among disciplines without difficulty, and by providing the expert systems that will help them follow linkages from source to source, we can replace some of the serendipity that happens when browsing in the stacks. Once we can browse the online catalog as effectively as if we were standing at the shelf, perhaps we could give up arranging all of our books in call number order on the shelves. Rather we could shelve together all the books written in the 1950s, or those attributed to the post-modern movement. These arrangements could change as the curriculum changes or as a new organization comes to mind. (pp. 11-12)

Hurt leaves open to speculation what forces would determine this ever-changing arrangement of materials, and one can easily imagine a dystopian scene, in which library administrators are called upon to referee among conflicting views of knowledge structures, and in which the stacks are in constant disarray as shelvers scurry madly to reposition materials. In fact, this vision could only be implemented in the sort of high-use, open environment with a limited collection size that Hurt describes in her article.

Gary P. Radford (1995) takes an approach that is at once more philosophical and more practical. Quoting several postmodernist thinkers, Radford rejects the positivist models of knowledge that have shaped the contemporary library. He acknowledges that "there is a tension between the goals of order and completeness with the goal of providing the user with service" (p. 337) and further asserts that, in an electronic information environment, the "subjectivities and ambiguities of the individual user" and the ways that he or she chooses to order and relate texts constitute the real knowledge structures. "The librarian's role becomes that of a guide, not only to the pre-existing order of the library that comprises its catalogs and indexes, but to the *creation of new orders* [emphasis in original] made possible by the capabilities of computer searching" (p. 339). "Temporary collections of texts," not on shelves as determined by librarians but in electronic files as created by users, will become the norm (p. 339).

Both authors envision "libraries"—in Hurt's case a building, in Radford's a virtual library—which are highly responsive to changing information needs. In the face of complexity, which Klein identifies as a salient characteristic of contemporary knowledge, organizational flexibility is key. Yet libraries are typified by high levels of standardization, especially in cataloging, and standardization has an "insidious effect...in stifling creativity" (Allen, 1995, p. 656).

Library administrators must balance the value of excellence in cataloging against other demands on the library's resources. They also ought to consider whether certain workflow patterns inhibit, support, or have a neutral impact on the processing of interdisciplinary materials. The

traditional division of behind-the-scenes work by function rather than subject is vanishing. Among the successful alternative models are the University of Illinois at Urbana-Champaign, with subject experts in forty-five departmental libraries to provide multifaceted library service including cataloging; and the University of Wisconsin-Madison, where technical work in acquisitions and cataloging is centralized and "clustered" along broad subject lines (humanities, social sciences, sciences, area studies). It is not clear, however, that any particular model is best suited to interdisciplinary fields.

DIRECT SERVICES TO LIBRARY USERS

The third broad area of library operations, usually labeled "public services," encompasses the many ways in which information seekers interact with library staff and library systems. Historically denoting reference and circulation services dispensed from a desk or counter, "public services" have expanded to include document delivery, user instruction, library publishing, interface design, and outreach. Do information seekers in interdisciplinary fields need different kinds of services than scholars in traditional fields?

Bryce L. Allen and Brett Sutton (1993) observed researchers at the Beckman Institute at the University of Illinois at Urbana-Champaign, a research center on human and machine intelligence, to determine ways to structure library service to "user communities that do not fit the typical department-centered or discipline-based structure" (p. 500). They mapped "boundary-spanning groups" who require a broader range of information than do traditional, discipline-based research teams, and they discovered that the researchers' reading interests shifted markedly from one semester to the next. Allen and Sutton concluded that "planning for library service to a rapidly changing user community seems to require new and flexible approaches" (p. 514). For example, services alerting interdisciplinary scholars to a range of new information *outside* their core fields are more valuable than typical SDI services based on narrow interest profiles.

Meeting the needs of interdisciplinary scholars entails developing new services and rethinking old ones. At the State University of New York at Buffalo, customized new books lists spotlight recent acquisitions in user-selected fields (Pikoff, 1991). More and more libraries offer unmediated access to current awareness services, such as CARL UnCover Reveal, that permit end-users to establish personal profiles by topic or journal title. Such services help satisfy the singular and unpredictable information needs of interdisciplinary scholars.

Library User Education

Where information needs change rapidly, and where subjects interconnect in ways not foreseen by catalogers or indexers, information

seekers must become skilled in formulating searches and evaluating results (Fiscella, 1989). A commitment to empowering library users underlies recent advances in library user education. Early instructional programs stressed orientation to the library's organizational systems, both spatial and conceptual but, over the past twenty years, the focus has shifted to "information literacy," transferable skills, and lifelong learning (Breivik & Gee, 1989; Baker & Litzinger, 1992; Farmer & Mech, 1992). Librarians who teach library users understand that "bibliographic instruction...is significant when it develops a user astute and flexible in information gathering. An intelligent approach to information involves the ability to apply learning obtained in one area to fresh problems, and to bring the skills of critical thinking to the process of information gathering" (Frick, 1992, p. 14). An integrative approach to library instruction encourages information seekers to conceptualize their queries not as topics in particular disciplines, but as questions that may be answered from numerous perspectives; thus library instruction outfits students with a "toolbox" of searching skills and bibliographic knowledge (Chu, 1993).

Most writing on the library's growing role in teaching information literacy overlooks interdisciplinarity as a factor, focusing instead on advances in pedagogical method, changing student demographics, and the ascendancy of electronic information (Baker & Litzinger, 1992). However, contemporary notions of information literacy fit comfortably with an interdisciplinary perspective. The reinstatement of general education requirements for undergraduates, often with an explicitly interdisciplinary and multicultural slant, creates opportunities to integrate basic library instruction into every student's core educational experience. Building on basic problem-solving skills, library instruction in upper-level and graduate courses typically emphasizes techniques and tools for optimal use of discipline-based literatures. Indeed, one way to comprehend the parameters of a discipline is through an understanding of its bibliographic conventions and structures. Yet students in interdisciplinary courses may benefit the most from library instruction, since emerging fields usually lack the bibliographic apparatus of a mature discipline. Bibliographic instruction creates classroom opportunities to explore "scholarly and institutional inclusion and exclusion," to interrogate the division between "academic" and "popular" sources, and to present reference works as "cultural artifacts" (Broidy, 1987, p. 93). Librarians are also positioned to teach how biases can influence every stage of information processing, including what gets written, published, acquired by libraries, preserved for posterity, covered in bibliographic tools, and selected by the researcher (Fink, 1989).

Perhaps because of their focus on generic searching skills and critical thinking, user education librarians tend to downplay specialization in subject fields: "Librarians are the only profession that has any hope of

gaining a comprehensive grasp of all information and knowledge as a whole, rather than just one narrow part of it, and being able to translate any given part of it to a broad range of people" (Miller, 1992, p. 155). Or, as Fink and Loomis (1995) put it:

We are no longer experts—masters and practitioners of a known body of knowledge. We are no longer experienced guides to a familiar terrain. We must be—can only be—explorers, scouts, and pathfinders, navigating unbounded, evolving sources of information to map the way for users who are now fellow searchers. (p. 3)

Reference Services

Like the pundits of library instruction, the leaders of the movement to "rethink reference" make little mention of interdisciplinary studies as a precipitating factor. Institutional downsizing, the specter of virtual libraries, and the customer-centered philosophy of quality management are the usual reasons advanced for seeking new models for reference services (Lipow, 1993). Nonetheless, the research consultation model implemented at Brandeis, Johns Hopkins, the University of Michigan, and elsewhere may be especially beneficial for library users with interdisciplinary queries. This service model places support staff or well-trained students at the public desk, with librarians available for consultation by appointment (Massey-Burzio et al., 1993).

Unfortunately, there has been no research to show what model of reference service responds most effectively to interdisciplinary needs. One might hypothesize that putting the best, most highly trained generalist professionals on the front lines provides optimum service. If the organization of the library's resources is so tradition bound that the interdisciplinary scholar cannot find the needed information for herself, why must she be doubly inconvenienced by waiting for an appointment with a librarian? On the other hand, librarians working under the pressures of a high-demand desk shift may not have the time to reflect upon a complex inquiry and make the connections from it to all appropriate sources, terms, and approaches.

Library users wish to be self-reliant, and librarians reinforce a do-it-yourself attitude by offering open stacks, ample signage, user-friendly online catalogs, and so on. Library instruction sends the message that once one learns the system, one should be able to negotiate the library with minimal help. Yet the desire of library users to be self-sufficient is often accompanied by a counter-productive anxiety (Mellon, 1986), and "the duality of the interdisciplinary search task—the need to find information and the lack of knowledge of another discipline—potentially heightens the level of uncertainty and anxiety for the researcher" (Bartolo & Smith, 1993, p. 347). The Gateway to Information at Ohio State University is a model for empowering the user at the usual point of initial

contact with the library—the online catalog workstation—through an interface to a variety of networked electronic resources and search pathways that point to print materials as well. This approach has been adapted to facilitate interdisciplinary research in women's studies (Krikos, 1995).

The provision of reference services to interdisciplinary scholars is complicated by the inadequacy of the secondary literature. Evidence suggests that both standard bibliographic tools and new ones intended for interdisciplinary users can be incomplete and poorly constructed (Hurd, 1992; Gerhard et al., 1993; Mesplay & Koch, 1993; Koch & Preece, 1995). Klein (1994) sums up the difficulty:

The problem of interdisciplinary information is the problem of information scattering. Appropriate materials do not appear in a single location, nor are they readily identified by cataloguing, indexing, and online services, which tend to mirror existing disciplinary categories....Searchers must develop some expertise in moving across the varied assumptions, structures, and forms of disciplinary literatures as well as the invisible colleges, networks, and hybrid communities in which interdisciplinary knowledge often develops. (pp. 15-16)

Interviews with scholars indicate that the humanities in particular cry out for a bibliographical infrastructure better attuned to the prevalence of interdisciplinary work (Gould, 1988). Online and CD-ROM databases offer more options for effective searching, but the welter of interfaces is an initial barrier for researchers whose topics span disciplines.

The Impact of Information Technology

Information technology holds considerable promise for interdisciplinary studies, even though many of the electronic reference resources available today are merely digitized versions of discipline-based print tools. In electronic formats, disciplinary resources can be manipulated with greater ease and effectiveness. Boolean searching, while often misused or underused by novice searchers, is a powerful tool for teasing specific data and references from mammoth databases. From the standpoints of time expended and precision of retrieval, end-user searching has significant benefits for the interdisciplinary researcher (Bartolo & Smith, 1993). Meanwhile, more sophisticated electronic information sources are evolving that are explicitly interdisciplinary in their content and use. Geographic information systems are a prime example.

Scholars have strong feelings about the advent of the electronic library. "[F]or some, this conception of the library as an ever-expanding web of intellectual freeplay is...the source of profound anxiety," while others celebrate the potential to "recover the Enlightenment dream of a library that offers not only comprehensive or universal access to knowledge but also the power to move freely within its perimeters." With access to an encyclopedic virtual library, "it will become possible for readers

to integrate older and newer bodies of knowledge into ever-changing synthetic forms" (Bloch & Hesse, 1993, pp. 6-7). Since the faculty and students who use academic libraries range from fearful to enthusiastic, librarians must develop flexible instructional and reference services.

Librarians, too, voice a spectrum of opinions, some cheerfully utopian, some gloomily pessimistic. Most chart a cautious course between the hype and the worst case scenarios (Crawford & Gorman, 1995). On a practical level, librarians grapple with many issues in managing the new technologies. How shall one select, from the plethora of commercial products and the jumble of Internet resources, those that best meet the needs of the library's diverse clientele, including both discipline-based and interdisciplinary researchers? How should one organize, index, and promote electronic resources to alert users to their availability? How can library staff provide the same quality of assistance that they deem appropriate and necessary for users of print collections? How can they teach users to locate and evaluate electronic information? How can they guide and assist at the moment of use, when that use may occur in the office, computer lab, or home?

Increasingly, libraries are incorporating e-mail and the World Wide Web into their basic mix of services. The multimedia capabilities of the World Wide Web and its unprecedented linkages make it an attractive communication method for interdisciplinary scholars, librarians, and amateur subject specialists. Web users can easily move between general and specific information. The very quiriness and unpredictability of the web's information content may be an advantage at the cutting edge of interdisciplinary inquiry.

At this writing, web searching capabilities are primitive. It is hoped that improvements in search interfaces and evolving projects to "catalog" web sites will preserve the benefit of serendipitous browsing, which is arguably the web's greatest attraction. So far, an authoritative system for selecting and indexing network resources has not emerged; OCLC's NetFirst and similar projects are vying to set the standard. The CyberStacks project at Iowa State University is especially intriguing. By employing the Library of Congress classification system to group internet sites in science and technology, the CyberStacks home page presents users with a conceptual framework that is familiar, thus easing the transition from print-based to digital information. However, it risks replicating the known rigidities of the LC classification system (CyberStacks, 1996). The University of Tennessee Libraries also use the LC classification system as an optional path for locating and linking to web sites (UTK Libraries, 1996). Designers of home pages for interdisciplinary topics may well prefer to invent their own organizational systems.

The electronic environment calls into question many pre-existing assumptions, including notions about user behavior:

Either implicitly or explicitly, much of the current work on digital libraries assumes this idealized model of use: the lone researcher sitting at a workstation, browsing, scanning, searching, retrieving, reading, and writing. But this idealization is at odds with observed work practice....Libraries are meeting places where joint research is carried out; research is a highly collaborative activity....

Even information-seeking, the digital library activity apparently most consistent with the idealized image of solitary work, is more collaborative than generally realized....(Levy & Marshall, 1995, p. 80)

In interdisciplinary research, project teams are the norm and, in interdisciplinary teaching, team-taught courses are common. Library administrators must consider the social context in which electronic resources will be consulted as they plan for acquiring and disseminating them.

Even when licenses or technical limitations restrict the availability of electronic information products to library settings, the challenges are daunting. At the University of Wisconsin-Madison, for example, the Electronic Library home page points to hundreds of resources, including the online catalog, bibliographic and full-text databases running on local servers and CD-ROM networks, databases accessed via scripted telnet or web connections, and the campus information system. In addition, most UW-Madison libraries have mounted their own home pages, and subject specialists are constructing subject-oriented sites—all as components of the electronic library. This rich set of electronic resources is accessible from nearly 500 workstations in thirty-four campus libraries. Students seated in the Music Library can search *Medline*, while faculty at the Health Sciences Center can log into the *MLA Bibliography*. Moreover, electronic library workstations have full Internet access via Netscape, linking users to a universe of information sources that have not been filtered through the library's selection processes. Reference staff, especially at those libraries with longer hours, are increasingly called upon to help users search for information outside the subject scope of those libraries. In the print environment, reference librarians had a limited number of sources at their disposal; they referred users to another library if the query could not be answered from in-house collections. Now, some users expect a breadth of staff expertise that is impossible to provide on the spot. Information technology lends new urgency to the old dilemma—should reference staff be generalists or specialists?

Anne Page Mosby (1994) sees strength in the librarian's role as a "generalist who is willing to go exploring with a library user, investigating any reference question" (p. 211). This sentiment is echoed in recent writings by instructional librarians, who emphasize generic, transdisciplinary research skills (Fink & Loomis, 1995, quoted above). Winter (in this issue of *Library Trends*) insists the opposite. He argues that "specialization is a coping mechanism for dealing with the overwhelming

mass of output" and that it "permits the librarian to understand enough of textual form and content to be of more help to users."

Collegial communication is the real key to improving reference services. Librarians need to crank up the referral mechanisms among distributed libraries and oil the gears of collaboration. Whitlatch's (1990) study of reference service confirmed that the subject knowledges that both librarian and patron bring to a reference interaction are significant factors in the outcome. "In many transactions neither user nor librarian have a good grasp of models, problems, and vocabulary of the discipline"; this situation must be exacerbated when the patron's query crosses disciplinary lines. Yet "in only 7 percent of encounters did librarians indicate that they consult with other librarians in answering the question" (Whitlatch, 1990, pp. 43-44). The model of reference work as a one-on-one exchange between librarian and patron does not stand up to the pressures of interdisciplinary questions.

It is surely no accident that frontline librarians at UW-Madison are initiating more staff exchanges since launching the electronic library. First-hand knowledge of another library's policies, personnel, and layout is a definite plus when making referrals. Libraries are also making a greater effort to publicize their uniqueness, particularly through their home pages, which detail hours, loan policies, names and responsibilities of staff, scope of collections, and so on—a level of specificity not previously offered in handouts. Paradoxically, as both librarians and users become better informed about the differences among campus libraries, library administrators at many universities are pondering the future of branch libraries.

LIBRARY ORGANIZATION AT LARGE RESEARCH UNIVERSITIES

Interdisciplinarity poses particular challenges to large research universities with distributed library environments and services. Stephen E. Atkins (1991), in his sweeping historical overview of American university libraries, asserts that "libraries became decentralized into branch libraries for two reasons: collections grew faster than space could be provided and faculties demanded that collections in their specialties be housed near them" (p. 149). After World War II, as campuses embarked on large-scale building programs, library administrators moved to reestablish centralized collections and to take control of independent departmental and professional school libraries. The 1949 reorganization of the Stanford University Library exemplifies this trend. However, strong faculty resistance has preserved branch libraries on most large campuses.

Now, the economic stringency of the 1990s is exerting a powerful counterforce. Several major research universities have consolidated small libraries in recent years. In 1995, for example, the University of Michigan merged its chemistry, physics/astronomy, natural sciences, and mathematics libraries into a central science library. At the University of

Washington, collections that supported a wide range of users outside the primary discipline, such as the Philosophy Library, emerged as top candidates for blending into the central library. Through surveys, focus groups, and analysis of circulation data, UW librarians also discovered areas of interdisciplinary learning that were poorly matched to the existing library organization. For example, the forestry curriculum has changed considerably since the advent of interdisciplinary environmental studies, so that students now utilize several libraries spread inconveniently across campus. This realization sparked plans for a natural sciences cluster of information services. Likewise, at UCLA, librarians envision broad subject-focused clusters of services and collections housed in six library buildings as an alternative to the old model of a central library with branches. While the term "cluster" can mean many things in practice, from merged collections and staffs to loose networks, the wisdom of addressing scholarly information needs in broader, more interdisciplinary, contexts is obvious.

From the first discussions of academic branch libraries in the professional literature more than a century ago, the arguments pro and con have included both practical considerations and philosophical views on the nature of knowledge (Watts et al., 1983; Shkolnik, 1991). Research tends to support the centralized library model. Paul Metz (1983) came to this conclusion after analyzing circulation data at Virginia Polytechnic Institute (VPI) (with a central library and only two branches) and the University of Nebraska at Lincoln (with a dozen branches). At VPI, faculty read more widely outside their primary disciplines, indicating that "where subject literatures are segregated along branch lines, multi-disciplinary reading is discouraged and reading preferences come to mirror the structure of library systems" (p. 99). Julie M. Hurd (1992) likewise concluded that scientists are ill served by specialized departmental libraries after discovering that barely half of the journals cited in publications by members of the University of Illinois-Chicago's chemistry department were in the field of chemistry.

Labeling the debate over centralized versus decentralized collections a "hot potato," Atkins makes the valuable observation that the debate has shifted ground from politics and space needs to "a philosophical controversy over the nature of *information flow*" [italics in original]. Proponents of centralized libraries argue that "growing interdependence of knowledge, convenience to the user, and expense" justify a retreat from branch libraries. On the other hand, the champions of decentralized collections argue that new information technologies make distributed library services as convenient and cost-efficient as centralized ones. Atkins trenchantly notes that "regardless of the merits of this new turn in the debate, the fact remains that politics determines the fate of branch libraries, not philosophical discussions over information flow. The teaching faculty wants branch libraries, and it will fight to attain or maintain them" (Atkins, 1991, p. 150).

THE CAMPUS CONTEXT: TEACHING, RESEARCH, OUTREACH

University libraries, like any campus unit, operate within multiple contexts. The unique shapes that interdisciplinary programs take on a particular campus determine personnel and budget strategies (Casey, 1994) and influence the ways librarians learn of, and respond to, information needs. Bound by its mission to facilitate teaching, research, and outreach, the library must negotiate the pressures of interdisciplinarity in each of these contexts.

The library's role in supporting interdisciplinary inquiry will be framed, in large measure, by the demands of the curriculum. Interdisciplinary studies are "being mainstreamed in the form of topical first-year seminars, required core courses, advanced courses on problems or intellectual themes, and senior 'capstone' seminars and projects" (see Klein in this issue of *Library Trends*). Phenomenal growth has occurred in the number of interdisciplinary BA and MA degrees awarded since the late 1970s, and new degree and certificate programs are frequently proposed. Declaring that new interdisciplinary programs are both desirable and inevitable, Miller and McCartan (1990) supply educational administrators with criteria for judging their worthiness. The list includes concerns about quality (e.g., can the new field claim its own body of literature, recognized scholars, reliable learning assessment methods?) and pragmatic concerns (e.g., can proponents mobilize funding, create a workable structure within the university, sustain student interest, and guarantee a job market for graduates?). The list omits a crucial criterion—is the library prepared to support a new academic initiative?

Faced with a new interdisciplinary program on campus, library administrators should ask: Will it be a full-fledged department, and will the library be expected to provide the usual materials budget, liaison, perhaps even a special collection or reading room that other departments have? The supporters of new programs often argue that the costs will be marginal, since they will draw on existing faculty and cross-list established courses. Actually, the start-up and continuation costs may be considerable. "[T]he more a program is designed to be truly interdisciplinary (team-taught courses, multidisciplinary scholarship and meetings, extensive development of new courses unique to the program), the higher the price tag" (Miller & McCartan, 1990, p. 34). Even when libraries own or can access most of the information content needed to support a new interdisciplinary program, they may experience fresh needs for reference and instructional services.

Like the curriculum, interdisciplinary research efforts can assume varied organizational forms. The research center, either free-standing or associated with a teaching department, is ubiquitous; however, there is considerable variance in the shape of interdisciplinary research units at universities (Klein, 1990, pp. 121-39). Large, relatively permanent,

research centers may have their own professionally staffed libraries, independent of the central library system (the Primate Research Center at the University of Wisconsin-Madison, for example, supports an internationally renowned primatology information center). Other centers may house a reading room but may rely on the university library for extensive collections and assistance (UW-Madison's Institute for the Humanities follows this model). Finally, there are research centers with no "center" to speak of—networks of colleagues drawn from several departments, perhaps even from other campuses, who, despite the lack of a physical home base, conduct research, write grants, host conferences, produce publications, and the like (the Center for the History of Print Culture in Modern America at UW-Madison functions on this model). In the first case, library managers are challenged to build and maintain good working relationships with the library and information specialists working at campus research centers. In the latter cases, library managers must make sure that research centers that depend on the campus library get the support they need, both in terms of information resources and research assistance. Library staff should be encouraged to involve themselves in the work of the centers (e.g., assisting in workshops and grant writing) just as they would participate in the work of a traditional department.

Particularly at publicly supported universities, research and outreach are intertwined. University administrators and politicians increasingly stress the value of public-private partnerships and the transfer of knowledge from the university to the community. Many university libraries have developed fee-based information services to businesses, industries, and nonprofit agencies as an expression of their basic mission. The "research drift" observed by Burton R. Clark (1995)—i.e., the de-coupling of research and teaching under pressures from government and industry—blurs the lines that define an academic library's clientele.

OTHER CONTEXTUAL ISSUES

Other influences on university libraries include institutional downsizing, new managerial theories and practices, and changes in scholarly communication. Each trend has implications for the support of interdisciplinary studies.

Tight budgets are forcing many universities to trim programs and reduce staffing levels. When faculty vacancies go unfilled, interdisciplinary programs spearheaded by individual professors can founder. The identification of interdisciplinary projects with particular faculty members is a fact of academic life—a manifestation of the "institutional complexity" that characterizes interdisciplinary scholarship (see Klein in this issue of *Library Trends*). As star faculty come and go, and interdisciplinary programs fade or regroup, libraries must reassess the depth and scope of their collecting and service strategies (Ryan, 1991).

University libraries, too, are gripped by funding pressures that dictate staff reductions. Where expertise in an interdisciplinary field is concentrated in a single librarian, leaving a position unfilled can mean losing coverage of the subject. Downsizing often prompts the consolidation of branch libraries, which, as noted above, may have beneficial effects on interdisciplinary scholarship. But downsizing may spread the remaining staff too thinly, leaving them responsible for such a breadth of subject matter that they cannot develop in-depth knowledge in any area.

Faced with multiple demands on their shrinking resources, many university libraries are exploring new organizational models and management approaches. This is good news for those who believe that existing models cramp the development of interdisciplinary collections and services. "The bureaucratic organization of most libraries is so inflexible that new, interdisciplinary fields cannot easily be accommodated in existing systems. Much energy is wasted in fighting the system and competing for resources" (Lee, 1995, p. 185). How might libraries be re-engineered if responsiveness to interdisciplinary inquiry was their primary goal? Would a flattened organization prove more flexible? The University of Arizona Library's radical experiment in team-based organization deserves careful evaluation on this point. Surely, the tenets of Total Quality Management hold promise for making libraries more adaptable. Enjoining librarians to "focus on the customer" suggests that bureaucratic inward-oriented workplaces can be transformed into user-friendly service-oriented hubs for campus information work.

Finally, changes in scholarly communication affect libraries and have an impact on interdisciplinary scholarship. Interdisciplinary fields have spawned new journals, book series, and electronic forums—exacerbating the problem of information overload already faced by scholars working across disciplines (see Wilson in this issue of *Library Trends*). Although rising serial prices and conflicting views of copyright have provoked a sense of crisis in scholarly communication (ARL Task Force, 1986; Cummings et al., 1992), interdisciplinary research continues to find outlets. Indeed, the proliferation of publications challenges librarians to select the best and most relevant. Where a new journal subscription requires the cancellation of a pre-existing subscription—a sad condition more and more prevalent in academic libraries—only the boldest selector will add an interdisciplinary title that has yet to establish its reputation.

In evolving fields of knowledge, alternative communication channels are very important. Symposia sponsored by research centers and thematic sessions at annual disciplinary conferences are important venues for advancing interdisciplinary perspectives. Such events often result in published proceedings or special journal issues. Listservers, newsgroups, and other electronic communication mechanisms serve to link interested scholars worldwide. In certain fields, like gay/lesbian

studies, small independent presses produce titles that cross the lines between the scholarly, popular, and self-help genres. To serve interdisciplinary scholars successfully, libraries must have a broad and eclectic collection of information resources outside the mainstream.

THE POLITICS OF INTERDISCIPLINARITY

The tired image of the ivory tower and the vaunted notion of scholarly objectivity are targets of some interdisciplinary scholars, especially in fields that derive their intellectual vigor from focusing on problems and inequities in contemporary society. Such fields have, in turn, come under attack from other scholars who seek to preserve traditional knowledge bases and a core curriculum grounded in Western culture and values. Women's studies, ethnic studies, and gay/lesbian studies have become lightning rods for controversy, sparking strong reactions both on campus and off, to their perceived sociopolitical agendas. Critics dismiss them as tainted by "identity politics," ethnocentrism, and weak scholarship; proponents champion them as effective means for diversifying higher education and revitalizing traditional disciplines. Although less often singled out today, area studies, particularly of the third world, have also been criticized for political content that overshadows theory (Klein, 1990). Positivists are suspicious of their colleagues who justify interdisciplinarity "in terms of an instrumental alignment of knowledge and action, suggesting a new logic of inquiry and new standards for judging scholarly work" (Klein, 1990, p. 96).

Within the academy, the link between interdisciplinarity and politics is announced most loudly in the humanities (Berman, 1992). Reading traditional scholarly and literary works through the lenses of race, nationality, gender, class, and sexuality, liberal humanists find fault with much of what has heretofore been accepted as the canon of Western culture. Giles Gunn (1992) applies the umbrella term "ethical criticism" to feminist criticism, African American criticism, postcolonial criticism, ideological criticism, and cultural studies—those interdisciplinary specialties "that seek to submit literary forms to moral scrutiny" (p. 242). The personal, the political, and the scholarly are enmeshed in these fields. In the late nineteenth century, African Americans embarked on the study of their own history and literature; other strands of ethnic studies were engendered by the social and political movements of the 1960s (Butler & Schmitz, 1992; Gates, 1992). Interdisciplinary cultural studies were born of the "self-conscious linking of literary and cultural study with questions of cultural identity and political power" (Bathrick, 1992, p. 328). Feminist and gender studies derive their intellectual vigor from individualized perspectives:

There is a struggle at the seminar table between increasingly fragmented constituencies, and yesterday's marginal subjectivities are always in danger of becoming tomorrow's gatekeepers. But, and for

me this but makes all the difference, today's students need no longer check their subjectivities at the door. And our readings of all texts are therefore the richer. (Schor, 1992, p. 281)

Although some renowned scholars, Stanley Fish (1994) among them, assert that human diversity can and should be investigated within the disciplines, there is a decided openness to interdisciplinary approaches among those who study minorities and women.

Klein (in this issue of *Library Trends*) writes of "critical interdisciplinarity"—fields that intentionally "oppose traditional notions of unity and organic relation." Pritchard (1995) notes that women's studies:

challenges the very *notion* of distinctions, whether among disciplines, between teachers and students, or among the academy, the state, and the populace. Feminist thought has posed new theories about the connections between subjects, criticized philosophical notions of objectivity and universalism, uncovered bias in the canon, and questioned the *idea* of a canon [emphases in original]. (p. 16)

Conservatives have made the literary canon a rallying point for debates about "political correctness" (Berman, 1992). Interdisciplinary programs that deliberately question the canon receive sharp criticism, even ridicule, from many quarters. Popular culture studies are easy targets; because they study "texts" such as Hollywood movies and comic books, scoffers dismiss them as frivolous. In a similar vein, women's studies and racial/ethnic studies are denounced as subscholarly fields that cater to the self-esteem needs of special interest groups. Some conservatives write in panicked or nostalgic tones about the loss of a common core of knowledge among educated Americans. Interdisciplinary studies are derided as both symptom and cause of a disintegrating civic culture. (For an overview of conservative writings, see Jayne, 1991; for a sampling, see Berman, 1992.)

Liberals, on the other hand, defend universities against a simplistic "back to basics" doctrine. They argue that the history of American higher education provides no basis for the belief that "at one time there were harmony, tradition, and shared values [within the academy] that can be regained" (Thelin, 1992, p. 17). Today's realities demand a multicultural and interdisciplinary curriculum. They claim: student demographics are shifting; the United States is part of a global economy, and white Western culture no longer has a stranglehold on the minds of intellectuals. To criticize new interdisciplinary courses for focusing narrowly on the "special problems" of women and minorities, their developers insist, is to miss the point entirely. All curricula are political; all teaching shapes students' attitudes and behaviors. By focusing on issues of difference and power, fields like women's studies and ethnic studies merely make the connection between the classroom and the wider community explicit (Butler & Schmitz, 1992.) (For representative liberal opinions, see Berman, 1992.)

Although the positions seem irrevocably polarized, the debates about multiculturalism and interdisciplinarity have taken some interesting turns. For example, a scholar who advocates the study of diverse literatures staunchly defends the traditional disciplines (Fish, 1994), and a former chair of a women's studies program excoriates the field for its ideological excesses (Patai & Koertge, 1994). In this conflictive, often hostile, environment, librarians must chart a course that recognizes the special information and service needs of evolving fields without slighting scholars in traditional fields. The ethics of librarianship prohibit the insertion of personal opinions or beliefs into the processes of selecting, organizing, and interpreting library materials, hence, the individual bibliographer, cataloger, or reference librarian can take refuge in the standards of balanced collections and equitable service. The library administrator, however, may be swept into political and ideological battles.

The larger philosophical conflicts are likely to be overshadowed by the local skirmishes of campus politics. Because interdisciplinary programs assume a variety of institutional shapes, librarians should avoid falling back on rigid policies that define levels of service or collection strength based on the university's hierarchy of schools, departments, and programs. For pragmatic reasons or on principle, successful interdisciplinary programs do not always attain the official status of a department; instead, they may "continue to 'float' on the white space of administrative charts" (Casey, 1994, p. 54). By drawing faculty and students from several departments, an interdisciplinary program may either multiply its power or dilute it. It will likely fare well in the competition for campus resources if it has the support of influential faculty or senior administrators; it will founder if it lacks a solid power base within the hierarchy.

The allocation of a separate materials budget or subject specialist to an interdisciplinary program may bring protests from conservative members of the university faculty or even from community pressure groups outside the university. By the same token, doing away with special allocations or arrangements already in place may alienate another vocal constituency. The politicized nature of these fields circumscribes the library's flexibility to meet their proponents' information needs.

The growing pains of new interdisciplinary programs can affect libraries. During the evolution of library support for women's studies at Rutgers, divergent political stances within feminism had to be negotiated (Lee, 1995). The perennial issue of designating a subject specialist versus distributing responsibility among existing staff echoes philosophical debates within women's studies and racial/ethnic studies over autonomous versus mainstreamed curricula (Schmitz, 1985; Butler & Walter, 1991). It seems normal and desirable for an emergent field to evolve from a few scattered courses to a full-fledged department, but some academics have raised serious doubts about "ghettoizing" radical interdisciplinary studies within separate departments. The

underlying issues are similar to those that shape considerations of branch libraries. Library administrators may prefer to couch such discussion in the neutral language of costs and benefits, but they should not ignore the political meanings.

On the plus side, libraries have opportunities to take a leadership role in visibly supporting interdisciplinary inquiry. The process of establishing and legitimizing interdisciplinary programs can shine a momentary spotlight on library collections and services. For instance, student pressure to institute African American studies at Georgia State University included not only demands for increased library acquisitions but offers to help evaluate the existing holdings. By responding to the students' expressed needs, the library positioned itself to have representation on the faculty task force that established a new interdisciplinary minor (Mosby, 1994). Librarians should never forget that, in the endless jockeying for resources and prestige, university departments and programs grant enormous symbolic significance to concrete library issues such as branch libraries, separate budget lines, and designated subject experts.

CONCLUSION

Why has interdisciplinarity evoked so little attention from library leaders? Like the preoccupied frogs in the soup pot, do they forget to taste the changing seasoning of the simmering broth around them? Are they unaware of scholarly trends at their own institutions and worldwide? Do they take it for granted that other factors, such as the rapid transformations of information technology, will exert greater influence on the future of libraries than will shifting intellectual boundaries?³ Or are library administrators well informed about interdisciplinary scholarship but unfazed by the necessity of supporting it?

The fact that interdisciplinary studies, by and large, have not weakened or supplanted established academic fields makes them easy to ignore. Indeed, interdisciplinary teaching and learning have sparked a paradoxical revaluing of the traditional disciplines in some quarters. For example, the "writing across the curriculum" movement evolved from a focus on building generic composition skills to a focus on writing *in* the disciplines and on teaching students the knowledge structures and rhetorical conventions of their chosen fields (Herrington & Moran, 1992). This same dynamic can be observed in library user education. Librarians teach new students the basic principles of information organization that transcend disciplines, but they also provide upper-level students with advanced bibliographic instruction in specific academic fields. By many measures, the traditional disciplines are thriving both outside and within libraries.

Another obstacle to seeing library services in light of an interdisciplinary reality is the hidden (some might say subversive) nature of much interdisciplinary scholarship, which is carried out within the familiar

supportive structures of the disciplines. Klein (in this issue of *Library Trends*) quotes Keith Clayton regarding the “concealed nature of interdisciplinarity” that flourishes behind the “subject façade” of such established fields as agriculture and geography. On the one hand, librarians may observe self-proclaimed interdisciplinary programs (e.g., ethnic studies) struggling for even a marginal claim on campus resources, and conclude that interdisciplinary programs are by nature weak. On the other hand, librarians may fail to notice or appreciate the robust interdisciplinary teaching and research occurring under the aegis of existing departments.

Klein’s three “explanations” for relationships between the disciplines and interdisciplinary inquiry form a useful framework for understanding the university library’s choices in responding to the challenge of interdisciplinarity. Views of interdisciplinary inquiry as “normal,” “exceptional,” or “oppositional” lead to different conclusions about the library’s role. If one perceives interdisciplinary innovation as a normal part of the scholarly process, there is surely no cause for alarm or special measures.

The “normal” explanation holds that crossing boundaries is a usual characteristic of knowledge growth, evident in extensive tool borrowing and the migration of intellectual workers across disciplinary borders to solve problems. In the logic of the normal explanation, permeations are part of, and thus brought back into, the disciplinary order, even if they have an initial counterdisciplinary thrust. (Klein, 1993, pp. 206-07)

From this standpoint, continuing to strive for excellence in support of discipline-based programs will automatically create library collections and services that will support interdisciplinary experimentation on the part of faculty and students. “Normal” library practices will suffice for the “normal” ebb and flow of knowledge categories.

One may, on the other hand, view interdisciplinary programs as exceptions to business-as-usual in academe and therefore devise “exceptional” measures in response.

The “exceptional” explanation holds that disciplinary boundaries are substantial obstacles to cross-disciplinary inquiry, spawning an adhocery of mechanisms such as cross-departmental programs, research teams, centers, and hybrid fields. Yet even in the logic of the exceptional explanation the disciplinary center still holds and permeations end up being either normalized or marginalized. (Klein, 1993, p. 207)

Seen from this perspective, relatively minor ad hoc adjustments are required—a realignment of the book budget, the expansion of a librarian’s liaison responsibilities. Since the library’s mission embraces all facets of the university’s teaching and research activities, librarians continually

adjust budgets and re-order priorities in the name of equitable service. While such accommodations may be painful in times of tight budgets, they can be achieved without major restructuring.

The third view of interdisciplinarity discloses a deep discontent with, and opposition to, the familiar structure of the disciplines:

The "oppositional" explanation goes beyond assertions that disciplinary boundaries are arbitrary...to contest the very premise of disciplinary organization and argue instead for permanent cross-disciplinary structures, problem-focused intellectual work, and political intervention. (Klein, 1993, p. 207)

This view suggests that academic libraries as we know them—with collections, catalogs, and services framed by subject categories—cannot meet the needs of scholars who work within an interdisciplinary paradigm. The oppositional viewpoint is unlikely to gain a hold in academic libraries. It is difficult to imagine librarians flatly rejecting the knowledge categories that have shaped their profession for a century. True, some librarians envision a future where information is freed by technology from the strictures of organization. Yet barely at the threshold of such a future, other librarians are sounding an alarm and rushing to devise means to control the chaotic electronic information environment. If libraries have meaning at all, it lies in the very categories that librarians apply to select, organize, and dispense knowledge. These categories change, split, and merge over time, but the essential fact of categorization remains.

Sarah M. Pritchard (1995) writes: "Libraries serve as gatekeepers of culture and learning. In selecting some topics and ignoring others, in codifying knowledge through cataloging and classification, in actively assisting users or passively standing by, libraries control access to, and impose a structure and relational value on, all forms of information, creativity, and communication" (p. 16). Given the power of libraries to shape knowledge structures, university library administrators must pay closer attention to the exigencies of interdisciplinary scholarship. The selection of information resources, their organization for retrieval, and the delivery of expert assistance through reference and instructional services needs to be assessed in light of interdisciplinary information needs. The ongoing tension between specialized and general approaches and the political nature of some interdisciplinary fields must not be overlooked. Academic libraries that ignore the rise of interdisciplinarity risk becoming irrelevant to a growing portion of students and faculty.

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NOTES

- ¹ Most of the examples in this article are drawn from the humanities and social sciences, reflecting the author's background in women's studies and the subject scope of Memorial Library at the University of Wisconsin-Madison where she works. While the issues are similar in the sciences, there are important differences rooted in the nature of scientific communication, the funding of research, and other factors that are not explored here.
- ² The Committee on Institutional Cooperation (CIC) consists of the Big Ten universities plus the University of Chicago and the University of Illinois-Chicago.
- ³ Questions of selecting, funding, and managing electronic information and its requisite hardware and software do indeed preoccupy library administrators. However, when a group of stakeholders in academic libraries—faculty, university administrators, library directors, information technology managers, publishers, research consortium directors, and foundation directors—were asked to identify trends affecting the information environment, they rated "more interdisciplinary approaches to teaching and research" of equal importance with the impact of new technologies (Dougherty & Hughes, 1993, p. 8).

REFERENCES

- Allen, B. L. (1995). Academic information services: A library management perspective. *Library Trends*, 43(4), 645-662.
- Allen, B. L., & Sutton, B. (1993). Exploring the intellectual organization of an interdisciplinary research institute. *College & Research Libraries*, 54(6), 499-515.
- Allen, N. (1987). Communication arts and sciences. In B. J. Shapiro & J. Whaley (Eds.), *Selection of library materials in applied and interdisciplinary fields* (pp. 32-42). Chicago, IL: American Library Association.
- ARL Task Force on Scholarly Communication. (1986). *The changing system of scholarly communication*. Washington, DC: Association of Research Libraries.
- Atkins, S. E. (1991). *The academic library in the American university*. Chicago, IL: American Library Association.
- Baker, B., & Litzinger, M. E. (Eds.). (1992). *The evolving educational mission of the library*. Chicago, IL: Association of College & Research Libraries.
- Bartolo, L. M., & Smith, T. D. (1993). Interdisciplinary work and the information search process: A comparison of manual and online searching. *College & Research Libraries*, 54(4), 344-353.
- Bathrick, D. (1992). Cultural studies. In J. Gibaldi (Ed.), *Introduction to scholarship in modern languages and literatures*, 2d ed. (pp. 320-340). New York: Modern Language Association of America.
- Berman, P. (1992). Introduction: The debate and its origins. In P. Berman (Ed.), *Debating P.C.: The controversy over political correctness on college campuses* (pp. 1-26). New York: Dell.
- Berman, S. (1993). *Prejudices and antipathies: A tract on the LC subject heads concerning people*. Jefferson, NC: McFarland.
- Bloch, R.H., & Hesse, C. (1993). Introduction to "Special issue: Future libraries." *Representations*, 42, 1-12.
- Breivik, P. S., & Gee, E. G. (1989). *Information literacy: Revolution in the library*. New York: American Council on Education & Macmillan.
- Broidy, E. (1987). Bibliographic instruction in women's studies: From the grassroots to the ivory tower. In M. Reichel & M. A. Ramey (Eds.), *Conceptual frameworks for bibliographic instruction: Theory into practice* (pp. 86-96). Littleton, CO: Libraries Unlimited.
- Butler, J., & Schmitz, B. (1992). Ethnic studies, women's studies, and multiculturalism. *Change*, 24(1), 36-41.
- Butler, J. E., & Walter, J. C. (Eds.). (1991). *Transforming the curriculum: Ethnic studies and women's studies*. Albany, NY: State University of New York Press.
- Capek, M. E. S. (Ed.). (1987). *A women's thesaurus: An index of language used to describe and locate information by and about women*. New York: Harper & Row.

- Casey, B.A. (1994). The administration and governance of interdisciplinary programs. In J. T. Klein & W. G. Doty (Eds.), *Interdisciplinary studies today* (pp. 7-33). San Francisco, CA: Jossey-Bass.
- Chu, F. T. (1993). Bibliographic instruction and the scholarship of integration. *Research Strategies*, 11(2), 66-72.
- Clark, B. R. (1995). *Places of inquiry: Research and advanced education in modern universities*. Berkeley, CA: University of California Press.
- Cogswell, J. A. (1987). The organization of collection management functions in academic research libraries. *Journal of Academic Librarianship*, 13(5), 268-276.
- Cox, B. J. (1987). Social work. In B. J. Shapiro & J. Whaley (Eds.), *Selection of library materials in applied and interdisciplinary fields* (pp. 205-221). Chicago, IL: American Library Association.
- Crawford, W., & Gorman, M. (1995). *Future libraries: Dreams, madness & reality*. Chicago, IL: American Library Association.
- Cummings, A. M.; Witte, M. L.; Bowen, W. G.; Lazarus, L. O.; & Ekman, R. H. (1992). *Universities libraries and scholarly communication: A study prepared for the Andrew W. Mellon Foundation*. Washington, DC: Association of Research Libraries.
- CyberStacks. (1996). Available from: <http://www.public.iastate.edu/~CYBERSTACKS> (April 4, 1996).
- DeFelice, B., & Rinaldo, C. (1994). Crossing subject boundaries: Collection management of environmental studies in a multi-library system. *Library Resources & Technical Services*, 38(4), 333-341.
- Dougherty, R. M., & Hughes, C. (1993). *Preferred library futures II: Charting the paths*. Mountain View, CA: Research Libraries Group.
- Faries, C., & Scott, P. A. (1995). Invisible collections within women's studies: Practical suggestions for access and assessment. In R. AmRhein (Ed.), *Continuity & transformation: The promise of confluence* (Proceedings of the seventh national conference of the Association of College and Research Libraries, Pittsburgh, Pennsylvania, March 29-April 1, 1995) (pp. 409-415). Chicago, IL: Association of College and Research Libraries.
- Farmer, D. W., & Mech, T. F. (Eds.). (1992). *Information literacy: Developing students as independent learners* (New Directions for Higher Education, vol. 78). San Francisco, CA: Jossey-Bass.
- Fink, D. (1989). *Process and politics in library research: A model for course design*. Chicago, IL: American Library Association.
- Fink, D., & Loomis, A. (1995). Meta-learning for professional development. In D. Barclay (Ed.), *Teaching electronic information literacy: A how-to-do-it manual* (pp. 3-21). New York: Neal-Schuman.
- Fiscella, J. B. (1989). Access to interdisciplinary information: Setting the problem. *Issues in Integrative Studies*, 7, 73-92.
- Fish, S. (1994). Being interdisciplinary is so very hard to do. In S. Fish (Ed.), *There's no such thing as free speech...and it's a good thing too* (pp. 231-242). New York: Oxford University Press.
- Fisher, E. M. (1987). Race and ethnic studies. In B. J. Shapiro & J. Whaley (Eds.), *Selection of library materials in applied and interdisciplinary fields* (pp. 181-192). Chicago, IL: American Library Association.
- Frick, E. (1992). The think tank papers: Are we in the ball park? In B. Baker & M. E. Litzinger (Eds.), *The evolving educational mission of the library* (pp. 9-19). Chicago, IL: Bibliographic Instruction Section, Association of College & Research Libraries.
- Gaff, G. G. (1989). Interdisciplinary studies in higher education. *Education Digest*, 55(2), 57-60.
- Gates, H. L., Jr. (1992). "Ethnic and minority" studies. In J. Gibaldi (Ed.), *Introduction to scholarship in modern languages and literatures*, 2d ed. (pp. 288-302). New York: Modern Language Association of America.
- Gerhard, K. H.; Jacobson, T.; & Williamson, S. G. (1993). Indexing adequacy and interdisciplinary journals: The case of women's studies. *College & Research Libraries*, 54(2), 125-135.
- Gorman, M., & Holt, G. (1995). The corruption of cataloging (and) catalog outsourcing: No clear cut choice. *Library Journal*, 120(15), 32-34.
- Gould, C. C. (1988). *Information needs in the humanities: An assessment*. Mountain View, CA: Research Libraries Group.
- Gregory, R. H. (1987). Urban planning. In B. J. Shapiro & J. Whaley (Eds.), *Selection of library materials in applied and interdisciplinary fields* (pp. 236-249). Chicago, IL: American Library Association.

- Gunn, G. (1992). Interdisciplinary studies. In J. Gibaldi (Ed.), *Introduction to scholarship in modern languages and literatures*, 2d ed. (pp. 239-261). New York: Modern Language Association of America.
- Herrington, A., & Moran, C. (Eds.). (1992). *Writing, teaching, and learning in the disciplines*. New York: Modern Language Association of America.
- Hurd, J. M. (1992). Interdisciplinary research in the sciences: Implications for library organization. *College & Research Libraries*, 53(4), 283-297.
- Hurt, C. (1991). A vision of the library of the 21st century. *Journal of Library Administration*, 15(3/4), 7-19.
- Jayne, E. (1991). Academic jeremiad: The neoconservative view of American higher education. *Change*, 23(3), 30-41.
- Klein, J. T. (1990). *Interdisciplinarity: History, theory, and practice*. Detroit, MI: Wayne State University Press.
- Klein, J. T. (1993). Blurring, cracking, and crossing: Permeation and the fracturing of discipline. In E. Messer-Davidow, D. R. Shumway, & D. J. Sylvan (Eds.), *Knowledges: Historical and critical studies in disciplinarity* (pp. 185-211). Charlottesville, VA: University Press of Virginia.
- Klein, J. T. (1994). Finding interdisciplinary knowledge and information. In J. T. Klein & W. G. Doty (Eds.), *Interdisciplinary studies today* (New directions for teaching and learning, vol. 58) (pp. 7-33). San Francisco, CA: Jossey-Bass.
- Koch, L. P., & Preece, B. G. (1995). Table of contents services: Retrieving women's studies periodical literature. *RQ*, 35(1), 76-86.
- Krikos, L. (1995). BI challenges in women's studies: The Gateway answer. *Research Strategies*, 13(2), 69-79.
- Lee, H-L. (1995). Interdisciplinarity, women's studies, and library collection development. In E. S. Moseley (Ed.), *Women, information, and the future: Collecting and sharing resources worldwide* (pp. 181-186). Fort Atkinson, WI: Highsmith Press.
- Levy, D. M., & Marshall, C. C. (1995). Going digital: A look at assumptions underlying digital libraries. *Communications of the ACM*, 38(4), 77-83.
- Lipow, A. G. (Ed.). (1993). *Rethinking reference in academic libraries*. Berkeley, CA: Library Solutions Press.
- Markey, K. (1984). *Subject searching in library catalogs: Before and after the introduction of online catalogs*. Dublin, OH: OCLC Online Computer Library Center.
- Marshall, J. K. (1977). *On equal terms: A thesaurus for nonsexist indexing and cataloging*. New York: Neal-Schuman.
- Massey-Burzio, V.; Miller, W.; Whitlatch, J. B.; Durrance, J. C.; Ford, B. J.; & Biggs, M. (1992). Reference encounters of a different kind: A symposium. *Journal of Academic Librarianship*, 18(5), 276-286.
- Mellon, C. A. (1986). Library anxiety: A grounded theory and its development. *College & Research Libraries*, 47(2), 160-165.
- Mesplay, D., & Koch, L. P. (1993). An evaluation of indexing services for women's studies periodical literature. *RQ*, 32(3), 405-410.
- Metz, P. (1983). *The landscape of literatures: Use of subject collections in a university library* (ACRL Publications in Librarianship, vol. 43). Chicago, IL: American Library Association.
- Metz, P., & Foltin, B., Jr. (1990). "A social history of madness"—or, Who's buying this round? Anticipating and avoiding gaps in collection development. *College & Research Libraries*, 51(1), 33-39.
- Miller, M. A., & McCartan, A-M. (1990). At the crossings: Making the case for new interdisciplinary programs. *Change*, 22(3), 28-35.
- Miller, W. (1992). The future of bibliographic instruction and information literacy for the academic librarian. In B. Baker & M. E. Litzinger (Eds.), *The evolving educational mission of the library* (pp. 140-157). Chicago, IL: Association of College & Research Libraries.
- Mitchell, C. L. (1995). Breaking boundaries: Area studies collects women's studies. In E. S. Moseley (Ed.), *Women, information, and the future: Collecting and sharing resources worldwide* (pp. 35-38). Fort Atkinson, WI: Highsmith Press.
- Mosby, A. P. (1994). Coalition building to build collections. *Reference Librarian*, 45/46, 197-212.
- Mowery, R. L. (1989). Women in literature: A study of Library of Congress subject cataloging. *Cataloging and Classification Quarterly*, 9(4), 89-99.

- Olson, H. (1992). Subject access to women's studies materials. In B. H. Weinberg (Ed.), *Cataloging heresy: Challenging the standard bibliographic product* (pp. 159-169). Medford, NJ: Learned Information.
- Patai, D., & Koertge, N. (1994). *Professing feminism: Cautionary tales from the strange world of women's studies*. New York: Basic Books.
- Pikoff, H. (1991). Improving access to new interdisciplinary materials. *Library Resources & Technical Services*, 35(2), 141-147.
- Pitschmann, L. A. (1991). Organization and staffing. In C. B. Osburn & R. Atkinson (Eds.), *Collection management: A new treatise* (pp. 125-143). Greenwich, CT: JAI Press.
- Porter, G. M. (1995). Making the interdisciplinary multicultural: Collection building for the new millennium. In R. AmRhein (Ed.), *Continuity & transformation: The promise of confluence* (Proceedings of the seventh national conference of the Association of College and Research Libraries, Pittsburgh, Pennsylvania, March 29-April 1, 1995) (pp. 417-426). Chicago, IL: Association of College and Research Libraries.
- Pritchard, S. M. (1995). Women's studies scholarship: Its impact on the information world. In E. S. Moseley (Ed.), *Women, information, and the future: Collecting and sharing resources worldwide* (pp. 15-23). Fort Atkinson, WI: Highsmith Press.
- Radford, G. P. (1995). Characterizing the modern library: Rationality or fantasia? In R. AmRhein (Ed.), *Continuity & transformation: The promise of confluence* (Proceedings of the seventh national conference of the Association of College and Research Libraries, Pittsburgh, Pennsylvania, March 29-April 1, 1995) (pp. 335-340). Chicago, IL: Association of College and Research Libraries.
- Rogers, M. N. (1993). Are we on equal terms yet? Subject headings concerning women in LCSH, 1975-1991. *Library Resources & Technical Services*, 37(2), 181-196.
- Ryan, M. T. (1991). Developing special collections in the '90s: A "fin-de-siecle" perspective. *Journal of Academic Librarianship*, 17(5), 288-293.
- Ryan, M. T. (1994). Among the disciplines: The bibliographer in the I world. In P. Johnson & S. S. Intner (Eds.), *Recruiting, educating, and training librarians for collection development* (pp. 99-112). Westport, CT: Greenwood.
- Schmitz, B. (1985). *Integrating women's studies into the curriculum*. Old Westbury, NY: Feminist Press.
- Schor, N. (1992). Feminist and gender studies. In J. Gibaldi (Ed.), *Introduction to scholarship in modern languages and literatures*, 2d ed. (pp. 262-287). New York: Modern Language Association of America.
- Searing, S. E. (1992). How libraries cope with interdisciplinarity: The case of women's studies. *Issues in Integrative Studies*, 10, 7-25.
- Searing, S. E., & Ariel, J. (1987). Women's studies. In B. J. Shapiro & J. Whaley (Eds.), *Selection of library materials in applied and interdisciplinary fields* (pp. 250-269). Chicago, IL: American Library Association.
- Shkolnik, L. (1991). The continuing debate over academic branch libraries. *College & Research Libraries*, 52(4), 343-351.
- Thelin, J. R. (1992). The curriculum crusades and the conservative backlash. *Change*, 24(1), 17-23.
- UTK Libraries - LibLink: *Information by subject*. (1996). Available from: <http://www.lib.utk.edu/infosubject/> (April 4, 1996).
- University of Michigan: *Diversity librarian*. (1996) Available from: <http://www.lib.umich.edu/libhome/services/diverslib.html> (April 4, 1996).
- Waite, E. J. (1995). Reinvent catalogers! *Library Journal*, 120(18), 36-37.
- Watts, T. D.; Woodsworth, A.; Hibbard, M.; Atkinson, H. C.; & Holley, E. G. (1983). Centralization or decentralization of library collections: A symposium. *Journal of Academic Librarianship*, 9(4), 196-202.
- Whitlatch, J. B. (1990). *The role of the academic reference librarian*. New York: Greenwood Press.