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It's natural!" I proclaimed quickly. Just as quickly I regretted my words. Ben Amata, the government documents librarian, smiled. After I clarified my meaning in order to remove the strong pejorative bias, we continued our discussion about the pros and cons of classifying periodicals. At Sacramento periodicals are shelved in title order, but it has been suggested that we classify and order them by call number prior to the move into a major new addition.

My "natural" comment was elicited because students are familiar with alphabetical arrangements for organizing things. It is ingrained in them from childhood. The cubbyhole of my daughter, Jennifer, comes before Joshua's and after Hillary's at the Little Learners Daycare. Filing by title lets users go directly from periodical index to shelf and avoids the need for users to understand or jot down an artificial and thus alien call number.

My regret came because if what is natural is right, then what is unnatural must be wrong. However, people who regularly use this argumentative technique will soon lack an audience. I wanted dialogue, not silence. I did not want to impose an alienating structure on the problem any more than I want to impose an alienating organizing structure on our users.

Most of us have heard the advice that we should not organize our online catalogs like our card catalogs. We should take advantage of the new opportunities inherent in the new technologies to create new or better organizing principles. I always felt that this advice was sound, but I never knew why. I also wondered why I had only an intuition or a sense of the correctness of this advice but not a clearer, more objective knowledge.

Several days after my conversation with Ben, while reading Tom McArthur's Worlds of Reference: Lexicography, Learning and Language from the Clay Tablet to the Computer (London: Cambridge Univ. Pr., 1986), I learned why. Or more correctly, I relearned why.

Through the process of acculturation our minds become structured so that "things" are viewed from a certain perspective or set of perspectives. The problems that we face are unconsciously placed within this broader mental structure. Some would say that this process is necessary so that we can conclude quickly and act quickly. However, in some cases this mental structure may be inappropriate for the problem at hand.

Perhaps some of you know someone whose mind seems to operate as if it contained the knowledge of only one book, memorized once, and closed forever. The way this person thinks about things is obvious to us after only a few exchanges. We think of him or her as inflexible or rigid. For all of us, however, mental structures serve to delimit or cut us off from seeing some things in certain ways.

I tended to think of alphabetization as a natural ordering process until I read McArthur's words: "The catalogues have been compiled by a nineteenth century man of science and carry the inevitable mark of their time, but all in all they serve to remind us that whatever does happen in our minds when we order and retrieve 'words' and 'ideas,' it is not done alphabetically".

I don't know how to acquire a more responsive, better set of mental structures for organizing things, whether in life or libraries. I will try because the new perspectives may en-
able me to understand or to create a viable context for understanding what computers and other advanced technologies are doing to our world. Like a climber I need something to hold onto if I hope to climb higher. Maybe something simple will appear, something just as simple as the climber's piton.

According to McArthur, the consequences of the arrival of printing "were so vast that they have virtually wiped out our ability to understand what life was like in the scribal cultures that preceded printing". If the computer revolution parallels or exceeds the impact of the printing press on civilization we are going to have to challenge all our mental resources just to pick up the occasional glimmers of understanding that may slip through the dense fog that hides the future from us.

CHARLES MARTELL

IN FORTHCOMING ISSUES OF
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Cooperation, Collection Management, and Scientific Journals
by Elizabeth P. Roberts
Faculty Status for Academic Librarians: A Review of the Literature

Emily Werrell and Laura Sullivan

The faculty status issue continues to hold considerable attention among academic librarians. Although it remains a contested subject, there have been changes in general opinion about faculty status over the past few decades. This article is intended to identify the most significant aspects of the topic and to provide a general survey of the literature since 1974. An accompanying annotated bibliography of 121 items will be available through the ERIC Clearinghouse in early 1987.

For at least the past forty years, academic librarians have been deeply concerned with their professional status. Currently, the majority of academic librarians possess faculty status, which is defined as "an official recognition by an institution of higher education that librarians are part of the instructional and research staff by conferment of ranks and titles identical to those of faculty, and commensurate benefits, rights, and responsibilities." This review is intended to illustrate representative attitudes and practices concerning the faculty status issue from the mid-1970s to 1985. For the purposes of this article, faculty status differs from "academic status," which implies neither identical titles and ranks nor all of the rights and responsibilities of faculty. In addition, this article does not treat the much broader issue of professional status or professionalism in the library science and information field.

BACKGROUND

While faculty status is certainly widespread, it is almost as controversial an issue now as it was a few decades ago, when concerned constituents of ACRL were beginning to fight for that organization's official endorsement of faculty status. In 1959, ACRL did endorse faculty status as a right, but it was not until 1971 that its Academic Status Committee drafted standards and an official statement (jointly prepared by ACRL, the AAUP, and the Association of American Colleges) on the issue.

The path to this official endorsement was a long one, as is documented by Arthur McAnally in "Status of the University Librarian in the Academic Community." McAnally points out that, although librarians had always considered themselves to be educators, it was during the postwar period that their responsibilities changed drastically; rapid growth in collections and programs and new emphasis on the use of library resources in courses of study required better-trained and more specialized librarians. As they began to recognize their increasingly complex role, librarians became dissatisfied with their relatively low status.

Emily Werrell is Reference/Instructional Services Librarian and Laura Sullivan is Reference Librarian at Northern Kentucky University, Highland Heights, Kentucky 41076.
Many articles written during the 1930s and 1940s, if they did not support faculty status per se, did urge the adoption of some classification that would lend greater dignity and significance to library work. As the movement gained impetus, the faculty model was generally accepted as the most appropriate one for attaining this improved status. The rationale for this hinged primarily upon librarians' image of themselves as educators, with scholarly interests and knowledge on a par with those of the teaching faculty. By the late 1940s, surveys and review articles abounded in the library literature measuring and analyzing the degree to which librarians were recognized as members of the academic community. This analysis continues to the present day.

There was convincing reasoning behind this push for faculty status. Most academic librarians could see no better alternative for obtaining the recognition, respect, and privileges they felt they deserved. They wanted to be active members of their campuses—to have a voice in academic affairs, to have the opportunity to contribute in a scholarly fashion to the academic world, and to be recognized as partners of the teaching faculty in the education of students. According to the ACRL standards, without the librarian, the quality of teaching, research, and public services in our colleges and universities would deteriorate seriously and programs in many disciplines could no longer be performed. His contribution is intellectual in nature and is the product of considerable formal education, including professional training at the graduate level. Therefore, college and university librarians must be recognized as equal partners in the academic enterprise, and they must be extended the rights and privileges which are not only commensurate with their contributions, but are necessary if they are to carry out their responsibilities.

In addition, the argument was made that faculty status would upgrade the profession by attracting higher-quality personnel.

**FACULTY STATUS TODAY**

In the 1980s, most academic librarians (almost 79 percent) have some form of faculty status. This includes, in most cases, all of the responsibilities (i.e., research and publication, community service, activity in campus and professional affairs) and some of the privileges (i.e., opportunity for tenure, support for continued education, involvement in university governance) of teaching faculty. There are still some glaring deficiencies in the privileges academic librarians enjoy. For example, most academic librarians work under twelve-month contracts, do not receive salaries equal to those of teaching faculty with the same rank, do not enjoy a flexible work day and week, and are not provided with the compensatory release time necessary for them to contribute in a scholarly manner to their field. Add to these tangible disadvantages the collegial and social setbacks resulting from a negative image and an ambiguous role, and it is clear that academic librarians have far to go.

Still, many of us feel, as McAnally did in 1971, that "librarians must either join the faculty or be permanently relegated to peripheral and inferior roles." While it is true that academic librarians desire the working conditions and influence necessary to provide the best possible service and to make the highest possible contributions, there have been recent rumblings from within the ranks whether faculty status is the most appropriate vehicle for attaining these conditions.

In 1981, Richard Meyer reported that faculty status was held in disfavor by five times as many academic librarians as five years earlier. Many felt "relegated to second-class status. They felt pressure because of the necessity to compete with faculty—publish or perish—without the time to do it." For many years, academic librarians with faculty status have been trying to juggle all of their administrative, supervisory, public service, technical support, and even clerical responsibilities as librarians with the increasingly stringent scholarly, collegial, and community responsibilities they have as faculty members—all the while continuing to work forty hours a week, eleven months a year, and to earn salaries consistently at the low end of the pay scale for similarly ranked faculty at their institutions. The
strain is beginning to show.

Other arguments against faculty status maintain that the problem lies not in working conditions, but in the fact that our profession lacks a sound identity of its own. Recent articles argue that we as librarians should be respected on the strength of our unique contributions to the academic world, and not according to criteria set for a profession that differs from our own. Lance Query said it this way: "Until academic librarians are recognized for what they really do rather than for a dimly defined and selectively relevant 'teaching' function, their role in the mission of the college or university will continue to be misunderstood and, inevitably, undervalued." There is a growing sentiment that we may have been mistaken when we adopted faculty status so wholeheartedly in order to elevate our own positions.

Several authors decry the decision of ACRL—and academic librarians in general—to ride the coattails of teaching faculty. In a 1983 article, John DePew states that "the ranks and titles of the teaching faculty should not be used because they are the labels of another profession . . . when librarians use them for their own, they undermine the integrity of their own profession, and in a real sense deny it, by trying to use what Robert Pier- son calls the 'protective coloration' of another profession to label what it isn't." Meyer states that "the implementation of faculty status is tantamount to leaving the profession for one of a supposedly higher status." In a 1984 survey, Thomas English found that most academic administrators believe that granting faculty status to librarians does nothing to benefit the university and that faculty appointments are unsuitable for librarians.

As the belief that the faculty status model is inappropriate has gained popularity, some librarians have made an effort to change their status from a faculty model to something unique, reflecting their special contributions. As DePew wrote, "some libraries that did make an effort to implement full faculty status in accordance with the ACRL standards have begun to have second thoughts." In 1983, Anthony Tassin reported that "large numbers of academic librarians are beginning to doubt its benefits or even assert their conviction that faculty status is not to their advantage." English's 1983 survey of ARL libraries found that "the once-popular thrust to shift academic librarians from nonfaculty to faculty status—a movement of considerable impetus in the 1960s and early 1970s—had apparently run its course." Indeed, English found that the only shifts of this kind in recent years were in the other direction. W. Bede Mitchell and L. Stanislava Swieszkowski report that of the thirty-seven respondents to their questionnaire on status and publications, sixteen institutions in the last ten years have changed their librarians' status to nontenure track and twelve have adopted a tenure-track system not requiring publication. Despite the fact that some creative alternatives have been implemented, a resolution of the problem on a national scale remains elusive.

SPECIFIC ISSUES

In addition to articles about faculty status trends, the literature is saturated with research exploring, defining, and questioning the spokes of the faculty status wheel: publication/scholarship, governance and collegiality, librarians as teachers, collective bargaining, salary, contract year, peer review, and other related issues. The following selected viewpoints represent the more vocal issues in the literature.

Publication/Scholarship

This salient topic poses a dilemma for many librarians—are we librarians only, scholars or authors, or some fuzzy combination of all three? As the emphasis on scholarship continues to grow, a further complication exists within this added requirement. Frederick Isaac, concerned that pressure exists "on all librarians to contribute to the profession through the development, achievement, and publication of significant research," discusses several resultant dilemmas facing the librarian. For example, if one accepts the premise that publication by librarians is valuable—and not all do—the next ques-
tion is, Should librarians publish only in librarianship, or in an outside discipline as well?"16

While some argue that librarians must produce more (and increasingly improved) research concerning their field, John Kaiser presents another angle. He insists that for the librarian and library science student to attain "bona fide academic status," he or she must gain competence in a subject field and publish in that subject field. This will yield closer faculty contact and a chance for the librarian to be accepted as a member of the academic community.17

A problem also exists for those librarians who have little interest in publishing or who feel that service is more important than scholarship.18 Willis Bridegam asserts that "a requirement or an expectation to perform research and to publish it could result in a serious reduction in the level of service provided to the library's users."19 John Campbell, sarcastically addressing library school faculty, says "give up your quest to teach people to catalog, to do reference, to serve a public. Teach them instead to write, research, get things published."20 On the other hand, from a survey by Dwight Burlingame and Joan Repp, several academic librarians who published felt that research enhances the quality of library service rather than detracting from it.21

According to some authors, factors such as lack of release time and contract year (twelve months for most librarians) prevent librarians from devoting the amount of time it takes to conduct serious research. In a survey by Jack Pontius and other U.S. academic members of ARL libraries, 94 percent of those libraries with faculty status required research for promotion and tenure, however only 9 percent provided regular release time for such research.22 In a survey by Ronald Rayman and Frank Goudy of the ninety-four ARL libraries, thirty-five libraries provided release time while thirty-three did not.23

With increasing pressure on librarians to publish, the lack of release time places the burden on librarians to initiate research, according to Daniel Traister.24 However, Burlingame and Repp surveyed academic librarians (authors and non-authors) concerning what motivated them to publish and found that institutional encouragement (i.e. release time), "excluding the promise of tenure or promotion, is not a factor in successful publication efforts."25

Whether or not release time is a factor, Mitchell and Swieszkowski found that research and publication affect tenure. Their survey of 138 Center for Research Libraries members showed that lack of sufficient research and publication are the most frequent causes of librarians being denied tenure.26

Several articles in the literature have dealt with means to aid librarians faced with the research requirement. Susan Miller and others explained the Academic Library Research Committee at the Ohio State University Libraries, which was charged "to promote research activities and projects by the Libraries faculty, to identify areas and/or interests to be investigated, to coordinate research activities within the faculty, to solicit funds and individuals to do research, and to publicize research activities."27 This committee also designed a reassigned time policy for the OSU libraries. Darrell Jenkins, Kathy Cook, and Mary Anne Fox detailed the design of the Research Interest Group at Southern Illinois University at Carbondale. This provides those interested a chance to hear outside speakers and faculty members discuss research experiences and offer advice.28

**Governance and Collegiality**

Governance and collegiality concerns are also evident in the literature. Page Ackerman reviewed the governance issue, specifically addressing ACRL Standards for Faculty Status for College and University Librarians (1975) and the Statement on Faculty Status of College and University Librarians (1975). Noting deficiencies in these documents, Ackerman says the Statement "fails to specify the means by which librarians shall achieve voice in institutional governance." The Standards are also ambiguous: "They specify membership in the senate as the means for achieving voice and place no role and authority of the library faculty in internal govern-
ance." The lack of a precise role for librarians in institutional governance is due in part to confusion among academic colleagues about the status of librarians, as well as to ambiguity in the profession's own standards. 29

In the area of library governance, there are distinct differences between the traditional hierarchical structure of libraries and the traditional collegial structure of academic departments. Adeline Tallau and Benjamin Beede say "the rarity of a collegial form of library governance is a reflection of the restricted dimensions of the 'faculty status' accorded to librarians in most colleges and universities." 30 Another explanation for these differences is the difficulty in applying a collegial structure to a bureaucratic setting. Robert Sewell says "it is still widely felt in the profession that in administrative structure, libraries resemble hospitals more than universities . . . [in that] they are composed of large work forces ranging broadly in status," whereas in colleges and universities, the faculty members are equals.

Tallau and Beede argue that librarians should mimic the collegiality of teaching departments in order to attain true faculty status. 32 At Dickinson College, the library faculty succeeded in changing from a hierarchical form of governance to a collegial one. Some changes included a nine-month contract rather than an eleven-month one, and one month in the summer devoted to research and professional development. The library became the "Department of Library Resources, with a chairperson elected by department members and approved by the dean, as all other department chairpersons were . . . this meant rotation of the chairpersonship as well as department heads!" 33

Other less revolutionary means of improving governance and collegiality have been reported. The library at Georgia State University chose to make their governance more specific and participative. Michael McDavid details the process of establishing bylaws at Georgia State and the resulting faculty committees and an administrative council. 34

Richard Meyer admits that an alignment with the faculty model has supposedly been helpful in raising librarians' status and improving self-image. Nevertheless, he labels collegiality and the faculty model inappropriate due to an evaluation procedure ill-fitted to librarians, and the expectation for librarians to do research that is wrong "if pursuit of scholarly studies—just for the sake of evaluation criteria—or of teaching diverts the academic librarian from providing service." 35 Instead, Meyer desires a professional librarian model and calls for librarians to be committed to service and "to pursue self-esteem and status on the basis of good service rather than on artificial attachments." 36 Louise Sherby opts for librarians to pursue extraprofessional activities, such as committee work and institutional service, enabling the teaching faculty to acknowledge librarians as equals. 37

Librarians as Teachers

Librarian identification with faculty, especially in the role of teacher, is also significant in the faculty status question. Pauline Wilson's well-known article on librarians as teachers describes this concept as an organization fiction, "disguising the truth, and it has contributed to the difficulty librarians have had in explaining their work and developing an understandable and believable professional identity." 38 Wilson claims that library instruction may be a function of academic librarians, but this in itself is not sufficient to warrant librarians' right to faculty status.

David Peele is of the opinion that teaching is only a very small part of what librarians do, and that it cannot be compared to the teaching of subject matter in the classroom. While granting that librarians do have some knowledge of subject areas, he feels "that in the majority of cases knowledge of content does not necessarily mean we are teaching it, and I also believe that there is a difference between what we do at our desks and what they do at their lecterns. There certainly is such a difference from the point of view of the student. 39 He also wonders how technical services librarians fit into the teaching role.

John Budd has an opposite viewpoint—like teachers, librarians provide students with information "in a systematic and or-
derly fashion, thus increasing the student’s store of knowledge.” The only difference is that a student’s informational need is met at the reference desk and not in the classroom. The librarian’s role as teacher, as well as researcher and publisher, is important in attaining faculty status and does not strip librarians of their identity as librarians.

Although Mary Biggs identifies faculty status as one area of tension between faculty and librarians, the two groups are apparently compatible according to Mary Huston and Frank Motley. Evergreen State College has devised a librarian-faculty rotation whereby librarians may work as teachers for a term with all the benefits (faculty pay scale, nine-month contract); likewise, teachers take on the duties of public service librarians, such as handling collection development, bibliographic instruction, and reference.

Becoming accepted as teachers may continue to be an uphill struggle for librarians, as surveys of academic administrators and teaching faculty have shown that academic librarians are not generally perceived to be teachers. Opinions differ regarding whether this is due to librarians’ failing to make known what teaching functions they perform, to the fact that librarians in general are simply not as well educated as faculty, or to sheer ignorance and ill will on the part of teaching faculty. Perhaps the most fundamental cause is proposed by Wilson: “There is no basis for recognition. It is not that teachers and professors will not recognize librarians as teachers. Rather, it is that they cannot. There is nothing visible with which a connection can be made to permit or produce recognition.”

Collective Bargaining

Another component of faculty status is what Margaret Beckman said “will be the normal pattern for the majority of academic library staffs within the next decade”—collective bargaining. Presently, there is little in the literature to substantiate this prediction; apparently, the interest in collective bargaining was highest in the mid- to late seventies as indicated by the flurry of publications on the subject surfacing at the time. However, a recent study indicates an increase in union activity on campuses in the last few years. One such campus is Curry College, whose bargaining agent is the AAUP. The librarians hold faculty ranks, are eligible for sabbaticals and research support, have long vacations and twenty-eight-hour work weeks in the summer, and enjoy generous benefits including maternity, paternity, and adoption leave. The study also reports that recent union negotiations have dealt with working conditions and personnel evaluation; grievance issues have included leave policy, sexual harassment, and flexible scheduling.

John Weatherford believes collective bargaining is a positive factor in the quest for full-fledged faculty status. He examines the ACRL Statement on Rights and Privileges, which “recommends nine rights or privileges that academic librarians ought to share equally with all faculty members, and provides for sanctions against colleges and universities that do not grant them.” These rights are self-determination on the job, library governance, college and university governance, compensation, tenure, promotion, leaves, research funds and academic freedom. Weatherford states that since the inception of faculty collective bargaining in four-year colleges and universities, parity for academic librarians has not yet been achieved in all nine areas of the ACRL Statement, although some progress has been made.

Belle Zeller also recommends that librarians “make themselves an integral part of their faculty unions,” although at the same time recognizing the obstacles to faculty unionization, such as faculty reluctance and the lack of authorization by state legislatures for public employees to bargain collectively. An additional obstacle is the minority status of librarians on a unionized campus. The library faculty needs to be assertive, cohesive, and well-organized so that their interests will not be “compromised at the bargaining table by the larger group.” David Kreh, documenting the history of faculty status and collective bargaining at SUNY, calls for librarians to participate in their unions at...
the state and local levels so that their special concerns will be recognized.53

A survey of librarians at six universities by Stella Bentley showed some interesting results. For example, a bargaining agent had an effect on length of contract year—an academic-year contract was more likely if librarians were included in the bargaining unit. However, the study showed that librarians with a bargaining agent were less satisfied with their economic status. The presence of a bargaining agent did not significantly affect their research, publication, and professional activities.54 Further research is necessary to see if the statistics have changed since this study.

Finally, collective bargaining raises the issue of the power possessed by librarians on campus. In 1975, Weatherford called collective bargaining "an exercise in power."55 David Sparks states, "The advent of collective bargaining is simply the ultimate test, for librarians, of their cohesiveness as a professional group, their commitment to the profession, their understanding of the power relationships within the academic situation where they work, and their ability to convince the principals in this struggle of the validity of their claims."56

While peer review, salaries, contract year, and other benefits (i.e. sabbaticals) are covered in the literature, the number of publications is small in comparison to some of the previously mentioned issues. This does not imply the unimportance of these issues, or the lack of significant research findings. Still, the specific areas of concern covered in this article represent the ones most widely discussed in the recent literature. Because the topic continues to generate heated debate as well as scientific appraisal, it is hoped that this essay provides a thought-provoking overview of the trends in attitudes and practices related to faculty status and the many peripheral areas of concern surrounding the issue.

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Managing Change: Supporting Users of Automated Systems

Gary Marchionini and Danuta A. Nitecki

Rapidly evolving technology is bringing change to academic libraries in unprecedented ways. One strategy for managing the changes due to online integrated library systems is to provide user and staff training. A review of the training literature and the results of three projects for supporting patron use of this system are presented. Results indicate that academic library patrons have little trouble using such systems and respond favorably to all modes of training. The results suggest that training should focus on generic strategies for information seeking rather than on the functional use of integrated library systems.

Central to all American libraries is providing access to information, a mission typically met through the acquisition and systematic organization of published materials. The organization is reflected in orderly tools, such as catalogs, which offer users means to identify what is locally owned. With the development of electronic integrated library systems this bibliographic control often becomes a powerful intermediary for connecting the users' needs and the library's holdings through multiple access points. Moreover, electronic systems have the potential to extend users' information-seeking capabilities beyond local holdings. The introduction of new technologies and techniques for information processing is a double-edged sword. It promises to improve efficiency and effectiveness in handling information for librarians and patrons alike, but it also brings the stresses of change due to new patterns of behavior, equipment failure, and new ways of thinking. Managing the change related to automation has emerged as a central concern of librarians today. A natural and logical response to this concern is to provide training and support services for staff and patrons. This article describes three research efforts related to an automated library system and discusses their implications for patron support services in academic libraries.

LIBRARY INSTRUCTION

Most American academic libraries accept the obligation of providing instruction as part of their mission. A distinction is often made between user orientation to local resources and services and bibliographic instruction for library research methods. Both types of instruction must include introduction to and use of online tools through which a user can meet specific information needs.

As machine-readable library databases become available through campuswide networks connecting powerful work stations, the library's traditional instructional role may be challenged and certainly will be changed. Computer center staff also see patron assistance as a natural extension of their mission. Debates and cooperative efforts are emerging as librarians and computer center personnel try to resolve their traditional functions in light of new technological developments.

It is essential that libraries provide effec-
tive instruction and assistance at the comfort level as well as the competence level. To provide such instruction, methods and materials that are customized for adult learners in an academic setting must be developed and integrated with existing methods and materials. Everyone agrees that support services specific to electronic information systems be provided; what is not clear is how best to structure, deliver, and evaluate these services.

Population and Content

Foremost in any instructional plan is consideration of the client population. In academic libraries, the clients are adults who are generally intelligent and knowledgeable about information services. Research in adult learning indicates that adults vary greatly in capabilities, are self-directed learners, have large and formalized knowledge bases, carefully consider the investment of time in learning, and learn from a variety of media. These results should guide the design of training procedures and materials for users of academic libraries. Short, intensive units that are individualized and delivered in a variety of formats are best for these learners.

Since materials of this nature can be expensive to develop and maintain, it is essential that the amount and type of content be carefully considered. Attention to information-seeking strategies and judging relevancy should be the ultimate goals of most user training, not the mechanics of using a particular index or system. As the studies described below demonstrate, attention to the mechanics of using automated systems in the context of an academic library does not optimize library resources or users' learning time. Instructions for using a system can be effectively and inexpensively provided through the provision of easily accessible, self-directed materials. Various media are available for this purpose and considerable research has been conducted on the role of media in delivering instruction.

Instructional Media

Researchers in many disciplines have conducted investigations comparing the effectiveness of various media for instruction. Research summaries of media selection report no conclusive evidence for the effectiveness of various media. R. Clark even suggests that the medium makes no difference in learning. Robert Reiser and Robert Gagne present an overview of models used for selecting media for instructional purposes in which they suggest that the specific instructional variables included in the model contribute a bias for the eventual determination of media. Considering the number and complexity of the variables involved, it is not surprising that conclusive evidence has not been found.

There have been many studies of instructional media particular to library instruction. Most have involved library skills instruction, and there is little doubt that this is effective and useful for students. Comparative examinations of different media have also been conducted. Frank Kuo compared six modes of instruction for library skills and concluded that simply adding visual support to instruction did not affect learning, and an audiovisual presentation supplemented by a librarian was superior to self-directed audiovisual instruction. Since time on task was not controlled, these results are not surprising.

Julia Baldwin and Robert Rudolph compared slide/tape to guided tour instruction with no conclusive results. Timothy Jewell compared self-paced workbook instruction to media-assisted lectures and found that students generally favored workbooks. Other researchers found use of programmed instruction books superior to the lecture method in teaching bibliographic skills.

Susan Rawlins found no statistically significant differences between computer-assisted instruction (CAI) and lecture but students reacted more favorably to CAI. M. Guilfoyle noted that student assistants felt CAI was a good way to learn library skills.

Maria Saguanes and James Neal evaluated a self-instruction course with favorable results but made no formal comparisons. After reviewing various instructional media, Nancy Fjallbrant and Ian Malley conclude, "In practice a combi-
nation of teaching methods and media can be expected to provide the best basis for programmes of library user education, different methods being adapted to different parts of the programme and to the teachers and students concerned.14

Overall, there is no conclusive evidence from psychology, education, or library science that one mode of instruction is superior to another in providing instruction, although attitudes toward nontraditional methods are reported to be superior. Taken as a whole, the evidence suggests that differences in learning are more likely due to interactions among individual characteristics, subject matter, and media. A pragmatic approach would be to provide a variety of media and allow the learner to choose which to use.

THE STUDIES

In an environment such as the campus of the University of Maryland at College Park, the responsibility to provide training in using the online integrated library system, including the public query feature of the circulation system and the online catalog, is a natural extension of the library's traditional role of offering both bibliographic instruction and user orientation. During the 1984–85 academic year three studies of the university's integrated library system were conducted. In one, patron instruction was the primary interest, in another, patron use was examined, and in the third, staff support service for patrons was considered.

Learning to Use the Online Circulation System

A comparative experiment was conducted in spring 1985 to determine which of three modes of instruction was superior in introducing library users to a newly implemented online circulation system and to relate each of these modes to individual characteristics. The research was sponsored by the Council on Library Resources and the full report is available as an ERIC document.15 A brief summary of procedures and results follows.

An instructional sequence or script was written, which presented an overview of the integrated library system and gave detailed instruction for using the online circulation subsystem. The functions targeted for instruction were searching for an item by author, title, or call number; placing a hold; and obtaining patron information. Examples were selected to illustrate both concepts and procedures and sample screen displays were prepared. The script was evaluated for accuracy and clarity by public services staff in the campus libraries and revised as necessary.

The script was used to develop three parallel modules, each using a distinct mode of instruction. The three modes were printed text, videotape, and interactive (hands-on). The text version was simply the original script with example screen displays embedded at appropriate places. The interactive version used the same text but subjects actually worked through the examples at a terminal by using the text in a "cookbook" fashion. The video version consisted of a narration of the script with actual screen displays shown as examples.

An achievement test was designed to measure procedural (what to do), interpretative (what does a screen mean), and general (what is included in the database) knowledge about the system.

A demographic section was appended to the final instrument. A total of fifty-one subjects, mostly graduate library science students, were assigned to one of the three treatment groups. Each subject had twenty minutes to use the instructional unit and ten minutes to complete the achievement test. Individual characteristics considered in the study were gender, previous computer experience (five-point scale), previous online circulation experience with the system studied (two-point scale), previous online circulation experience with other systems (two-point scale), age, and native language.

In general, subjects were able to master the use of the online circulation subsystem regardless of the mode of instruction. The overall mean score on the achievement test was 87 percent. A one-way analysis of variance across treatment groups resulted in no statistically significant differences ($F = 2.81, p > .05$) among the three instructional modes. A weak relationship (Spearman $r = .22, p > .05$) was found between treatment and willingness to use the system in the future. Subjects in the
interactive group were most likely to use the system in the future, with the videotape group least likely to use it in the future. No statistically significant correlations between individual characteristics and achievement were found. The results of this study suggest that patron instructional needs for using an online circulation system can be met with a variety of short, introductory modules that are freely available for individual patron use.

**Searching the Online Public Access Catalog**

Also sponsored by the Council on Library Resources, this study explored user search behavior when using an online public access catalog (OPAC). One of the purposes of the study was to develop an experience base for the design and evaluation of OPAC training methods and materials. Both search patterns and search results were examined with respect to individual characteristics of subjects. Search patterns were also related to the system’s user interface.

Thirty-nine subjects, mostly graduate library science students (but not any who participated in the previous study), were given thirty minutes to conduct two researcher-assigned searches using the OPAC. One search was simple and focused and the other was complex and open-ended. No instruction in using the system was provided and users had no previous experience with the OPAC. All user keystrokes and system responses were captured in the system’s log file. A relevancy score based upon the research team’s judgments was computed for each search. Subject searches that exhibited a variety of access methods (e.g. subject, author, keyword, etc.) were classified as heterogeneous searches and those that contained a single access method were termed homogeneous. Together with questionnaire responses upon completion of the searches, these user/system interactions served as raw data for examination of search patterns and search results.

About two-thirds of the subjects used homogeneous search patterns, and no statistically significant (at .05 level) correlations were found between individual characteristics and search pattern. Subjects were generally successful on the criterion measures of number of hits, relevancy score, and satisfaction with results. No statistically significant (.05) correlations between individual characteristics and success measures were found. Overall, subjects found the system to be easy to use and very seldom used the help function. Although some suggestions were made for improving the command set and screen displays and making command summaries available near the stations, subjects found the system to be easy to use even with no instruction. It should be noted that Boolean search capabilities were not yet implemented at the time the study was conducted.

Based on the results, substantial resource investments in training materials seems imprudent. However, command summaries should be available at the terminals and short, introductory modules in a variety of media formats could be made available for independent patron use.

**User Assistance Survey**

Another method for managing the introduction of an integrated library system is to assign library staff to areas where terminals are placed so introductions can be given and questions answered. Because this can be expensive and can divert staff from other functions, a pilot interview/survey was conducted in the fall 1985 semester to determine whether patrons used or required personnel dedicated to the online system.

An interview protocol was developed and used with randomly selected users to assess their satisfaction, success, and perceptions about ease of use. After using the system, subjects were also given an opportunity to have a graduate library science student reconduct their search for them. Of the sixteen users interviewed, two-thirds were successful in finding information they sought even though half of the respondents had never used the system before. All users said that the system was easy to use, and only one user asked to have the search augmented by the interviewer.

Only one-third of the respondents who used the OPAC looked in the card catalog,
serials list, or other sources in addition to the OPAC. This is significant because at the time of the study the OPAC did not contain all items in the card catalog. Signs pointing this out were prominently displayed. This study suggests that full-time staff need not be assigned to the terminal area. It does reinforce the need to help patrons look beyond the integrated library system for comprehensive information and suggests that library instruction focus on the many sources of information available in academic libraries rather than on the mechanics of using a particular system.

CONCLUSIONS AND RECOMMENDATIONS

It is clear from these studies that users in an academic library are ready and able to use integrated library systems with little formal training with respect to the mechanics of using electronic equipment and systems. What is needed is library instruction that stresses the various sources of data available both locally and remotely; strategies for searching electronic systems, e.g., broadening and narrowing tactics, using synonyms, and differentiating between full-text, numeric, and bibliographic databases; and ways of judging relevancy. The particulars of using a system, e.g., what keys to press for an author search or what masking or truncation key to use, can easily be provided with flip charts or posters available near the work stations.

A second recommendation is that instructional modules that address topics users need help with should be provided in short, intensive units and in a variety of media that allow self-directed study. It is not the medium that makes a difference, but the instructional content. Providing a variety of media may help attract a wider range of users to the system.

It must be noted that systems are becoming easier for uninitiated patrons to use, and although this suggests the need for less staff assistance in how to use the system, it does not diminish the need for staff assistance in when to use the system and what the results of using the system mean. The ease of getting some response—regardless of how incomplete it may be—seems to generate a false credibility that the system’s response is adequate or even comprehensive. This challenges librarians to raise users’ consciousness, to stir curiosity in the incompleteness of our controls over the wealth of information available, and to raise self-confidence in their need to know. These are the real challenges of change that must be met by academic libraries.

One thing is certain, change will continue. We are in the midst of a transition period as users increase their interaction with machine-readable databases. Since these databases are not yet fully developed and new ones are emerging, most libraries are required to make simultaneous use of electronic and manual systems. Search languages are not standardized, let alone natural language-like, and are sure to change as pseudointelligent front ends and gateways evolve.

In the midst of these changes, the focus of the academic librarian should be to provide settings and tones that induce comfort and a sense of human control over systems; guidance on what resources most effectively meet various information retrieval needs; basic instruction on search techniques; and assurance that the entire process is not difficult and is evolving toward more efficient, effective, and easy-to-use systems. Such demands may not allow for the most thorough examination of every nuance of use of online systems, but should be met with greater flexibility and attitude conditioning to cope with and welcome inevitable change.

REFERENCES


The Nature of Authority and Employee Participation in the Management of Academic Libraries

Charles Martell

Power and control are central forces in organizational life. Some researchers have even concluded that the control of behavior is often substituted for control of outcomes. This practice could lead managers to ignore relevant environmental changes in favor of strategies that reinforce and enhance their personal self-interests. This article examines the nature of authority as embedded in organizational and professional structures within an academic library context and its relationship to the fit between the organization and the environment. Who makes decisions about what is a key factor in how control is maintained? Traditional theories of management circumscribe the extent of employee participation in decision making. In practice, this may lead managers to limit participation because it threatens their control. In a dynamic environment, however, this strategy could be dysfunctional. Two alternative forms of decision making are introduced: self-regulation and formal participation.

The subject was corporate transfer assignments. As the vice president for personnel turned to a map of the United States located on the wall, he remarked that employee transfers were simple. "All I have to do is lift a pin here in White Plains and place it in San Francisco. That's all there is to it." Shortly thereafter my interview for a sales/marketing position at General Foods concluded.

Because he rejected any personal or family considerations that might be involved in such transfers, I felt that the executive's remarks were callous. Today I also realize that he expected me to give him the power to control not just my work life but my personal life as well.

In academic librarianship our experiences with power are not usually so blatant. Power and control are, however, central forces in organizational life. Indeed, some researchers view the control of behavior as a primary goal of traditional organizational structures. This is surprising since the most commonly held belief is that these structures are mainly oriented toward the control of outcomes, i.e., toward better products and services. In libraries, the desire to protect sources of power and control within the organization may lead some major stakeholders to ignore or minimize the needs of external constituencies.

To counter the negative manifestations of power and self-interest, new forms of involvement, such as self-regulation and formal participation, could be adopted by organizations (1) to focus attention on the development of better products and services rather than on the control of behavior, (2) to decentralize power so that a more equitable balance of interests can be

Charles Martell is Associate University Librarian for Public Services at California State University, Sacramento, California 95819.
achieved, and (3) to change authority structures so that members throughout the organization can contribute to the decision-making process in a more meaningful way.

This article examines the nature of authority as embedded in organizational and professional structures within an academic library context and the relationship of these factors to the fit between the organization and its environment. Special attention is focused on how various structures may inhibit responsiveness to environmental changes. The concept of power is treated next. The third section explores decision making, and in the final section two alternative forms of decision making are introduced: self-regulation and formal participation. If adopted, these alternative forms would necessitate changes in authority relationships and in the design of the organization.

ORGANIZATIONAL STRUCTURES

An organization is an open system. Its members interact with one another and with an outside system—an external environment. The variety of self-interests, perceived goals, and environmental demands usually leads to a multiplicity of often competing goals within the organization.

In theory, the organizational structure, that is, the formal pattern of roles and relationships, provides a common sense of purpose and direction so that diverse interpersonal, organizational, and environmental demands can be more efficiently reconciled. Complexity and uncertainty complicate the decision-making process and hinder agreement on goals. As a result, and in contrast to the past, there may be less internalization of work-related norms. This increases the difficulty of planning, directing, and controlling organizational outcomes.

Viewed in terms of classic organizational theory, the lines of authority and responsibility in libraries emanate downward from the head librarian through a process called delegation. Managers thus empowered control resources, access to information, and information itself. They also control decision-making processes. In theory, this hierarchical structure provides a basis for effective decision making. In practice, the structural hierarchy may constrain the decision-making opportunities of those who do not have formal authority or responsibility. Moreover, this system may encourage individuals in positions of responsibility to stress control of behavior through rules, evaluation, and the structure itself. The control of outcomes may become secondary. This would increase the likelihood of a mismatch between the organization and its environment.

In their book, Organization and Environment, Paul Lawrence and Jay Lorsch look at the problem of how "different external conditions might require different organizational characteristics and behavior patterns within an effective organization." Mismatches occur when organizations are insensitive toward or otherwise fail to respond to relevant environmental shifts.

According to Lawrence and Lorsch, organizations structured along traditional lines are most successful when conditions are stable. In dynamic or turbulent environments, they tend to be overly rigid. In such environments, less hierarchical systems that encourage participation are characteristically more adaptive and successful.

The structures that we confront at work may constrain the scope of our actions and may limit responsiveness to users. How can we escape this bind? At the very least we can adopt a more critical posture toward these major structures, both organizational and professional. This would allow us to distinguish more clearly between those aspects of the structure that benefit our users and meet our obligations to the environment and those aspects of the structure that constrain such action.

Organizational/Environment (O/E) Fit

Significant organizational changes have occurred in libraries in recent years. Some have been driven by automated technologies that unleashed a revolution in technical service operations. Nevertheless, any monitoring of the library’s responsiveness to relevant changes in user needs has been
slow to develop. Why? In an environment that most observers call turbulent and uncertain, why have libraries not taken more direct action to increase their adaptive capacity through the creation of more user-oriented structures? Fiscal shortages can be cited, but we should also seek less obvious factors because the passive service orientation identified by Gardner Hanks and C. James Schmidt also existed during periods of fiscal strength.

Three key factors emerge. First, as a rule, academic librarians pay little attention to environmental monitoring. Charles McClure finds that library middle managers generally distrust statistical measures and believe that such measures are ineffective as indicators of the quality of public services. These attitudes and behaviors persist despite the general acceptance of an open-systems model of organizing that stresses the close ties between the organization and its external environment and the critical importance of empirical feedback.

Second, sociologists have noted the tendency of organizations to view the environment as alien and hostile and to treat clients as problems that interfere with the organization's efforts to create uniformity and order. Jeffrey Pfeffer and Gerald Salancik suggest that organizations may purposely manipulate the illusion of satisfaction to avoid the open expression of some demands. Patients in a psychiatric hospital may be drugged to reduce their demands on the staff. At the same time, relatives may be told about all the fine therapeutic activity going on.

Hanks and Schmidt note the sometimes hostile reaction of our profession to direct user input. They offer suggestions for improving the design based on client-centered principles.

Changes in the design of academic libraries are probably necessary if significant improvements are to occur in the organizational/environmental fit. These changes would quite naturally include the organizational structure. However, structural changes that would threaten privileged interests or status would meet resistance.

Organizational participants are in a contest for resources and their control. This contest is political and is fought in many contexts within organizations. One context is the structural arrangement of positions and persons within organizations. Design is an important factor affecting who controls organizations, who governs.

Here we have the third key factor that may limit the responsiveness of academic libraries to user needs: the self-interest of dominant officeholders and employee groups.

Some researchers view the excessive reliance on structure as a mechanism for protecting self-interests and organizational prerogatives. In this context organizational change is threatening because it may alter authority relationships. Walter Nord suggests that major stakeholders “seek to protect their interests and positions of influence by moderating environmental pressures and their effects.” Protective measures may take an even more active form as stakeholders seek and promote those changes that will reduce the discretionary decision-making power of other organizational members. This practice would be especially dysfunctional in dynamic environments that demand higher degrees of power sharing and increased responsibility with improved access to resources and information for members at lower levels in the hierarchy.

**PROFESSIONAL STRUCTURES**

Any examination of the nature of authority in academic librarianship should address professional structures, or the elements that produce and support a professional interest group in the library through both intra- and interinstitutional mechanisms, as well as the impact of these structures on organizational outcomes. This approach is recommended to redress weaknesses in the professional model of librarianship described by Hanks and Schmidt, and to counter recurring critiques of the professions by sociologists.

Robert Reiff finds that professionals act as if “the basis of professional power is not knowledge itself but the control of knowledge.” As a result, members of professions may be reluctant to share their
skills with the client, because they believe "the more knowledge the public acquires, the less firm the basis of the authority granted." Professional control in this sense may be extended not only to clients but also to other employee categories. Hanks and Schmidt highlight related weaknesses: (1) a tendency to restrict, discourage, and overlook interaction with the user environment; (2) elitism that fosters status differentials within the library between professional and nonprofessional employees; and (3) the potential negation of the concept of community service by other elements of the model. Negation occurs when the pursuit of attributes such as professional autonomy becomes self-serving and gains for librarians are made at the expense of the user. 

Robert Veatch's analysis of medical ethics leads him to conclude that professionally articulated codes are ethnocentric and do not relate to the needs of ordinary people. In the early 1970s, members of a graduating class from the Harvard Medical School refused to take the Hippocratic Oath because it neglected to mention the rights of patients, to acknowledge social responsibilities, and to face the issues of justice, equity, liberty, and autonomy. Fortunately, the Librarians' Code of Ethics, adopted by the Council of the American Library Association (June 30, 1982), is a noteworthy document that stresses service, social responsibility, due process, and equality of opportunity.

There is little reason to believe, however, that the code exerts a strong influence on the day-to-day behavior of librarians. The pressures of self-interest are strong and so we must remain skeptical. Certain aspects of authority as embedded in professional and organizational structures may constrain our service orientation until changes in libraries lead to the modification of authority relationships.

POWER: ITS USES AND MISUSES

The actions of management have legitimacy because we commonly assume that they are taken for the good of the organization and its clients. This assumption can disguise negative manifestations of power. Samuel Bacharach and Edward J. Lawler, for example, suggest that "organizational life is dominated by political interactions; politics in organizations involve the tactical use of power to retain or obtain control of real or symbolic resources." From this perspective, organizational decisions are often made to reinforce the status and prestige of individuals internally rather than to provide better products or services. Furthermore, changes to benefit users may be opposed because they interfere with internal sources of power. This practice could impair the organization's ability to adapt effectively to environmental changes, and thus could lead to mediocre standards of service.

If staff conclude that the use of power at the managerial level has a deleterious effect on the rationality of the decision-making process, a reduction in the legitimacy accorded to management might occur. Staff attempts to offset or to cope with the negative dimensions of power or self-interest could lead to the growth of informal decision-making channels. Staff who dramatize weaknesses in the organization's service orientation, however, expose themselves to the coercive and punitive power of officeholders.

Power is a complicated phenomenon that continues to intrigue theorists in the fields of economics, political science, and organizational behavior. In libraries the lines of authority and responsibility create a structure that governs (1) who sets the goals, (2) how resources are allocated, (3) who makes decisions about what, (4) who evaluates, (5) who benefits, (6) who is to do what, and (7) what means are to be used. Because authority allows the officeholder to exert influence through control over resources and information, the structure bestows power.

The misuse of power in the organizational setting and the relative inflexibility of both organizational and professional structures have led some researchers to examine alternative forms of power distribution. Traditional theories of distribution state that power emanates from the top of the administrative hierarchy which has an absolute right of delegation. Power
is treated as a fixed quantity (power = amount of influence + amount of control). Thus, any manager who allows a subordinate to make a decision experiences a net loss of power or influence. Or more simply, for every winner there is a loser.

Current research emphasizes an expanding quantity of power. Studies at the Institute for Social Research at the University of Michigan indicate that the "total amount of power is generally a more effective predictor of organizational productivity and organizational morale than the hierarchical distribution of power." Current research emphasizes an expanding quantity of power. Studies at the Institute for Social Research at the University of Michigan indicate that the "total amount of power is generally a more effective predictor of organizational productivity and organizational morale than the hierarchical distribution of power." 35

**DECISION MAKING**

Effective decision making is an important theme in the field of organizational behavior. In libraries, effective decision making should result in the ability to satisfy user needs over time, to help users make new sense for themselves in a variety of situations, to provide a satisfying and rewarding work experience for all staff, and to obtain the resources necessary to meet the three criteria stated above. However, sufficient evidence exists to question the adequacy of traditional structures and the decision-making processes that characterize them.

Among the factors that have led researchers to conclude that we need new structures are the following: the effect of self-interest; the lack of agreement on goals; the deterioration of our formerly internalized system of shared norms and values; decision complexity; the rate and scale of change, organizational size, technological advances; the higher educational levels of the workforce; social, cultural, and personal needs; and a broadened base for the expansion and attainment of various rights. Nevertheless, progress toward new structures has been slow.

A survey of library literature in the areas of organizational structure, decision making, participation, and power was undertaken in order to guide further discussion. Ten findings of this survey are cited here:

- There is a general acceptance of traditional bureaucratic forms but the discussion of alternative forms has expanded in the 1980s.
- Traditional views of authority and responsibility are usually accepted without question.
- The concept of power is seldom used, and the influence of power on the decision-making process is accordingly neglected. An article by Richard Eggleton on choice-shift strategies and articles by Louis Kaplan on decision sharing are two exceptions.
- Power is treated as a fixed rather than an expanding factor. This provides one explanation why traditional forms of organizing remain entrenched.
- The potential dehumanizing effect of an unequal distribution of power in academic libraries is rarely mentioned.
- A narrow view persists of the forms of participation possible in our libraries. Self-regulation and formal participation, i.e., the right to participate as distinct from privilege or delegated authority, are novel concepts.
- Definitions of participation and the subject of participative management are treated as relatively simple phenomena when, in fact, they are extremely complex.
- The decision to permit or to deny participation is treated as a managerial right. Participation is viewed as a managerial tool or strategy. Management is free to determine (1) if participation will be permitted, (2) at what stage in the decision-making cycle participation will occur, (3) what the degree of participation will be, (4) who will participate, (5) within what time-frame participation will take place, and (6) what will be done with the product of the participation.
- Decision making is discussed as a discrete event. There is little comment on the interrelationship of decisions over time.
- There is no comprehensive framework for staff involvement in decision making from the problem identification stage through the implementation stage.

For the library to be responsive to its users, it is necessary to recognize when the users' environment has changed. Once a
change occurs and is recognized, the next issue becomes what to do. Ideally, this involves a statement of the problem, the generation, consideration, and choice of alternatives, and finally, implementation. Quality decisions are enhanced, therefore, by a combination of environmental monitoring and attention to the several stages in the decision-making cycle.40

Influences on the Quality of Decision Making

In principle, libraries pursue a set of goals that serve to direct the actions of staff. It is assumed that there is agreement on goals and a cohesive framework of shared understandings. From this implicit consensus, management can build a reasonable case that it upholds and advances the interests of users, staff, and other constituent groups. In practice, a multiplicity of goals exists and the value structures underlying them are widely divergent.41 Accordingly, goal congruence may be atypical and unresolved conflict may predominate. The tendency to avoid the examination of different value structures and professional or institutional goals may force organizational participants to increase their pursuit of self-interest.

Rosemary Du Mont notes that "the lack of agreement on the significance of various techniques [i.e., approaches to viewing library effectiveness] poses a serious problem both for library administrators and for analysis of the library as an organization; it makes it difficult, if not impossible, to evaluate a library's success or failure adequately."42 If management is unable to demonstrate meaningful progress because of the lack of goal congruence, staff might conclude that self-interest rules and that an active orientation toward users is the victim. This could undermine the legitimacy accorded to management. Staff might infer that more direct participation in decision making would moderate and perhaps correct weaknesses in leadership.43

Lack of agreement on library goals and on what constitutes library effectiveness can lower the quality of decision making. If poor choices are made when considering the appropriate decision-making structures to address a problem, quality can be further eroded.44 Use of inappropriate structures can lead to a solution with limited innovative capacity (rigid search behavior) and low commitment (lack of staff participation in decision-making process).45 Building ownership into decision outcomes can facilitate the implementation process by reducing the incidence of low commitment.46

PARTICIPATION: PLACEBO OR PANACEA

Employee participation in decision making was a widely discussed issue in the 1970s. Opinions on the degree of participation to be permitted ranged from zero to 100 percent. In practice, the show-and-tell style of management so prevalent in the past has been replaced by a more consultative style. Social changes external to libraries are partially responsible for the adoption of a new style. Many individuals now feel entitled to more legitimate input into the decision-making process. Management education has also changed, and employee involvement in decision making is encouraged.47

Because decision making is increasingly complex, managers are being forced to rely more and more on the judgment and expertise of employees lower in the organizational hierarchy.48 Nevertheless, the classic principles of ultimate responsibility and delegation of authority persist.49 Formal participation is not viewed as an employee right. According to Peter Dachler and Bernhard Wilpert, "one can hardly consider as an historical accident the fact that existing participatory systems in the United States, for example, characteristically limit the access of participants to the decision-making process, restrict the range and importance of decisions to be included in the participatory system, tend to be direct and informal, and usually involve a limited social range."50

In academic librarianship the role of staff in decision making varies widely.51 In addition, strong differences of opinion exist between professional and nonprofessional staff, just as they do between the professional staff and the library administration.52 For example, Dennis Dickinson
calls for centralized decision making because only those in upper-level positions "perceive and understand the organization as an integrated whole."53

The consultative approach decentralizes the deliberative process but does not necessarily change who makes the final decision: it may merely formalize the advisory role. The effectiveness of the consultation in terms of staff interest can be determined by the number of times that the advice given on important issues is acted upon in proportion to the number of times it is not. Because consultation is a procedural and not a structural change, the sources of power remain almost the same.

In consultative systems, the manager retains an enormous capacity to influence outcomes. Lammers cites five ways in which managers can obstruct joint consultation:

1. Use joint consultation for downward but not upward communication.
2. Treat members of a group not as representatives but as individual employees expressing personal opinions.
3. Send lower-level supervisors to meetings thereby lowering the hierarchical level on which groups can exert influence.
4. Deal only with unimportant matters.
5. Keep a free hand by not cooperating in drafting bylaws or by refusing to keep official or detailed minutes.54

Weaknesses in the decision-making processes of organizations have led some to conclude that managers should adopt a less supervisory and more coordinative role. Lammers cites five methods for obstruction cited above.

The work of Dachler and Wilpert, "Conceptual Dimensions and Boundaries of Participation in Organizations: A Critical Evaluation," is a significant contribution to the literature on participation. The authors discuss "the social theories underlying participatory social systems and the values and goals each of them implies for participation, the major properties of participatory systems, the outcomes of participation in organizations, and the contextual characteristics of participatory systems which limit or enhance their potential."55 They list four social theories:

1. Human growth and development theory
2. Productivity and efficiency orientation
3. Socialistic theory
4. Democratic theory

Theories one and two comprise the traditional perspectives that managers use. Human growth and development theory restricts any form of participation to issues surrounding the work itself (employee compensation and benefits, production methods, working time arrangements and hygienic factors such as coffee breaks and furnishings) rather than including issues such as the development and implementation of services, the selection of top management, wage and benefit policy, capital investment, reorganization, and choice of technology. The productivity and efficiency orientation "conforms to a paradigm which seeks an instrumental understanding of human beings and their capacities, and in which people are considered to be manipulable toward maximum output through appropriate social technologies."56 By limiting participation to issues surrounding task accomplishment, the traditional perspectives allow management to maintain control.

Obviously, perspectives on participation differ among the social theories.
P. Bernstein suggests a means for understanding participation independent of any particular social theory. He uses three dimensions: (1) the degree of control employees have over a decision; (2) the range of issues over which control may be exercised; and (3) the organizational level at which employees' influence is exercised.  

**NEW RULES, NEW STRUCTURES**

Few library managers subscribe to a value structure that calls for the distribution of organizational authority along democratic lines. Participation is generally viewed not as a right but as a strategy to be used, or as a managerial style. Various forms of direct (face-to-face) participation are used at the workplace or shop level. Although this style of participation is frequent in the United States, it is almost nonexistent in Europe. Instead, the European system of organizational governance stresses participation as a right at the highest levels. Workers participate in national councils and on boards of directors.

Nightingale lists eight degrees of participation:
1. Employees need not be informed about decisions made by management (except as necessary to conduct their work).
2. Employees have the right to be informed after decisions are made.
3. Employees must be informed ex ante and given an opportunity to voice their opinions.
4. Employees are consulted informally before a decision is made.
5. Employees must be consulted before a decision is made.
6. Employees participate informally with management in decision making; management (through "residual rights") and employees (through the collective agreement) retain the right of veto over some issues.
7. Management and employees jointly make decisions. In some cases employee representatives have parity with stockholder and management interests; in others, stockholder and management interests dominate.
8. Employees have the final say in decision making.

Formal participation (as a right) and self-regulation (autonomy) are forms of decision making that conform to the tenets of democratic theory. They also conform to theories of social justice, such as those developed by John Rawls, that "respect impartially the basic interests of participants in social systems." Here equality includes not only equal treatment but treatment as an equal. By adopting these forms libraries might be able to approach their problems from a healthier and more creative perspective. Employees might also be more challenged and find more meaning in their work. In addition to a new sense of power and competence, the employee might see a stronger connection between the values society espouses and the values it practices.

In *New Rules in American Life: Searching for Self-Fulfillment in a World Turned Upside Down*, Daniel Yankelovich states: "If the great choices that determine our destiny are made for us by others—by elites, by technicians, by elected officials—then we are not free, though we may be wholly liberated . . . an employee in a hierarchical organization is not free within the workplace." Equity, fairness, and democracy should have a socially mandated role in the workplace.

**Formal Participation**

Formal participation extends the right to participate. Dachler and Wilpert define formal participation as an "explicitly recorded system of rules and agreements imposed on or granted to the organization." Nightingale describes it as power sharing with "structural arrangements which give 'formal' and documented decision-making rights to employees." Informal participation, on the other hand, is nonstatutory consensus. The degree of informal participation varies with organizational traditions and managerial styles in use.

Formal participation is legitimated through laws, collective bargaining contracts, and unilateral regulations that direct management action. A few academic libraries have moved in the direction of formal participation. At many institutions staff have direct input into hiring and peer review decisions. Full formal participa-
tion, however, might include staff involvement in the decisions leading to the adoption and implementation of new services or technologies, determining the allocation of resources, planning new facilities, establishing general policies, setting library budgets, and specifying library faculty assignments. Decisions in these areas are often reserved for top management, whereas staff are likely to make decisions regarding production methods, scheduling, and other work-related arrangements.

The most democratic form of decision making unites formal and direct participation. Direct participation signifies the personal involvement of individual staff members. Indirect participation is not personal but is mediated through some form of representation. Nightingale indicates an important difference between supervising styles that assume employees have the right to participate directly in decision making and those that offer only indirect rights through representation.

Most managers view direct participation as unfeasible or only useful for a narrow range of issues. Time pressures, lack of expertise, and insufficient information are usually cited as constraints that inhibit the greater involvement of staff in decision making. These constraints can, however, be altered through the adoption of more effective management practices.

There are other important characteristics that can affect the nature of staff participation such as “the degree to which participants have access to the decision-making process, the range and importance of issues, and the kind of decision rules to be included in the participatory decision-making process, the range of people or organizational units to be included in direct-participation systems, and the base of legitimacy on which the direct participation system is developed.”

A standard that calls for direct formal staff involvement in all decisions irrespective of the range or importance of issues may be ideal to some; however, the routineness of many decisions precludes strict adherence to such a standard. The actual degree of involvement by staff should be negotiated carefully so that the organization can be adaptable without sacrificing its ability to meet time constraints and can maintain equity without diminishing its effectiveness.

Major changes in the decision-making structure of academic libraries would require corresponding changes in both managerial practice and staff behavior. Managers would have to move from a direct control mode to a coordinating role. Moreover, as Dickinson notes, some staff may find it difficult to cope with increased participation. Formal participation would surely affect the organizational design of the library, because the nature of authority would be altered so dramatically.

**Self-Regulation**

Self-regulation in the workplace can be defined as control by the employee over those decisions that directly affect the work to be performed. Self-regulation occurs most frequently in a team or group setting. The basic design feature is to give individual work groups the tools and resources to operate in a quasi-autonomous manner. Group members make many of their own decisions but do so within broad guidelines developed by the institution, usually in consultation with other members. Self-regulating work groups determine work methods and task assignments. They also handle quality control, scheduling, evaluation, client problems and service enhancements.

This type of advanced work systems design has been developed during the past twenty years. In *The Client-Centered Academic Library*, a prototype design is proposed that incorporates the use of self-regulating work groups. This design also calls for both the redesign of the systems of work and the redesign of the library as an organization. Formal participation and self-regulation are proposed. It provides a consistent and coherent philosophy of staff involvement in decision making throughout the library.

Some researchers have observed a loose coupling between the actual work of the organization and the general structure that develops plans and policies. The theory of parallel organization is based on the
principle of loose coupling." The parallel organization does not replace the bureaucratic hierarchy but supplements it. The conventional line hierarchy still performs those tasks for which it is best suited; however, the parallel organization is structured to be more responsive and participatory in problem solving. Flexibility and responsiveness are stressed. One goal of this type of organization is to provide the employee with more challenging and meaningful work. There is also increased employee control through a sense of entitlement, more rights and job autonomy, and less overall supervision. Barry Stein and Rosabeth Kanter view the parallel organization as one means to reform the traditional organization while still taking advantage of traditional capabilities.

Within academic librarianship concerted attention should be paid to alternative work structures and their potential value. In the "Macropolitics of Organizational Change," Robert Cole describes an agenda for research on the comparative analysis of participative organizational forms. This and other published material provide the profession with an excellent starting point.

CONCLUSION

There has been steady progress in staff involvement in decision making over the past fifteen years. However, a slowdown has occurred in the 1980s. Part of this may be attributed to reduced staff interest in decision making. It may also be an indication that outstanding staff issues in the 1960s and 1970s have been satisfactorily addressed.

REFERENCES


15. In their article, “Scanning the University’s External Environment,” in the *Journal of Higher Education* 56:420 (July/Aug. 1985), James C. Hearn and Richard B. Heydinger state that “the ideal organization surveys its environment in general, selects certain key environmental issues, trends, and domains for concentrated tracking, and feeds useful clues into its ongoing strategic decision making.”


An attempt was made to survey all articles on relevant subjects that appeared in major library journals from the early 1960s to date. Citation tracking allowed the author to review the monographic literature as well. Emphasis centered on forms of library governance, organizational structure, decision making, power, and professionalism.


39. An attempt was made to survey all articles on relevant subjects that appeared in major library journals from the early 1960s to date. Citation tracking allowed the author to review the monographic literature as well. Emphasis centered on forms of library governance, organizational structure, decision making, power, and professionalism.


60. Ibid., p.8.
71. Shetty, "Management's Role in Declining Productivity."
81. Stein and Kanter, "Building the Parallel Organization." Articles calling for new organizational forms have also appeared in the field of education. In a recent article by Toby J. Tettenbaum and Thomas A. Mulkeen, "Designing Teacher Education for the Twenty-First Century," *Journal of Higher Education* 57:626 (Nov.-Dec. 1986), the authors note that "rigid and efficient organizations are no longer as efficacious as fluid and flexible ones in which experimentation and autonomy can thrive."
The Selection Decision: Defining Criteria and Establishing Priorities

John Rutledge and Luke Swindler

This article discusses the specific selection criteria used in making collection development decisions. The criteria are grouped into six major categories, and within each category they are arranged in order of relative importance. The proposed schematization provides librarians who have collection development responsibilities with a holistic and explicit model for arriving at a selection decision as well as a mechanism for assigning a specific priority to each selection. Use of such a model can help to rationalize selection decisions; it relates acquisitions effectively and convincingly to a library’s fiscal environment; and it promotes cooperative collection development.

The German proverb states, “Whoever has the choice, also has the misery.” Making choices is no easy business, yet selecting materials is one of the principal functions of collection development officers. Even in libraries that rely heavily on approval plans, selectors must review titles individually to ensure an effective collection development program. Despite the centrality of selection decision making to the collection development process, there are few tools that offer practical assistance for the performance of this intellectual task, particularly in academic settings. Moreover, the guides found in the published literature are not truly comprehensive, and none provides a practical means of relating selection to a library’s acquisitions budget. While a collection development officer may be called upon to select or reject hundreds of titles during the course of the working day and is generally proficient at making these choices, he or she could still benefit from a convenient tool that rationally organizes the factors contributing to an acquisitions decision. This would be particularly helpful if funds are insufficient for acquiring all appropriate titles or if the library is seriously attempting to implement cooperative collection development programs.

Selection officers typically receive little assistance from their own library when making decisions. Even the best and most widely known collection policies merely state what a library ideally would select in a world without financial constraints, while a few policies also indicate the existing level of collecting. A unique tool, the Bibliographer’s Manual, prepared by the collection development staff of the University of Texas at Austin Library, serves as a guide to the collection development system and selection procedures rather than to the decision-making process itself. A more general guide used in many libraries is ALA’s Guidelines for Collection Development.
This otherwise useful handbook covers the formulation of a collection development policy and the evaluation of the results of selection, but does not deal with the specific selection decision making that is central to the collection development process.

EARLIER APPROACHES TO SELECTION

The task of setting forth the criteria used to select materials for libraries offers an intriguing challenge and has appealed to many other writers. During the past few years, as the field of collection development has matured, a number of texts have appeared. As one would expect, certain themes are common to all attempts—quality of the materials, relationship to the patrons, cost—to name only the most frequent. Usually, however, treatments of selection decision making are very general, discursive, and incomplete. Moreover, the selection criteria are often tied to the scope and organization of specific tools.

An examination of major works by Arthur Curley and Dorothy Broderick, Robert Brodus, and William Katz shows that they all develop some general principles, concentrating, as textbooks must, on broad issues rather than on the intricacies of the decision-making process. When specific selection criteria are discussed, they are treated independently; that is, the authors do not relate the various criteria to each other. The reader is left wondering which criteria are the most important and when to apply them. Finally, all three texts focus on public libraries.

In *Building Library Collections* Curley and Broderick discuss some of the principles of selection using a series of nine debate topics. Under each one they present a range of contrasting viewpoints. The discussions are rarely prescriptive; indeed, they are not intended to be. Rather, they point to the diversity of opinion on such issues as high culture versus popular materials, catholicity in collecting, and demand as the governing factor in selection. Moreover, because the authors’ primary intention is to stimulate thought, their principles do not serve as a guide to selection.

In his textbook, *Selecting Materials for Libraries*, Brodus offers a wide-ranging exposition of the issues and practical wisdom about selecting books and most other types of library materials. Although not grouped conveniently, the principles he posits are (1) user needs as primary; (2) relation to existing collection; (3) relation to other libraries; (4) the sources or publishers; and (5) book-intrinsic criteria such as content, recency, veracity, reputation of the author or publisher, and format. While Brodus is a useful discussion of selection, the specific application of selection criteria is not developed.

In *Collection Development: The Selection of Materials for Libraries*, Katz advances a set of ten selection criteria. These are (1) purpose, scope, and audience; (2) difficulty; (3) authority, honesty, and credibility of author and publisher; (4) subject matter; (5) comparison of a title to others in the collection; (6) timeliness; (7) format; (8) price; (9) curriculum support; and (10) demand. We believe that these criteria touch upon most of the issues. However, as with the other survey texts, the relationship of the criteria to each other remains undeveloped.

Jean Boyer Hamlin, in a contributed chapter in Robert Stueart and George Miller’s handbook on collection development, develops a list of nine selection criteria. Her factors, paraphrased, include (1) pertinence to areas covered, (2) interest to users, (3) relationship to existing collection, (4) cost, (5) patron objections and threat of theft, (6) probable quality, (7) necessity of continuing financial commitment, (8) duplication of existing material, and what might be called (9) “bibliothecal convenience” or ease of handling. A more tightly organized grouping would simplify the classification, since some criteria are much more narrowly focused than others. In addition, the criteria are neither well developed nor prioritized. To illustrate practical decision making, Hamlin recasts the criteria into questions that should be asked when selecting books from a dealer’s catalog. While these questions can help to refine one’s thinking about a particular title, they provide no way of evaluating the results of the examination.

Recent journal literature has provided...
further attempts to delineate selection criteria, sometimes more focused on the decision-making process itself. Hendrik Edelman develops a model of decision making based on the organization of library materials by source and type of publication. He suggests that to this universe of published knowledge one may apply certain historical-, linguistic-, and geographical-elimination factors, correlated to the collection level descriptors. A further distinction is made between selection for short-term goals and selection for long-term goals. The main criteria, according to Edelman, are established by the collection development policy. To this policy one must bring to bear the virtues of "balance, reliability, and comprehensiveness, in that order." This article is very general and does not discuss specific criteria, nor how they affect individual selection decisions. The suggestions, while accurate in the main, do not yield a guide to microdecision making; indeed, Edelman's main focus is macrodecision making.

In an article on selection decision making for preservation purposes, Dan C. Hazen develops another distinction. Pursuing the close relationship between preservation decisions and collection development decisions, Hazen adduces five criteria that pertain both to preservation and to new-title selection. These are (1) academic activity or user demand, (2) historical precedent and tradition, (3) the volume and cost of materials, (4) the availability of alternatives to purchase, and (5) discipline-specific models of access to information. These criteria apply best to preservation decisions; for acquisitions they are incomplete and lack specificity. Although most of these criteria are valid, no priority is assigned to them nor is a method of application suggested.

John N. DePew presents an explicit model of the acquisitions process, consisting of a detailed flow chart with weighted inputs and a formula that results in a selection decision. Although the article does make one aware of the complexity of selection, the criteria are inadequate and not well developed. In addition, they include considerations that should not be relevant, e.g., whether the requester will cause trouble or whether the title is a gift. Finally, the formula he presents is very arbitrary and too cumbersome.

Ross Atkinson's recent article on what actually happens when collection development librarians select a title represents one of the few attempts to describe the selection process itself. His article is useful for understanding some of the dynamics of selection microdecisions and how criteria relate to each other. Atkinson sees the selection process as the interaction of a selector with a bibliographic citation; the selector resolves the decision by using three contexts, the archival (what is already in the collection), the communal (the research needs and interests of the clientele), and the thematic (what has been or is being published on the subject). While this article is stimulating, it is primarily a theoretical treatment and not intended to be a practical guide to selecting. It is also too concentrated on the bibliographic citation itself to serve as a comprehensive guide to selection decision making.

Our review of the literature has not uncovered a practical and holistic model for microselection, the selection of materials on a title-by-title basis as is done in libraries every day. We see the need for the provision of a comprehensive and practical model that has a high level of applicability to any selection decision. The model presented in this article not only delineates and defines the appropriate criteria, but also displays them visually to show the relationship of the criteria to each other. In addition, we provide a numerical rating system to allow the librarian to rank each title and thereby relate selection to available funds.

**EVOLUTION OF THE MODEL**

The model consists of the criteria discussed below, coupled with a priority system, which grew out of the tasks and opportunities faced by collection development librarians at the University of North Carolina at Chapel Hill (UNC-CH). Collection development for the main library system at UNC-CH was totally reorganized during the mid-1970s, when selection became a library responsibility. At the same time the university and library administrations greatly increased funding for acquisitions. These two developments
created expanded collection development possibilities, making selectors acutely aware of the selection process and the rationale for selection decision making. Since then, occasional budgetary reverses have given the selectors experience in the painful application of a triage system, in which all selections were classified as first, second, or third priority.

With the reorganization of collection development, long-standing cooperative acquisitions programs with neighboring research libraries took a new lease on life. This priority system has proven useful for cooperative collection development, particularly in facing the practical necessity of deciding which specific titles should be acquired locally and which should be acquired by the library holding the primary collection commitment. Within the context of broad cooperative agreements, a common understanding and an explicit statement of selection criteria encourage collection development librarians to think in terms of priorities and thereby to formulate cooperative programs with a large measure of specificity.

REDEFINING THE SELECTION CRITERIA

If, as Atkinson says, selection is difficult to describe, it is also difficult to prescribe. The selection criteria presented below are the results of years of wrestling with the intellectual issues involved in the selection of library materials. We have tried to include all the relevant factors involved in selection decision-making. For the sake of clarity we have arranged the factors into six internally coherent and, insofar as possible, mutually exclusive categories, thus avoiding redundancy. At the same time the arrangement indicates relationships between the criteria. Each of the criteria causes the selector to ask specific questions about any given title; in answering the questions the selector brings objective information to bear on making the decision.

Subject

Subject constitutes the first and most important selection factor. Since all books and other library materials are about something, both collection development policies and staff are typically organized along subject lines. The selector initially discerns the subject of a work, e.g., France—History—Revolution, or Science Fiction, then evaluates the item in terms of the information or knowledge universe. At the same time, and perhaps more importantly, he or she attempts to relate the item under consideration to the programs at his or her institution. How well the item supports institutional objectives and programs is the paramount consideration, but it is always seen in relation to the larger intellectual universe. Indeed, unless one knows the subject of a work, a rational selection decision cannot be made.

Intellectual Content

In actual practice, especially when selection decisions are made from a bibliographic citation, it is sometimes difficult to arrive at an informed estimate of the intellectual content of a work. Nevertheless, the question must be addressed. In assessing intellectual content, one asks how it relates to what has gone before. Is the work a key title in its field, whether a great work of literature or a seminal study? How valuable have the author’s past contributions been? Is it “raw data” of the field such as statistical tables? How authoritative is the work and what is the nature of its contribution? Is it narrowly focused or a general essay? Or is the primary concern propagandistic? High intellectual content alone cannot determine the selection decision; nor can trivial or polemical works be rejected automatically, since they sometimes become the subject of research.

Potential Use

Having considered the work in terms of its subject relevance and its intrinsic intellectual integrity, the selector next reviews it in the light of his knowledge of the patrons’ needs. Potential use is considered only after subject and intellectual content have been ascertained, in order to ensure that appropriate, quality materials are added. One must know what a work is about and something of the nature of its contents before one can predict level of use. What is the likelihood that the item in question will be used? What level of use justifies its acquisition? The selector
should know of urgent research interests and be able to predict probable interest based on knowledge of the course offerings, research programs, and circulation patterns. There is also the category of broad, general information, material to which educated men and women will want to have recourse. These works are desirable but must take second place. At the lower end of the range are works that, because of considerations such as style or prerequisite knowledge, are deemed less accessible. From the bibliographic citation the selector can usually determine whether one use in fifty years would be the maximum expected.

Relation to the Collection

This factor echoes the concerns discussed under subject. Whereas subject relates an item to the information universe, here an item is scrutinized in terms of its relation to a specific library's collection. Typically the questions asked here are ones that will be posed by librarians, who, generally, are trained to look at the integrity of the library's collection, to fill in gaps in the collection, to establish balance and comprehensiveness in the collections, and to maintain cooperative programs with other libraries. Here there is an inherent tension: how to meet current user demands and yet continue to build upon historic collection strengths and specialties.

Bibliographic Considerations

To a certain extent you can judge a book by looking at its cover. Bibliographic considerations parallel those criteria found under intellectual content. The interrelated issues of publisher and format further refine the selection. The reputation of the publisher or sponsoring agency and the type of publication or format of the work both play an important role in any selection decision. Obviously these factors require some knowledge of the book trade. The highest priority within this category is assigned to the titles of distinguished publishing houses that over the years have built up a reputation for excellence. At the other extreme, there is a lush undergrowth of "quasi-publications" such as working papers and research reports. Between the two poles is a wide range of specialized publishing as well as the output of the major trade publishers, each of which has a reputation for quality and subject specialization.

Language

Language is a criterion because it speaks to the issue of potential use, yet it is distinct from it. Language also relates closely to the topic of the work. The major working language of a given field deserves special consideration. Similarly, the second working language of a topic will have to receive a relatively high priority. In some cases the major language of the topic will not be English. If the major language of a field is Italian, the selector cannot exclude an item in Italian if the topic is central. Does the language of the item augment or detract from the capacity of the work to inform? Travel guides in the vernacular, for example, may convey a fuller understanding of the country than English-language editions; on the other hand, a foreign-language book on computer science has little capacity to inform an English-speaking audience. Perhaps the foreign-language item helps to educate the potential user about areas not well covered in the English-language press? Or, would the language of the item have to be considered distant from its topic, e.g., Italian-language studies of Czech literature? Finally, hoping to gore as few oxen as possible, we recognize that some languages are less central to scholarly inquiry than others, although factors such as user interests can cause the item to receive an overall higher ranking than the language factor alone would indicate.

Cost as a Nonfactor

Although many writers include cost as a factor, price is irrelevant to making a selection decision as distinct from a purchase decision. We agree with Atkinson that "the budget should be viewed not as a criterion for selection but rather as an influence upon the relative extent to which selection criteria are acted upon." While high cost typically results in more care being taken in making the selection decision, the priorities—those items that the library must have, should have, or could have—do not change in response to budgetary
limitations; they remain the same, whether money is available or not. Further, it should be noted that librarians generally select titles within specific budget lines, e.g., new subscriptions, audiovisuals, expensive titles, current books. As a consequence, a costly microform collection or multivolume set does not compete against a current book or a new journal subscription but against other possible expensive purchases. One can therefore use the proposed model to determine the relative priorities among a group of expensive titles. Finally, just as high cost should not influence a selection decision, low cost or bargain prices also should be irrelevant. If a title is ranked at priority three, its ranking does not change in response to the offer of a discount. Only when two items of equal ranking are being considered for acquisition in times of financial adversity might price determine which is actually purchased.

**USING THE MODEL**

In choosing a chart or tabular form of presentation, we are attempting to provide selectors with a succinct, rapidly scannable tool for guidance in title-by-title or microselection (see table 1). Although the model presented was developed in an academic library for the rationalization of book selection, it could be adapted with only slight modifications by any type of institution and can be applied to selection of all types of library material.

When deciding whether to acquire a title, a selector usually considers many factors of varying importance within the context of the inclusions and exclusions of a collection development policy. The factors that we consider most relevant are grouped into six columns. Each column contains a discrete set of criteria, made specific by descriptive phrases. The factors affecting selection are (1) subject, (2) intellectual content, (3) potential use, (4) relation to collection, (5) bibliographic considerations, and (6) language. Moreover, because some selection factors are more significant than others, the columnar sets are presented from left to right in descending order of importance. Although each column represents a distinct and internally coherent set of criteria, the second three columns echo respectively the first three. Using this model one evaluates each title horizontally in terms of the six selection factors and vertically in terms of its rank within each column.

Within each column the criteria are listed in descending order of importance. We have divided the columns to create three basic levels of priority: (1) the library must have the item: the title is essential and is the first to be reviewed against available funding; (2) the library should have the item: the title is an important addition to the collection, and users could reasonably expect to find it in the library; and (3) the library could acquire the title: although peripheral to the collection, the title is appropriate and there is a possibility that it will find a user.

There always will be a subjective element to selection and evaluation: it is an art—not an exact science. Nevertheless, there may be some circumstances in which one wishes to weigh each title quantitatively for the sake of comparison. In such instances we propose a method of assigning a relative value to each criterion considered in the evaluation (see table 2). One can thereby derive a numeric rating for each selection. It seems simplest to set up the selection values so that the highest possible score totals 100 points. The cumulative score is the total of the values assigned by the selector in each of the six columns.

The first factor, subject, carries the highest number of points: any item being evaluated receives a score of 1 to 30 points for subject. Intellectual content ranks just under subject with a slightly smaller range of 25 points possible; similarly, other factors receive proportionately fewer points. If a title receives 67 to 100 points, it ranks as a first priority; if a title receives 34 to 66 points, it scores as a second priority; and if 1 to 33 points, it equals a third priority.

The decision to assign a specific score of 16 points, rather than 25, for subject within that allocated range will be determined by subjective judgments that cannot be eliminated from the selection process. Herein lies the art of selection. We also believe that some libraries will wish to change our weighting of the criteria. This can be simply done and would allow the
<table>
<thead>
<tr>
<th>Subject</th>
<th>Intellectual Content</th>
<th>Potential Use</th>
<th>Relation to Collection</th>
<th>Bibliographic Considerations</th>
<th>Language</th>
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<td>First Priority</td>
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<td>Directly supports Key work in field</td>
<td>Key work in field</td>
<td>Known research or program interest</td>
<td>Central to existing collection</td>
<td>Distinguished publisher</td>
<td>Major language(s) of topic</td>
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<td>programs or program interest</td>
<td>Key author</td>
<td>Patron request, based on need</td>
<td>Closely related</td>
<td>Significant sponsoring body</td>
<td>English and second</td>
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<td>institutional</td>
<td>Major critical study</td>
<td>Provides specialized information about a central strength</td>
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<td>Specialized publisher of high quality</td>
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<td>emphases</td>
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<td>Major field of</td>
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<td>Major foreign</td>
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<td>Second Priority</td>
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<td>Ancillary to General essay</td>
<td>General interest</td>
<td>Develops existing</td>
<td>Specialized publisher</td>
<td>Treatment in foreign</td>
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<td>programs</td>
<td>Narrowly focused</td>
<td>collection strength</td>
<td>Published</td>
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<td>Minor field of</td>
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<td>Third Priority</td>
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<td>Tangential to Raw or unedited</td>
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<td>Research report</td>
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<td>Trivial literature</td>
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<td>Treatment in foreign</td>
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<td>scholarship</td>
<td></td>
<td></td>
<td></td>
<td>likely users</td>
<td></td>
</tr>
<tr>
<td>or inquiry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 1
SELECTION CRITERIA

The Selection Decision
results to reflect local emphases more closely. In any case, such a point system could then be correlated with available funding to determine which selections are actually purchased.

By no means do we wish to suggest that every title needs to be treated with such mathematical precision. A library could limit its use to certain classes of materials that require particular selection care (e.g., reference titles); special formats (e.g., audiovisuals); expensive items (e.g., books costing more than $100); or critical budget lines (e.g., new subscriptions). Furthermore, since the first three criteria are more heavily weighted to reflect their greater importance, it will not always be necessary to go through the entire grid in order to arrive at a title's relative priority, particularly since the second three factors echo the first three and carry far less weight.

**IMPLICATIONS OF THE MODEL**

The proposed model will find its greatest utility in adding precision to and enhancing the consistency of the individual selection decisions. Consequently, use of this model can improve the quality of a library's collection development efforts. Moreover, because the schema presented here is comprehensive, holistic, and explicit, it can serve as a practical guide for training all selectors in a library and can aid in the rationalization of selection decision making throughout a library system. If all selectors have a similar understanding of the criteria to be used and their interrelatedness, then unintended disparities in collecting levels can be minimized.

By extension, the model has applicability to cooperative collection development programs. In our experience we have...
found that cooperation with other libraries is most practicable when lower priority materials are under discussion. Because no library is likely to forego the purchases of first priority items, it is in the realm of less essential titles that cooperation is most likely to work. The model we have presented here can help to make sure that selectors at all participating libraries understand what kinds of materials can be acquired cooperatively.

This model also allows a library to relate selection decisions to a library’s fiscal environment both generally and specifically. The model operates generally through the assignment of a first, second, or third priority, and specifically through the development—when necessary—of a precise numeric rating. This rating could then be correlated with a certain level of funding.

Finally, our schema can have a great public relations value both within the library and without. Since many departments within the library often do not fully understand the work done by collection development, this model can be used to explain to other librarians and staff how selection decisions are reached. Indeed, with the chart one can stress the rational quality of the decisions and demonstrate to colleagues that materials are being carefully chosen. The chart is also useful for educating faculty, some of whom may lack confidence in selection done by librarians. Moreover, by modeling selection in explicit and rational terms, a library can demonstrate to its parent institution as well as to outside agencies—who often view acquisitions as a bottomless pit—that the “misery” of making choices is governed by reasonable processes.

REFERENCES AND NOTES


9. Ibid., p.36.


15. Ibid., p.229.
Preservation Study at the Syracuse University Libraries

Randall Bond, Mary DeCarlo, Elizabeth Henes, and Eileen Snyder

In 1985, in conjunction with the development of a preservation program at Syracuse University Libraries, a survey of the non-rare book collections was undertaken. Utilizing methodology similar to that employed at Yale and Stanford, a stratified random sample of 2,548 books and periodicals was examined. Aspects of physical condition, including pH, brittleness, mutilation, and environmental damage were surveyed. A pilot study and full survey revealed that 25 percent of the collection is in need of repair, and 86 percent of the materials appear to be acidic, while only 12 percent showed a high degree of brittleness. Additional information on collection characteristics such as age and national makeup was also obtained from the study.

In fall 1984, the survey of collections subgroup of the Syracuse University Libraries Preservation Committee was charged with determining the best method of surveying the non-rare book collections of the Syracuse University Libraries in order to determine the nature and size of their preservation/conservation concerns. Checking the relevant literature and contacting individuals involved in preservation surveys at other institutions provided two types of information: criteria for judging book condition and methods of determining a valid statistical sample. This information was gathered to answer the following questions: (1) How many kinds of preservation problems exist? and (2) What percentage of the collection show these problems?

Utilizing this information, the survey subgroup developed a series of recommendations to the Preservation Committee. These recommendations covered sample size; the use of random numbers and mapping the collection prior to selecting volumes for examination; criteria to be checked; the value of a pilot study; and personnel, training, and materials needed to carry out such a study. A timetable and cost estimates for these recommendations were also suggested.

The Preservation Committee accepted the recommendations and agreed that the survey should be carried out during summer 1985. The work would be done by members of the subgroup and work-study students.

Financial support for the survey was provided by New York State Legislation for the Conservation and Preservation of Research Materials. Syracuse University is one of eleven comprehensive libraries in New York State that receive annual statutory grants.

METHODOLOGY

The preservation surveys conducted by Yale University and Stanford University influenced the methodology adopted by the survey subgroup at Syracuse University. Modifications were made to suit local needs and constraints. Factors of time and money played an important role. The survey could be neither as large nor as long as the one carried out at Yale.

Randall Bond is Art Librarian, Mary DeCarlo is Mathematics Librarian, Elizabeth Henes is Reference Librarian, and Eileen Snyder is Physics and Geology Librarian at Syracuse University, Syracuse, New York 13210.
Sample

The book and periodical collections of the following libraries were studied using a stratified random sample: E. S. Bird (general reference, fine arts, humanities, social sciences, and area studies, excluding the rare book department), science and technology/Carnegie (general science, biology, chemistry, engineering, and mathematics), physics, and geology. Stratification ensured that a proportionate number of books from each subgroup was surveyed (see appendix A).

Random Numbers

A program generating random numbers to be used in selecting survey volumes was prepared by a computer science student at Syracuse University. Numbers were generated for each location of the library to be surveyed. The random numbers consisted of the following elements: floor or location (one or two digits), stack or range (one to three digits), section (one or two digits), shelf (one or two digits), and volume (one or two digits).

Mapping

Prior to the generation of random numbers, the library collections were mapped and labeled to indicate shelving arrangements and numbers. Each stack or range was labeled with a number, and a tally was made of the number of sections and shelves in each range. These data were used in the course of generating random numbers for each location.

Questionnaire

Development of the questionnaire was the most lengthy process in the preservation study. The subgroup was concerned that the questionnaire be easy to use and straightforward as well as recording all relevant data. This was essential, since the bulk of the survey was to be carried out by work-study students. Therefore, some of the more detailed and sophisticated analyses of book structure used in the Yale survey were eliminated. The following criteria were in the final revision of the questionnaire:

Date volume surveyed

Call Number (first two letters for LC)
Publication date
Random number
Country of publication (rather than where printed)
Surveyor identification (individual reporting data)
Volume and condition
Type: monograph or periodical
Circulation: circulating or noncirculating
Has book (volume) circulated in last five years?
Boards/cover type: leather, cloth, paper, boards, stiffened (reinforced paperbacks), pamphlet, box/portfolio, and mixed (e.g., leather and boards)
Boards and covers need repair?
Hinges need repair?
Spine needs repair?
Binding needs repair?
Leaf detached?
Fold test (to determine the brittleness of the paper)
Page corner breaks after:
15 + folds
5 + folds
2-4 folds
1 fold
no test
pH (acidity of paper)
Yellow = acidic
Green = slightly acidic
Blue = acid free
No test
Damage—Mutilation
Razored
Torn
Underlined/writing
Scotch tape
Food and drink
Damage—Environmental
Fading
Mold
Insects
Water
Yellowing
Foxing (yellowish-brown spots on paper caused by dampness)
Burns

To make the recording and subsequent analysis of data as efficient and easy as possible, a machine-readable form was used. The form was modified for the pur-
pose of this study by the use of a card
board overlay that singled out certain
spaces for data entry (see figure 1).

Staff

The subgroup proposed to have the staff
work in pairs for both the selection and
testing of volumes for the sample. In se-
lecting materials, two staff members
would go to the stacks, one with a list of
random numbers and a book cart. The
other member would retrieve the items
from the shelves as the random numbers
were called out. If there was no item for
that number, the next number would be
called out until a full cartload of books was
obtained. These would then be taken to a
study room, within the location being
sampled, where they would be studied
against the questionnaire. The two staff
members would take turns making obser-
vations and _

The pH and fold tests were to be carried
out simultaneously. A page toward the
middle of each volume would be marked
near the margin gutter with a Light Im-
pressions pH Testing Pen #2396. While
the pH chemical was reacting, the upper
corner of the page would be folded back
and forth and creased up to 16 times, or
less if the corner broke off earlier. These
two tests would indicate the acidity and
brittleness of the paper used in the vol-
ume. Staff for the pilot surveys would
consist of members of the survey sub-
group. For the full survey, work-study
students supervised by members of the
subgroup would be utilized.

Data Analysis

The primary analysis of data from the
survey was accomplished by Syracuse
University Testing Services using the
machine-readable answer sheets that they
had provided for the survey. Consultation
between members of the survey subgroup
and Testing Services staff led to the estab-
ishment of format and correlations to be
produced from the raw data (see Appen-
dix B).

PILOT SURVEY

In order to test the questionnaire, the
random number sample, and the proce-
dures to be followed, a pilot survey utiliz-
ing the collections of the fifth floor (area
studies) of Bird Library was carried out
from June 10 through 14, 1985. Two teams
composed of the four members of the sub-
group carried this out in about forty hours
of work (i.e., twenty hours per team). Ad-
ditional help was provided by the preser-
vation coordinator and her assistant.

The random numbers tables presented
the main problem during the pilot survey.
Many of the random numbers did not
yield items to be checked, resulting in a
sample size that was too small. Analysis
resulted in the discovery of two problems:
(1) the programmer had input incorrect
data relating the mapping of the collec-
tions and the random numbers to be pro-
duced, and (2) the range of numbers for
selecting an individual volume from a
shelf was found to be too high. It was
changed from one to forty to one to
twenty. These modifications in data input
and the volume range produced a new set
of random numbers that yielded an ade-
quate sample of material. When the sur-
vey was completed, the data sheets were
given to Testing Services to be tabulated
and analyzed for a variety of correlations.
The success of the pilot study thus pro-
vided the final impetus for the subsequent
full survey of the collection.

FULL SURVEY

The full survey of the Syracuse Univer-
sity Library Collections was carried out be-
tween July 16 and August 7, 1985. Eight
work-study students put in a total of 315
hours on the project. A training workshop
for the student surveyors was held on July
16 to acquaint them with the goals and
procedures of the study. Each student was
given a packet that included the names,
offices, and phone numbers of the super-
visors, a list of surveyor codes for identifi-
cation purposes, a list of country of publi-
cation codes, a list of materials and
supplies, instructions for finding books to
evaluate and for filling out the test forms.
The orientation workshop included a
step-by-step presentation of how the sur-
vey was to be done. There were samples of
book types and problems that might be
encountered. The students were divided
<table>
<thead>
<tr>
<th>TYPE</th>
<th>BOARDS/COVERS-TYPE</th>
<th>BINDING NEEDS REPAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=monograph</td>
<td>1=leather 5=stiffened</td>
<td>1=yes</td>
</tr>
<tr>
<td>2=periodical</td>
<td>2=cloth 6=pamphlet</td>
<td>2=no</td>
</tr>
<tr>
<td></td>
<td>3=paper 7=box/portfolio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4=boards 8=mixed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LEAF DETACHED</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CIRCULATION</th>
<th>BOARDS/COVERS NEED REPAIR POLED TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=circulating</td>
<td>1=yes</td>
</tr>
<tr>
<td>2=noncirculating</td>
<td>2=no</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAS BOOK CIRCULATED IN LAST 5 YEARS?</th>
<th>SPINE NEEDS REPAIR</th>
<th>PH TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=yes</td>
<td>1=yes</td>
<td>1=yellow</td>
</tr>
<tr>
<td>2=no</td>
<td>2=no</td>
<td>2=green</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DAMAGE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>31=razored</td>
<td>41=foxing</td>
</tr>
<tr>
<td>32=torn</td>
<td>42=burns</td>
</tr>
<tr>
<td>33=underlined/writing</td>
<td>1=yes</td>
</tr>
<tr>
<td>34=scotch tape</td>
<td>2=no</td>
</tr>
<tr>
<td>35=food/drink</td>
<td></td>
</tr>
<tr>
<td>36=aging</td>
<td></td>
</tr>
<tr>
<td>37=mold</td>
<td></td>
</tr>
<tr>
<td>38=insects</td>
<td></td>
</tr>
<tr>
<td>39=water</td>
<td></td>
</tr>
<tr>
<td>40=yellowing</td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE 1**
into pairs for a practice session and each pair was given about twenty books to practice on. After ten books, the students traded activities so that the observer became the data recorder and vice versa. When the full survey began, students were at first scheduled to work in pairs. Due to classes and other scheduling conflicts, some of the study was carried out by students working on their own. This did not seem to pose any problems, and the survey was carried out accurately and efficiently. On two floors there were not enough random numbers to provide a full sample, so additional numbers were generated to bring the sample up to the required size. The results of the survey and

the information and correlations they provided make up the remainder of this report.

RESULTS

Presentation of the Data

Results are compiled in tables 1 through 7. The total holdings for each location, the sample size, and the standard error are given at the head of each table. Findings for each question in the survey are expressed as the number of volumes in the sample over the percentage in the sample. The last column in each table gives the overall characteristics of the sample. Characteristics of the collection for each library building are presented in tables 1 through

<p>| TABLE 1 |</p>
<table>
<thead>
<tr>
<th>COLLECTION CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard error %</td>
</tr>
<tr>
<td>Total holdings</td>
</tr>
<tr>
<td>Sample size</td>
</tr>
<tr>
<td>Library</td>
</tr>
<tr>
<td>Monographs</td>
</tr>
<tr>
<td>Periodicals</td>
</tr>
<tr>
<td>Circulating</td>
</tr>
<tr>
<td>Noncirculating</td>
</tr>
<tr>
<td>If circulating, number circulating in last 5 years</td>
</tr>
<tr>
<td>Board and Cover Type</td>
</tr>
<tr>
<td>Leather</td>
</tr>
<tr>
<td>Cloth</td>
</tr>
<tr>
<td>Paper</td>
</tr>
<tr>
<td>Boards</td>
</tr>
<tr>
<td>Stiffened</td>
</tr>
<tr>
<td>Pamphlet</td>
</tr>
<tr>
<td>Box/Portfolio</td>
</tr>
<tr>
<td>Mixed</td>
</tr>
</tbody>
</table>

Key: 1300
75.45% = frequency. Number of sample volumes in Bird that are monographs.
75.45% = column percent. Sample percentage of volumes in Bird that are monographs.
3. These are followed by data describing the condition of the collection for each library location in tables 4 through 6. Table 7 displays variable intersection frequencies and proportions. Intersecting variable frequencies show the combined effect of two variables on a single volume, for instance, brittle books that also have an acidic pH value.

Tables 1 through 6 were constructed by combining the data for locations basement through fifth floor of Bird Library and labeling it "Bird"; combining data for levels one through seven of the Science & Technology Library and labeling it "Carnegie"; and combining the physics collection with physics storage, located in Carnegie, and labeling it "Physics." Geology remained a separate location. In addition, statistics were computed for the totals for all locations and labeled "Overall."

Tabular data are stated in a frequency/column percent format for each cell, where frequency is the number of volumes having a given characteristic and in the specified location. Column percent is the percentage of books in the stated location with the given characteristic.

For example, in table 1 the first cell under the "Bird" column describes the monographic collection in Bird. The numbers given are 1300/75.45. This means that from the sample of books examined at Bird Library, 1300 were monographs. The second number shows that 75.45 percent of the sampled books in Bird were monographs.

**Characteristics of the Collection**

Details of the characteristics of the collection revealed by the survey are found in tables 1 through 4. Two-thirds of the sample were monographs, and one-third periodicals.

### Table 2

**AGE OF COLLECTION**

<table>
<thead>
<tr>
<th>Library</th>
<th>Standard error %</th>
<th>Total holdings</th>
<th>Sample size</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.127</td>
<td>1.686</td>
<td>1.960</td>
<td>1.960</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>1.127</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>909,970</td>
<td>222,645</td>
<td>22,961</td>
<td>25,979</td>
</tr>
<tr>
<td></td>
<td>952</td>
<td>38</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>243</td>
<td>38</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>14.38</td>
<td>9</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>151</td>
<td>3</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>8.93</td>
<td>5.26</td>
<td>16.33</td>
<td>8.20</td>
</tr>
<tr>
<td></td>
<td>85</td>
<td>0</td>
<td>1</td>
<td>1.37</td>
</tr>
<tr>
<td></td>
<td>5.03</td>
<td>0</td>
<td>2.04</td>
<td>5.51</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>0</td>
<td>0</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>2.43</td>
<td>0</td>
<td>0</td>
<td>2.85</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>0</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>1.66</td>
<td>2.04</td>
<td>1.69</td>
<td></td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.83</td>
<td>4.08</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.12</td>
<td>0</td>
<td>0.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**


TABLE 3
COUNTRY OF PUBLICATION

<table>
<thead>
<tr>
<th>Library</th>
<th>Bird</th>
<th>Carnegie</th>
<th>Physics</th>
<th>Geology</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,273</td>
<td>909,970</td>
<td>222,645</td>
<td>57,959</td>
<td>1,181,555</td>
</tr>
<tr>
<td></td>
<td>703</td>
<td>224,197</td>
<td>55,979</td>
<td>11,381</td>
<td>2533</td>
</tr>
<tr>
<td>Country</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>923</td>
<td>54.10%</td>
<td>43.86%</td>
<td>69.39%</td>
<td>1381</td>
</tr>
<tr>
<td>Great Britain</td>
<td>177</td>
<td>108%</td>
<td>16%</td>
<td>3%</td>
<td>304</td>
</tr>
<tr>
<td>France</td>
<td>10.38%</td>
<td>15.45%</td>
<td>28.07%</td>
<td>6.12%</td>
<td>11.93%</td>
</tr>
<tr>
<td>USSR</td>
<td>7.7%</td>
<td>21%</td>
<td>0%</td>
<td>3%</td>
<td>101%</td>
</tr>
<tr>
<td>India</td>
<td>4.51%</td>
<td>3.0%</td>
<td>1.75%</td>
<td>0%</td>
<td>3.96%</td>
</tr>
<tr>
<td>Germany, East</td>
<td>67</td>
<td>10%</td>
<td>1%</td>
<td>0%</td>
<td>78%</td>
</tr>
<tr>
<td>Germany, West</td>
<td>3.93%</td>
<td>1.43%</td>
<td>2.44%</td>
<td>2.04%</td>
<td>3.70%</td>
</tr>
<tr>
<td>Others</td>
<td>84%</td>
<td>6%</td>
<td>2%</td>
<td>1%</td>
<td>93%</td>
</tr>
<tr>
<td></td>
<td>77%</td>
<td>24%</td>
<td>1%</td>
<td>1%</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td>8%</td>
<td>3.43%</td>
<td>2.44%</td>
<td>2.04%</td>
<td>1.35%</td>
</tr>
<tr>
<td></td>
<td>106%</td>
<td>29%</td>
<td>1%</td>
<td>5%</td>
<td>120%</td>
</tr>
<tr>
<td></td>
<td>1.50%</td>
<td>4.15%</td>
<td>2.44%</td>
<td>10.20%</td>
<td>4.78%</td>
</tr>
<tr>
<td></td>
<td>302%</td>
<td>106%</td>
<td>11%</td>
<td>3%</td>
<td>422%</td>
</tr>
<tr>
<td></td>
<td>17.53%</td>
<td>15.08%</td>
<td>19.29%</td>
<td>6.00%</td>
<td>16.56%</td>
</tr>
</tbody>
</table>

Key: 923
54.10% = frequency. Number of sample volumes in Bird that were published in the United States.
54.0% = column percent. The sample percentage of volumes in Bird that were published in the United States.

A correlation of acidic paper is eventual embrittlement. However, a folding endurance test on the sample showed a surprising result. Seventy-seven percent of the books sampled passed 15 or more folds, 8% fell into the 5–14 fold category, 10% were fairly brittle at 2–4 folds, and just 3% were very brittle at one fold. One percent of the books were not tested because of their value or because they contained large numbers of plates.

This result is perhaps less surprising when the comparatively recent age of the collection is considered, but the acidity of most of the volumes in the collection (86%) does not augur well for the future.

Volumes Needing Repair

The number of deteriorated volumes (i.e., those needing repair for covers, spines, bindings, hinges, or leaves that are broken, torn, or detached) was surprisingly low at 25% (see table 4). Since several of these characteristics may be found in a single volume, the number of volumes or items needing repair is smaller than the total number of repairs needed. Therefore in the “Overall” column, 1207 victims...
TABLE 4

CONNECTION OF COLLECTION

<table>
<thead>
<tr>
<th>Library</th>
<th>Bird</th>
<th>Carnegie</th>
<th>Physics</th>
<th>Geology</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need repair</td>
<td></td>
<td></td>
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|                | 1.127 | 1.686 | 1.960 | 1.960 | 1.3297 | SE (p)=1.3297% |
|                | 989 | 703 | 57 | 50 | 2458 | p=1.96(1.3297) |

Key: 218
12.71% = frequency. Number of sample volumes in Bird with covers in need of repair.
12.71% = column percent. The sample percentage of volumes in Bird with covers in need of repair.

reparis are indicated but this only involved 628 actual volumes. The most frequent damage in all locations is to boards and covers, hinges, and spines. Thus, if embrittled paper is not a factor, most of these volumes are candidates for rebinding. Extrapolated to the entire collection of 1,181,555, the number of volumes needing repair is 291,254.

User Damage

User damage or mutilation, whether intentional or inadvertent, was in evidence (see table 5). Of the books sampled, only 20% appeared to have been razored or torn, or had writing or underlining. Scotch tape, or traces of food and drink. Of these, most common was damage due to writing and underlining (12%), and next was torn pages (8%).

Environmental Damage

Environmental damage to a book results from its location conditions or from the book’s internal chemistry (see table 6). Kinds of damage considered in the survey were fading of the cover, mold, insects, water damage, yellowing, foxing (yellowish-brown spots caused by dampness), and burns. Of the volumes sampled in the survey, 42% showed environmental
### TABLE 5
MUTILATION DAMAGE

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<th>Library</th>
<th>Bird</th>
<th>Carnegie</th>
<th>Physics</th>
<th>Geology</th>
<th>Overall</th>
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<td>24</td>
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<td>2</td>
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<td>Total holdings</td>
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<td>222,645</td>
<td>22,961</td>
<td>25,979</td>
<td>1,181,555</td>
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<tr>
<td>Sample size</td>
<td>1723</td>
<td>703</td>
<td>57</td>
<td>50</td>
<td>2533</td>
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</table>

Key: 426 = frequency. Number of sample volumes in Bird that have mutilation damage.
24.72% = column percent. The sample percentage of volumes in Bird that have mutilation damage.

| Standard error % | 1.127 | 1.686 | 1.960 | 1.960 | 1.3297 |

Damage, primarily yellowing (37%) and fading (13%).

Since environmental damage encountered in a collection can be related to its age and location, it is noteworthy that the collections in the Carnegie building have, at 49%, the highest percentage of this kind of damage. Carnegie, which houses the science and technology and mathematics library collection, is an antiquated structure with a problematic heating system and no air conditioning.

**Intersections**

Calculating intersections between two variables produced useful statistics. For instance, How many of the books with nonintact leaves have very brittle paper? Table 7 summarizes the data showing variable intersections. The numbers given in table 7 are frequency/row percent/colum percent. An example will serve as explanation.

The first cell under the column, "Needs repair," also corresponds to yellow (acidic) pH readings. We find the numbers:

481
30.21
75.63

Thus, 481 volumes in need of repair have a yellow or acidic pH reading. This represents 30.21% of all volumes. (See table 4). The final number indicates that 75.63% of all books that need repair have a yellow pH reading. The statistics given are compiled from the overall library data except in the last two columns labeled "Bird" and "Carnegie." Therefore, the intersection data reflects the condition of the overall library collection. Although the analysis of intersecting variables yielded many results that were expected, the data also showed that some variables may not influence damage as much as has been assumed.

As expected, most of the extremely brittle books have a yellow pH reading. Of the books with pages that broke after one fold, 97% had a yellow pH reading, while none had a blue (acid free) pH reading. In the 2-4 and 5-14 fold breakage groups, the percentage of yellow pH readings were 98% and 89%, respectively. These statistics correspond to Yale's findings that "more than 99 percent of the brittle books were acidic." In addition, Yale found that approximately 80% of the nonbrittle books were acidic, while our survey results showed 68%. Most of the books with an acid-free (blue) pH reading had pages that did not break even after 15 folds. None of the acid-free books had pages that broke in 5-14 folds.
Acidity was strongly correlated with need for repair. Approximately 30% of the very acidic books required repair, while only 13% of the acid-free books needed repair. Of the volumes needing repair, 76% had a yellow (high) acidity reading, while only 6% of the volumes with a blue (acid free) reading needed repair. As expected, it was demonstrated that leaf brittleness has a direct relationship with need of repair. Approximately 60% of the volumes that had leaves brittle enough to break in one fold and 53% of those that broke in 2–4 folds required repair. However, 58% of the books needing repair did not have brittle pages (i.e., had leaves that did not break in 15 folds of the fold test). Thus, other factors, such as age or usage, may also be contributing to book damage.

The need for repair was determined for various types of book covers. Not surprisingly, volumes with a sturdy cover, such as boards or stiffened paper, showed a lower incidence of repair need. Approximately 33% of the pamphlet-bound volumes needed repair, while the percentage of volumes bound in paper or cloth requiring repair was 37% and 39%, respectively. Only 10% of the stiffened and 18% of the board-covered volumes were in need of treatment. The only cover types requiring repair in percentages higher than the cloth covered were mixed, e.g., leather or cloth and boards (60%) and leather (50%). However, it is likely that age and environment are the major contributing factors in these categories.

Of the cloth and paperbound books that need repair, most demonstrated spine, hinge, or cover damage. Among the pamphlet-bound books, cover and spine damage were most common. Damage to the leather and mixed bound books was found in all areas checked, but was most apparent in the spine and covers. Surprisingly, the percentage of volumes that have circulated in the last five years and need repair (36%) against the percentage of volumes that have not circulated in the last five years and need repair (22%) is not significantly different at the .05 confidence level. Thus, we can conclude that factors other than circulation usage are also contributing to the need for repair. The computer analysis does not provide the relative percentages of repairs needed for periodicals versus monographs.
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<th>Spine not intact</th>
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<td></td>
<td>60.33</td>
<td>3.33</td>
<td>9.09</td>
<td>34.17</td>
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<td>43.70</td>
<td>*</td>
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<tr>
<td>Box/portfolio</td>
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<td>5.00</td>
<td>7.43</td>
<td>12.58</td>
<td>10.62</td>
<td>16.10</td>
<td>*</td>
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<tr>
<td>Mixed</td>
<td>202</td>
<td>22</td>
<td>46</td>
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<td>102</td>
<td>111</td>
<td>*</td>
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<tr>
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<td>36.27</td>
<td>3.96</td>
<td>8.27</td>
<td>18.95</td>
<td>18.38</td>
<td>20.11 *</td>
<td>*</td>
<td></td>
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<tr>
<td></td>
<td>31.61</td>
<td>27.16</td>
<td>30.87</td>
<td>32.11</td>
<td>30.09</td>
<td>34.26</td>
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<td></td>
<td>437</td>
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<td>237</td>
<td>213</td>
<td>*</td>
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<tr>
<td>Circulated in last 5 years? No</td>
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<td>11.94</td>
<td>10.71 *</td>
<td>*</td>
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<tr>
<td></td>
<td>68.39</td>
<td>72.84</td>
<td>69.13</td>
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<tr>
<td>Environmental damage</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>Mutilation</td>
<td>-</td>
<td>58</td>
<td>121</td>
<td>265</td>
<td>285</td>
<td>271</td>
<td>1052</td>
<td>411</td>
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<td></td>
<td></td>
<td>3.42</td>
<td>7.12</td>
<td>15.61</td>
<td>16.78</td>
<td>16.00</td>
<td>61.96</td>
<td>24.20</td>
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<td></td>
<td></td>
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<td>85.59</td>
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</tr>
<tr>
<td>Monograph</td>
<td>-</td>
<td>23</td>
<td>27</td>
<td>60</td>
<td>48</td>
<td>52</td>
<td>533</td>
<td>220</td>
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<tr>
<td>Periodical</td>
<td></td>
<td>2.71</td>
<td>3.18</td>
<td>7.06</td>
<td>5.65</td>
<td>6.12</td>
<td>62.70</td>
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<td></td>
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<td>18.24</td>
<td>18.46</td>
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<td>33.63</td>
<td>34.87</td>
<td>31.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: 481
30.21% = row percent. The sample percentage of volumes with yellow pH reading that need repair.
75.63% = column percent. The sample percentage of volumes that need repair with yellow pH reading.
481 = frequency. The sample number of volumes that need repair that had a yellow pH reading.
(-) Data not available. (* Data available on printout.)
Damage from environmental conditions represented about the same percentage of the sampled collection in both Bird and Carnegie. In Bird, 40% of the volumes had some environmental damage, while in Carnegie, 49% of the sample showed damage. Of all books having environmental damage, 66% are now located in Bird and 34% are in Carnegie. It should be mentioned that Bird Library was built in 1973, and much of its present collection was transferred from Carnegie at that time.

Approximately 8% of the collection sampled in Carnegie had mutilation damage, and in Bird, 25%. Of all volumes displaying mutilation damage, 88% were in Bird. Although these statistics yield valuable data concerning the interactions of variables describing the condition of the collection, they must be interpreted with care. Rarely does one variable account for all effects noted. Usage and environmental changes, as well as other factors, may need to be taken into consideration.

CONCLUSION

The preservation survey provided comprehensive information on the present condition of the collection and the number of items needing repairs. Each floor of Bird and Carnegie as well as the physics and geology branch libraries now has detailed information on the nature and types of damage discovered. The analysis includes damage assessments by the type of repairs needed so that a detailed cost figure can be developed and a conservation strategy implemented.

REFERENCES AND NOTES

2. Syracuse University Testing Services was consulted and several such forms were suggested. National Computer Trans-Optic form 08-6703:3029282726 was selected. The unaltered sheet had spaces for more than 100 questions and additional data.

APPENDIX A: SAMPLE SIZE DETERMINATION

Carl Drott gives a table for determining overall sample size, n, based on confidence level and tolerance. A confidence level of 95% (99%) with a 1% tolerance is selected and n is determined to be 9604 (16590). If we can make an estimate of the number of volumes in need of repair we can use a correction factor to lower the sample size.

Assuming that 35% of the books need repair then the sample size would be

\[ n = 9604 \cdot (.35) \cdot (.65) = 2185 \] (for 95% confidence level)

or

\[ n = 16590 \cdot (.35) \cdot (.65) = 3775 \] (for 99% confidence level).

It should be noted that a sample size of 2185 (3775) is the minimum sample size necessary to achieve the desired confidence and tolerance levels. This number will be used to deter-

mine a proportional sample size for each stratum. However, due to a rounding error the sum of the stratum sample sizes will be greater than the suggested overall sample size. Hence, we shall base all cost estimates on the larger sample size of 2184 (3780) that will be the actual number of items surveyed.

Then the sample size per stratum, \( n_s \), is proportional to the overall sample size and is calculated by

\[
n_s = \frac{N_s}{N_p} (n)
\]

where

- \( n \) = overall sample size
- \( N_s \) = number of volumes in a given stratum
- \( N_p \) = total number of volumes under investigation

\( N_p \) does not include the books from the sixth level.

The sample size for the fifth level would be computed as

\[
n_5 = \frac{218,587}{1,181,555} (2185) = 408
\]

Stratum sample sizes are given for several choices of confidence level in the following table.

### STRATUM SAMPLE SIZE DETERMINATION

<table>
<thead>
<tr>
<th>Confidence and Tolerance Levels</th>
<th>95% ± 1%</th>
<th>95% ± 1% no cf*</th>
<th>99% ± 1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Sample Size, ( n )</td>
<td>2,185</td>
<td>2,401</td>
<td>3,775</td>
</tr>
<tr>
<td>Basement</td>
<td>10,361</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Reference</td>
<td>28,333</td>
<td>52</td>
<td>58</td>
</tr>
<tr>
<td>Second floor</td>
<td>100,331</td>
<td>186</td>
<td>204</td>
</tr>
<tr>
<td>Third floor</td>
<td>279,066</td>
<td>516</td>
<td>567</td>
</tr>
<tr>
<td>Fourth floor</td>
<td>273,292</td>
<td>505</td>
<td>555</td>
</tr>
<tr>
<td>Fifth floor</td>
<td>218,587</td>
<td>404</td>
<td>444</td>
</tr>
<tr>
<td>Science &amp; Technology</td>
<td>182,645</td>
<td>338</td>
<td>372</td>
</tr>
<tr>
<td>Mathematics</td>
<td>40,000</td>
<td>74</td>
<td>82</td>
</tr>
<tr>
<td>Physics</td>
<td>22,961</td>
<td>42</td>
<td>47</td>
</tr>
<tr>
<td>Geology</td>
<td>25,979</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>1,181,555</td>
<td>2,184</td>
<td>2,406</td>
</tr>
<tr>
<td>Actual number to be sampled</td>
<td>2,184</td>
<td>2,406</td>
<td>3,780</td>
</tr>
</tbody>
</table>

*cf = correction factor

### APPENDIX B: STATISTICAL ANALYSIS

The data recorded on the testing forms were electronically read onto magnetic tape. Using Statistical Analysis Systems (SAS), Testing Services provided an analysis of the data. The analysis included frequency tables for each of the twenty-three survey questions by library location and intersections between variables. In addition, location data was grouped into five categories: Bird, Carnegie, Physics, Geology, and Overall. The last included all locations. Frequency tables were constructed using these combined location variables with the twenty-three questions. This included tables by country of publication and year of publication by location. Years of publication were grouped in twenty-year categories for ease of analysis. Finally, three new variables were created to give an assessment of damage and repairs needed.
"Needs Repair" became a new variable by combining the following condition variables: boards and covers, hinges, spine, binding, and leaves. "Environmental Damage" was made by combining fading, mold, insects, water, yellowing, foxing, and burns. "Mutilation" was constructed by combining razored, torn, writing, Scotch tape, and food/drink. These overall damage variables give a summary of the condition of the collection by location, as well as an overall assessment.

For each broad library location, frequencies and percentages were tabulated. Attaching standard errors to these location categories allows us to compute confidence intervals for the proportion of volumes in each location category with the characteristic of interest, e.g., environmental damage.

The standard error calculation gives an estimate of the accuracy of the sample data for making inferences about the total collection. The standard error of the sample proportion for large sample sizes is

\[ SE_p = \sqrt{\frac{p(1-p)}{n-1}}, \]

where \( p \) = the sample proportion and \( n \) = the sample size.*

Using the standard error, confidence intervals can be constructed for the population proportion, \( p \). That is, we can establish a 95% confidence interval for which we can be certain that the true population proportion will lie within 95% of the time. We calculate a confidence interval for \( p \) as

\[ p \pm Z_{a/2} SE(p). \]

For example, in table 6, the standard error for \( p \) for the Bird location is 1.127. (i.e., \( SE(p) = 1.127 \)). Looking at the data for the number of volumes mutilated we find that in Bird 426 volumes had mutilation and that is 24.72% of the sample collected. Thus, our estimate of the true proportion of books with mutilation damage at Bird is

\[ p = 24.72. \]

To construct a 95% confidence interval about the true proportion of mutilated volumes at Bird we use the formula,

\[ p \pm 1.96 \cdot SE(p). \]

For our example, \( p = 24.72; 1.96 = Z_{a/2} = the \ Z \ value \ from \ a \ standard \ normal \ table \ corresponding \ to \ the \ .025 \ percentile. \ For \ a \ 95\% \ confidence \ interval \ a/2 = .025 \ and \ Z_{a/2} = 1.96. \ SE(p) = 1.127. \ Thus, \ a \ 95\% \ confidence \ interval \ for \ the \ proportion \ of \ mutilated \ books \ in \ Bird, \ p, \ is \]

\[ 24.72 \pm 1.96 \ (1.127) \]

(22.51, 26.93).

We can be certain that the true proportion of mutilated volumes at Bird will lie within these limits 95% of the time with a 1% error rate.

The Overall data came from combining the data over all locations. Thus, in computing the overall standard error we needed to weight each location according to its contribution to the whole. The formula used for computing the standard error for proportions from stratified samples was

\[ SE(p) = \sqrt{Var(p)} = \sqrt{\frac{\sum \left(W_i \cdot \frac{P_i}{n_i}\right)^2}{n}}, \]

where

\[ W_i = \frac{N_i}{N} \]  
Population in the \( i^{th} \) location

\( W_i \) is the stratum weight for the \( i^{th} \) location.

\[ P_i = \frac{1}{Q_i} \]  
Sample proportion in the \( i^{th} \) location

\[ Q_i = 1 - P_i \]

\( n_i \) = Number of items in \( i^{th} \) sample

Then the Overall standard error is

\[ SE(\hat{p}_o) = \sqrt{\left[W_B^2 \text{Var}(\hat{p}_B) + W_c^2 \text{Var}(\hat{p}_c) + W_p^2 \text{Var}(\hat{p}_p) + W_g^2 \text{Var}(\hat{p}_g)\right]} \]

where \( B, c, p, \) and \( g \) represent Bird, Carnegie, Physics, and Geology location, respectively, and \( W \) is the stratum weight.

Confidence intervals have been computed for the Overall data for all variables indicating needed repairs, pH, and brittleness.

Dissertations: A Study of the Scholar's Approach

Joan M. Repp and Cliff Glaviano

Four academic libraries in Ohio participated in a study exploring how and why extramural researchers access locally produced dissertations. Abstracts and indexes in hard copy were identified as the resources relied upon most heavily by all academic disciplines, with Dissertation Abstracts International and related University Microfilms International products being named most often. Researchers, regardless of discipline, were successful searching by subject more often than using any other form of access. Dissertations were most frequently requested by those writing theses, dissertations, or research papers for publication. These findings may have implications for in-house cataloging of locally produced dissertations or for institutional participation in an indexing and abstracting program.

The dissertation is a unique format for scholarly information that is not available in its original form through established professional or commercial channels. Though substantive information from the dissertation may subsequently appear in the scholarly literature as a journal article or book chapter, the original dissertation is deposited, virtually without exception, at the degree-granting institution. Although an occasional dissertation is published in its entirety, more often this follows considerable editing of style or content. Since hard copy of the dissertation is not widely disseminated, access to the information it contains becomes a concern for the scholarly community.

As Library of Congress priorities preclude cataloging of even depository copies of dissertations submitted for copyright, no LC cataloging for dissertations appears on the bibliographic utilities, and full responsibility for bibliographic control falls to the degree-granting institution. Academic libraries necessarily must either negotiate with their parent institution, or themselves originate, all policies concerning preservation, circulation, availability, shelving and degree of bibliographic control for local dissertations. Further, only the library and degree-granting institution determine the extent to which access to the dissertation is shared through an indexing service such as that provided by University Microfilms International or through contributing cataloging copy to a bibliographic utility.

Implicit in accepting responsibility for bibliographic control of the dissertation is its indexing, so that it might be readily located when needed. Presently most academic libraries provide full descriptive and subject cataloging for local dissertations and input such copy on OCLC, RLIN, or WLN. Since the dissertation format is developed by the university's graduate school, title pages are formulaic and descriptive cataloging can easily be done by a paraprofessional cataloger. Subject analysis is an altogether different matter due to the timely, experimental nature of dissertation research. It is often both difficult and time-consuming for a professional cataloger to select LC subject headings (LCSH) appropriate to these in-depth, highly specialized studies. This problem of subject analysis is most often...
noted in science and technology though works in all disciplines potentially can deal with concepts for which LCSH terms are nonexistent at the time of cataloging.

The problem of adequate classification and subject analysis is compounded by changing staffing patterns in cataloging departments. Since cataloging has been automated, the number of original catalogers has decreased. Each cataloger is therefore responsible for a wider group of disciplines. This reduces the probability of high subject expertise in any one of them. Coincident with the declining number of original catalogers, the number of dissertations produced has risen: doctoral degrees in the United States, for example, rose from 6,600 in 1950 to 32,700 in 1982.

**DISSERTATION USERS**

Users of dissertations can be divided into two groups: intramural scholars and extramural scholars. Comparatively little is known about either group’s behavior relative to seeking and using dissertations. Informal observation from the reference desk suggests that intramural scholars writing their own theses and dissertations may use those already produced at their institution for reasons beyond obtaining scholarly information. In addition to checking bibliographies for references and determining the scope of an extant dissertation’s coverage of a topic to avoid duplicating another’s research, intramural scholars use local dissertations to determine a format acceptable to their institution, to evaluate research approaches that have been approved by particular dissertation committee chairs, and for other reasons not related to scholarly content.

The in-house tools for locating a dissertation written at an institution significantly exceed those available to the extramural scholar, who may be assumed to be interested in the dissertation’s content alone. While the extramural scholar can be expected to use standard indexes, abstracts, and databases, the intramural scholar, provided by his library with LCSH subject analysis and potentially, additional local access by adviser name, department/major, or other approach, probably can ignore standard sources altogether for locating local dissertations.

Often libraries that do not provide full cataloging for dissertations aid the intramural scholar through separate in-house indexes or special shelving arrangements, amenities lost to the extramural scholar. Should the library provide only minimal on-campus access to local dissertations, promoting the use of standard sources, the intramural scholar can still take advantage of maintaining close contact with others in his discipline, many of whom will have good knowledge of the dissertations produced in the discipline and available at the institution.

It is reasonable to assume that information needs of the intramural and extramural scholar can differ in scope and emphasis and that the intramural scholar has resources in addition to standard sources for accessing local dissertations. Standard tools of potential use to both groups have been enhanced considerably by technology. Many institutions granting doctoral degrees participate in the Dissertation Abstracts International (DAI) program, which generates indexes in both hard copy and online through commercial database services. Broad subject access is available in DAI and American Doctoral Dissertations (ADD) while LSCH access is available for those cataloged dissertations in the portion of the OCLC database available on BRS. DAI hard copy is indexed also by keyword from title and by author; ADD additionally by author and by institution. The database available on BRS and Dialog is compiled from both ADD and DAI.

In addition to searches available from the hard-copy indexes, search terms constructed from Boolean combinations of keywords from title or the entire abstract can be used on BRS and Dialog to locate relevant dissertations. Meanwhile, the technology for using the commercial databases is widely available to the scholar at the academic library: in 1980, all forty-three academic libraries responding to a survey indicated they had access to Dialog for database searching.

While answers to the basic questions of how a patron gains access to a local disser-
tation and how a patron uses its information can be assumed from observations by experienced reference librarians, no published research exists to affirm or deny these assumptions. Costs associated with participating in the DAI program and costs associated with original cataloging of locally produced materials should generate continuing interest in the question of how best to serve intramural and extramural scholars who seek dissertation information. Clear reasons to modify cataloging procedures to include, for example, access by thesis adviser as suggested by George Harris and Robert Huffman; reasons to support the cost of full cataloging of dissertations; and/or reasons to justify the expense of participating in a cooperative indexing program need to be determined. Assessment of patron behavior in seeking and using dissertation information becomes necessary before institutional procedures can be modified or program participation evaluated.

LITERATURE SURVEY

Little has been published in the literature on the handling, cataloging, classification, and subject analysis of locally produced theses and dissertations. The literature concerning access is dated enough to preclude mention of the commercial databases, and institutional participation patterns have changed enough since the 1970s to make descriptions of the hard-copy indexes and their coverage quite misleading.

Julie Moore's article, "Bibliographic Control of American Doctoral Dissertations: A History," presents a brief historical summary of "national listings of dissertations which are a unique alternative to the control of published and unpublished dissertations in the United States and Canada." The same topic, discussed from a slightly different perspective and with considerable perspicacity, may be found in Donald Davinson's Theses and Dissertations as Information Sources. The second part of Moore's work, "Bibliographic Control of Doctoral Dissertations: An Analysis," focuses on a comparison of the usefulness and limitations of American Doctoral Dissertations and Dissertation Abstracts. She also found that only 2.1 percent of the dissertations she studied were published as books, an additional 1.4 percent could be identified as parts of a book, and that 15.2 percent were published as journal articles after heavy rewriting.

Calvin Boyer's work, The Doctoral Dissertation as an Information Source, itself originally a dissertation, assessed the extent to which dissertations in selected sciences produced between 1963 and 1967 served as information sources by studying citations and dissertation-based publications. Kelly Patterson and others, in "Thesis Handling in University Libraries," reported the results of a survey of ninety universities granting doctoral degrees to determine local practice in "binding, cataloging, classification, storage and checking of format practices" with the intent of recommending processing practices. Lois M. Pauch's "Thesis/Dissertation Processing and OCLC" details the impact of OCLC on cataloging procedures for theses and dissertations at the University of Illinois at Urbana-Champaign, speeding the process from three hours to one-half hour.

Most recently, George Harris and Robert Huffman completed a study of cataloging, classification, and subject analysis of locally produced dissertations. "Cataloging of Theses: A Survey" summarizes their findings. In addition to surveying actual practices for dissertation cataloging in academic libraries, in effect what currently is done to serve the needs of intramural scholars and reference librarians, they found that without AACR2 rules specific to dissertations and the guidance of LC cataloging "libraries are forced to improvise." Though the literature is informative regarding current practice in the local bibliographic control of dissertation information and its sharing on the bibliographic utilities, studies exploring the content of the various dissertation indexes, abstracts and databases, and the use of dissertation information within the scholarly community are so outdated as to be extremely misleading.

PURPOSE OF THE STUDY

The purpose of this study is to assist in
the evaluation of current cataloging practices as applied to dissertations produced in-house at four academic libraries in Ohio. The study is limited to exploring the behavior of the extramural scholar and attempts to identify user by type of institutional affiliation; purpose for which the dissertation was used; and what tools and approaches were successfully used in identifying and locating the dissertation.

Hypotheses
1. Scholars access dissertations as an aid to writing dissertations.
2. Due to the research orientation of the parent institution, more borrowing of dissertations is done through Association of Research Libraries than other types of libraries.
3. As a generalization, the dissertations requested are newer by date than older but this behavior varies measurably between social scientists, hard scientists, and scholars in the humanities.
4. The major access is through Dissertation Abstracts International, its related precursors and products.
5. Subject access is least often used to locate a relevant dissertation since subject control of dissertation information is very limited.

Assumptions
1. Interlibrary loan usage is an accurate representation of extramural use.
2. The behavior of the extramural scholar differs significantly from that of the intramural scholar.
3. The dissertations of the participating institutions available through OCLC, indexes, and databases accurately represent all of each institution's locally produced dissertations.

Methodology
Four academic libraries in Ohio participated in this study: Ohio State University, University of Cincinnati, University of Toledo, and Bowling Green State University.
A census was taken of all dissertations borrowed through the interlibrary loan departments of the cooperating institutions for a period of one year.
A questionnaire was mailed out with each dissertation and a record was maintained in-house listing the borrowing institution, the subject of the dissertation as identified in the dissertation or by the department supervising the dissertation, discipline of the dissertation, and date on the title page. The borrower was requested to return the completed questionnaire with the dissertation. There was no follow-up. The data gathering covered a twelve-month period from July 1, 1983, to June 30, 1984.

Characteristics of the Institutions Selected
The four institutions selected represented a mix of academic programs leading to the doctorate and represented medium-sized and large universities. The institutions shared the following characteristics. All four
1. fully cataloged their dissertations according to national standards; 
2. entered their cataloging record in a national bibliographic database, in this case, OCLC; 
3. participated in the Dissertation Abstracts International program; 
4. permitted dissertations to circulate through interlibrary loan (ILL).
There are some variations among the institutions in the following areas:
1. Each began entering records in OCLC at different times (earliest, 1972; most recent, 1978).
2. Participation in Dissertation Abstracts International varied from institution to institution (earliest, 1954; most recent, 1973) and by discipline within institutions.
3. One institution limited loans of dissertations produced after 1954 to reciprocal institutions only, since these dissertations are available through University Microfilms International.
4. Charging practices for ILL varied widely and included no charge, postage only, $4.50 flat rate, or reciprocal charging.
5. Two institutions would not lend dissertations to high school libraries. There were no other restrictions on lending.

RESULTS
In all, 542 questionnaires were sent out with the dissertations as they were circu-
lated through ILL. Of these, 269 were returned for an overall return rate of 49.6%. The percentage base of several sub-populations was high enough to be reliable. Results were treated with SPSS statistical package. Table 1 summarizes the number of questionnaires sent and returned by institution.

The borrowing institutions were categorized as holding membership in the Association of Research Libraries (Bowker Annual, 1982); non-ARL university libraries; college libraries; other institutions of higher education including junior and community colleges, technical and trade schools; public libraries; governmental corporate libraries; business corporate libraries; other corporate libraries including museum and hospital libraries; and high school libraries.

Institutions of higher education accounted for 93.2% of the loans, corporate libraries 5.1%, and public libraries 2.2%. One dissertation was loaned to a high school library. As can be seen in table 2, the most frequent borrowers were ARL member libraries.

The number and percentage of dissertations borrowed by discipline is reflected in table 3. Of the dissertations borrowed, the highest number, 235 (43.4%), were borrowed in academic disciplines from the social sciences. Of the social science loans, 176 (75%) dealt with education, excluding educational psychology. The results were highly institution dependent. No attempt was made to relate program offerings and number of degrees granted in each discipline to the observed frequency of borrowing of the discipline.

Table 4 compares the vintage and discipline of the dissertations borrowed. The currency of the dissertations borrowed ranged widely from 1906 through 1983, and some variation among the disciplines relative to the recency of dissertations borrowed is apparent.

The data support the assumption that recently produced dissertations are more heavily used than those written earlier. Figures produced at the same rate for the remainder of the 1980s would result in an N of 395 borrowings for the decade. The figures of table 4 must be interpreted with some caution, however, since a number of pertinent factors are unknown, including the number of dissertations produced by the cooperating institutions in each discipline for each time period. Certainly the trend would be upward for total numbers produced at the four institutions, though program emphasis would result in skew-

### Table 1

**Responses by Institution**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Number Sent</th>
<th>Number Returned</th>
<th>% Returned</th>
<th>% of Total Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Toledo</td>
<td>49</td>
<td>31</td>
<td>63</td>
<td>11.5</td>
</tr>
<tr>
<td>Bowling Green State University</td>
<td>84</td>
<td>61</td>
<td>73</td>
<td>22.7</td>
</tr>
<tr>
<td>University of Cincinnati</td>
<td>121</td>
<td>59</td>
<td>49</td>
<td>21.9</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>288</td>
<td>118</td>
<td>41</td>
<td>43.8</td>
</tr>
<tr>
<td>Total</td>
<td>542</td>
<td>269</td>
<td>N/M</td>
<td>99.9*</td>
</tr>
</tbody>
</table>

*Total less than 100% due to rounding.

### Table 2

**Borrowers by Type of Institution**

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Number Loaned</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of ARL</td>
<td>291</td>
<td>53.7</td>
</tr>
<tr>
<td>Other University</td>
<td>181</td>
<td>33.4</td>
</tr>
<tr>
<td>College (4 year)</td>
<td>20</td>
<td>3.7</td>
</tr>
<tr>
<td>Other Institution of Higher Education</td>
<td>12</td>
<td>2.2</td>
</tr>
<tr>
<td>Corporate Libraries</td>
<td>28</td>
<td>5.1</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>541</td>
<td>99.8*</td>
</tr>
</tbody>
</table>

*Total less than 100% due to rounding.
TABLE 3
BORROWING BY DISCIPLINE

<table>
<thead>
<tr>
<th>Discipline of Dissertation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Science</td>
<td>235</td>
<td>43.4</td>
</tr>
<tr>
<td>Applied Science/Technology</td>
<td>98</td>
<td>18.1</td>
</tr>
<tr>
<td>Languages/Literature</td>
<td>65</td>
<td>12.0</td>
</tr>
<tr>
<td>History</td>
<td>40</td>
<td>7.4</td>
</tr>
<tr>
<td>Business</td>
<td>38</td>
<td>7.0</td>
</tr>
<tr>
<td>Arts</td>
<td>26</td>
<td>4.8</td>
</tr>
<tr>
<td>Pure Sciences</td>
<td>24</td>
<td>4.4</td>
</tr>
<tr>
<td>Philosophy</td>
<td>10</td>
<td>1.8</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td>Religion</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>541</td>
<td>99.8*</td>
</tr>
</tbody>
</table>

*Total less than 100% due to rounding.

TABLE 4
NUMBER OF DISSERTATIONS BORROWED BY DISCIPLINE/DATE

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Science/Technology</td>
<td>3</td>
<td>4</td>
<td>10</td>
<td>55</td>
<td>26</td>
<td>98</td>
</tr>
<tr>
<td>Arts</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>Business</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>16</td>
<td>15</td>
<td>37</td>
</tr>
<tr>
<td>History</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>21</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Languages/Literature</td>
<td>3</td>
<td>3</td>
<td>8</td>
<td>39</td>
<td>12</td>
<td>65</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Philosophy</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Pure Sciences</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Religion</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>9</td>
<td>10</td>
<td>17</td>
<td>115</td>
<td>84</td>
<td>235</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>31</td>
<td>49</td>
<td>269</td>
<td>157</td>
<td>540</td>
</tr>
</tbody>
</table>

Another factor difficult to assess accurately from the data is the influence of indexes on the findings. Indexes and abstracts, most particularly Dissertation Abstracts International (including its precursors and related products) are the tools most heavily relied upon by extramural scholars, yet these tools are neither as comprehensive nor as complete as one would wish.

Scholars were asked to identify the purpose for which the dissertation would be used, or, in other words, to identify the anticipated end product of their research. Of extramural users, 57% indicated use in relation to the borrower's own dissertation or thesis; 30%, use for an academic paper or publishable research project other than a thesis or dissertation; 8.3%, use in solving a research problem for which publication was not anticipated; while other uses accounted for the remaining 4.7%. Respondents indicated that 90% of their anticipated products would be associated with an institution of higher education, the remaining 10% in government or business and industry.

Overall, scholars indicated that they were borrowing a dissertation in the same academic discipline as their work in progress 69% of the time. Borrowers from social sciences, history, and languages/literature borrowed dissertations in their academic discipline at a rate of 80% or greater.

In addition to indicating the purpose for which the dissertation was being requested, the borrowers were asked to name the tools they had used to identify and locate the dissertation, as well as their approach to the particular tools.

Table 5 reflects the resource used by type of borrowing institution. Resources borrowers used most often in locating dis-
TABLE 5
GENERAL CATEGORY OF RESOURCE
USED BY TYPE OF BORROWING INSTITUTION

<table>
<thead>
<tr>
<th>Resource</th>
<th>ARL N</th>
<th>%</th>
<th>Other Univ. N</th>
<th>%</th>
<th>Higher Ed. N</th>
<th>%</th>
<th>Corporate N</th>
<th>%</th>
<th>Other N</th>
<th>%</th>
<th>Total N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index/Abstract</td>
<td>80</td>
<td>57.8</td>
<td>38</td>
<td>44.2</td>
<td>7</td>
<td>38.9</td>
<td>3</td>
<td>18.8</td>
<td>25</td>
<td>129</td>
<td>49.0</td>
<td></td>
</tr>
<tr>
<td>Journal, Book, Newsletter</td>
<td>21</td>
<td>15.1</td>
<td>16</td>
<td>18.6</td>
<td>6</td>
<td>33.3</td>
<td>8</td>
<td>50.0</td>
<td>2</td>
<td>50.8</td>
<td>53</td>
<td>20.2</td>
</tr>
<tr>
<td>Automated Database</td>
<td>31</td>
<td>22.3</td>
<td>29</td>
<td>33.7</td>
<td>5</td>
<td>27.8</td>
<td>3</td>
<td>18.7</td>
<td>0</td>
<td>68</td>
<td>25.9</td>
<td></td>
</tr>
<tr>
<td>Word of Mouth</td>
<td>7</td>
<td>5.0</td>
<td>3</td>
<td>3.5</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>12.5</td>
<td>1</td>
<td>25</td>
<td>13</td>
<td>4.9</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100</td>
<td>86</td>
<td>100</td>
<td>18</td>
<td>100</td>
<td>16</td>
<td>100</td>
<td>4</td>
<td>100</td>
<td>263</td>
<td>100</td>
</tr>
</tbody>
</table>

Sertation information were printed indexes and abstracts followed by automated databases. As a group, non-ARL university libraries show the highest rate of database searches at 33.7%. The remaining non-ARL institutions searched automated databases at rate of 27.8%. Though both categories of institutions exceeded the rate of database searching in ARL libraries (22.3%), the variation from chance distribution was not significant using a chi-square test.

The scholar's approach to finding dissertation information appears to depend in part on the academic discipline of the borrower. The categories of resources used by those scholars identifying their disciplines as applied science/technology, languages/literature, the arts, or the social sciences are tabulated in table 6. These disciplines accounted for 80% of the total responses and the remainder appeared too scattered to yield meaningful results.

Borrowers in these categories relied more heavily on printed indexes and abstracts than on any other form of access surveyed. Other printed sources, such as newsletters, books, and journal articles were identified as chief finding tools ranging from a rate of 32% for applied science/technology to a low of 8.6% for social sciences of the total number of responses in the respective discipline. Social scientists indicated using automated databases at a rate second only to their use of indexes and abstracts, while other disciplines mentioned database use at a much lower rate. In fact, scholars from the arts identified word-of-mouth sources more often than automated databases, but not at a rate that the chi-square test showed as significant.

A chi-square test of table 6 data indicated variations significant at the .05 level in the source choices of borrowers from applied science/technology and the social sciences, the former group relying on non-index printed sources more heavily than could be expected, and the latter on using automated databases. The significant and near-significant (arts use of word of mouth) results clearly indicate discipline-specific influences on borrowers' use of sources. Though no data were gathered, the influences may include the availability of specialized indexes in certain disci-

TABLE 6
GENERAL CATEGORY OF RESOURCE USED BY SELECTED DISCIPLINE

<table>
<thead>
<tr>
<th>Resource</th>
<th>Applied Science/Technology N</th>
<th>%</th>
<th>Arts N</th>
<th>%</th>
<th>Languages/Literature N</th>
<th>%</th>
<th>Social Sciences N</th>
<th>%</th>
<th>Total N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index/Abstract</td>
<td>22</td>
<td>44.0</td>
<td>14</td>
<td>60.9</td>
<td>65.6</td>
<td>53</td>
<td>51.0</td>
<td>110</td>
<td>52.6</td>
<td></td>
</tr>
<tr>
<td>Journal, Book, Newsletter</td>
<td>16</td>
<td>32.0</td>
<td>1</td>
<td>4.3</td>
<td>18.8</td>
<td>9</td>
<td>8.6</td>
<td>32</td>
<td>15.3</td>
<td></td>
</tr>
<tr>
<td>Automated Database</td>
<td>9</td>
<td>18.0</td>
<td>3</td>
<td>13.0</td>
<td>15.6</td>
<td>40</td>
<td>38.5</td>
<td>57</td>
<td>27.3</td>
<td></td>
</tr>
<tr>
<td>Word of Mouth</td>
<td>3</td>
<td>6.0</td>
<td>5</td>
<td>21.8</td>
<td>0</td>
<td>2</td>
<td>1.9</td>
<td>10</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
<td>23</td>
<td>100</td>
<td>32</td>
<td>104</td>
<td>100</td>
<td>209</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
plines or that scholars in certain disciplines are more sophisticated in using automated databases either specific or germane to their area of study. Certainly the quality and availability of databases in a discipline influence the scholar’s willingness to search them, while both the nature of the discipline and the nature of dissertation information probably influenced all search behaviors. For example, the need for timeliness in applied science/technology may induce its scholars to use the discipline’s journal/newsletter network more diligently than scholars use similar resources in other fields. Further speculation suggests that the experimental nature of dissertation research may lead to dissertations being cited more often in the literature of applied science/technology, thus making printed sources more valuable to the discipline. Similarly, the performance nature of some music and fine-arts dissertations may result in deficient or nonexistent abstracts and perhaps a higher incidence of nondescriptive titles, leading borrowers from the arts to rely more heavily on word of mouth as an appropriate approach to such information.

A closer examination of three or four broad categories of searching resources (the number of word-of-mouth responses being quite low) is of some interest. Of total responses, the chief source of information was designated as "index/abstract" 135 times. Of this number, Dissertation Abstracts International and Comprehensive Dissertation Index accounted for 99 and 21 responses respectively, or 89% of all indexes and abstracts used. While specialized indexes and abstracts accounted for the remaining 11% reported, the only other titles reported more than once were MLA Annual Bibliography, Music Index, and Agricultural Education, each cited twice.

Borrowers reporting use of nonindex print sources to locate dissertations found information in subject bibliographies 30% of the time. Professional newsletters accounted for 28%, separately published monographs 27%, and journals 15% of the print sources.

Of all responses, only 22% indicated finding dissertation information by database searching, a lower rate than the 27.3% indicated for the selected disciplines of table 6. Some 86% did not search the database themselves but had searches performed by third parties. All those who did their own searches were from non-ARL university libraries. Borrowers from the social sciences performed 70.2% of all database searches, their 40 searches accounting for 38.5% of all searches in the social sciences. Responses to questions relating to use of specific databases and search terms used did not yield useful results. The majority of respondents either did not know the name of the database searched for them by an intermediary or supplied the acronym of the local in-house database. Though several indicated they had accessed Dissertation Abstracts Online, there were no clear trends or implications for using it or any other database named.

TERMS USED TO ACCESS DISSERTATIONS

Scholars were asked to indicate the term by which they located the material borrowed regardless of the tools they used for access. In examining the responses it becomes apparent that some confusion existed concerning the differences among subject, academic discipline, and search term used to access the dissertation. Responses received indicated successful searching by subject 53.1%, by search term 8.9%, by browsing 5.4%, by academic discipline 4.3%, and by other means .8% of the time. Although search term was intended to convey the concept of nonauthor, -title, or -subject searching, such as searching by keyword from title, perhaps combined with subject and/or discipline phrases or dates using Boolean logical operators; it is unclear whether extramural scholars responding made much distinction between subject, search term, or academic discipline in categorizing the terminology by which they located dissertations.

As large numbers of respondents (44.6% of overall returns) list DAI or CDI as their chief source of information, it becomes necessary to investigate the termi-
nology used in these indexes. In both, groups are arranged by broad subject terms equivalent or nearly equivalent to academic disciplines (e.g., agriculture; biology; chemistry, organic; ecology; microbiology, etc.), which are then subdivided by keyword from title of the dissertation that often appears to be the subject of the work. In fact, prefatory material in CDI calls such a keyword from title the "subject keyword."

CONCLUSIONS

Based on the initial hypotheses, the following conclusions can be drawn:

1. Most extramural scholars use dissertation information to produce other scholarly and theoretical works such as dissertations, theses, or research papers, rather than applied works. As some dissertations are published later in whole or in part, it cannot be assumed that dissertations have only theoretical rather than practical applications, however.

2. Though research libraries as identified by ARL membership borrowed the majority of all dissertations loaned during the project, other university libraries also accounted for a substantial number of loans.

3. Overall, more recent dissertations were requested than older works, and, although there were variations among the disciplines, the data will not support discipline-specific trends concerning the need for timely dissertation materials. Closer examination of the history of the granting of U.S. doctoral degrees leads to the realization that since 1920 more than half were granted from 1971 to 1983. It may be premature to speculate as to whether scholars actually consider the recency of dissertation information as they choose a search tool or whether any discipline can establish a preference for recent dissertation material given the extremely skewed distribution of dissertations produced.

4. Access was achieved more often through indexes and abstracts than any other source, in fact, more than all other sources combined. Dissertation Abstracts and its related products were the most heavily used tools within the category despite limitations such as their lack of completeness in certain institutional holdings, and employment of broad, author-assigned subject categories.

5. Extramural scholars most commonly approach dissertation information by subject. It is somewhat perplexing to realize that most scholars found their information by using subject terms that mimic the names of academic disciplines and that are often less descriptive than keywords from the dissertation’s title.

DISCUSSION AND SUMMARY

Though it is clear that the majority of extramural scholars employ dissertation information in formulating theses, dissertations, or academic research projects, there is no obvious indication of how such information is employed. Specifically, there is considerable difference between the borrower’s use of a dissertation in ensuring that a project will not duplicate earlier work and use of dissertation data/results/arguments for comparison or contrast with the borrower’s own ideas. Presumably, the majority of extramural scholars use dissertation information for comparison or contrast since these borrowers will have read the abstracts of relevant dissertations before requesting them on ILL, borrowing dissertations most similar to their own research in relatively rare instances in order to determine that a particular aspect of the topic has been fully exhausted.

Even though access to dissertations is self-selected by the degree-granting institution through the amount of cataloging input in the utilities and the extent of participation in indexing services, there is an audience for dissertation information outside research and university libraries. Although access is limited by indexing services promoted and designed to serve higher education and cataloging data shared chiefly with other academic institutions, a portion of that audience still seeks dissertation information.

To follow another line of thought, assume that dissertations per se are of interest only to other scholars writing their dissertations and that the process is an
exercise in "how to do" research. This position has been supported by Bernard Berelson's research in which graduate faculty were asked whether the dissertation was an original contribution to knowledge or an exercise in research training. More than 50% responded that it is primarily research training; only 15% responded that it is primarily a contribution to knowledge.1

Assuming that authors of dissertations containing significant contributions to human knowledge will disseminate this information in another form, such as a monograph or as a journal article, perhaps the dissertation needs no wider dissemination than it has at present, and needs only minimal bibliographic control. Nevertheless, some bibliographic control, including only access by author, title, and institution, would be necessary for those dissertations produced as exercises in research and for those cases in which authors may not realize the potential impact of their research.

Indications are that if dissertation content remains of value due to unique qualities of dissertation research and its rigorous methodology (something Davinson and Boyer both commented on in their works), then libraries might expect more interest in the dissertation from outside academia, especially as database searching becomes increasingly available to business. Trends in higher education would also indicate potential increased use of dissertations outside academia as the number of Ph.D.'s working outside higher education increases. Though the survey was unable to gauge changes in use patterns by categories of borrowers and only surveyed use by ILL of the four libraries' collections, there is some feeling of increased use outside academia, especially since so many dissertations are available at reasonable prices through University Microfilms International (UMI).

UMI products have a tremendous influence on the availability of dissertation access and consequently on all those seeking dissertation information. Dissertation Abstracts International (DAI), Comprehensive Dissertation Index (CDI), and American Doctoral Dissertations (ADD) appear to be the most comprehensive hard-copy tools available to extramural scholars. The popularity of DAI and CAI over specialized indexes in the survey certainly invites speculation that extramural scholars prefer comprehensive coverage to the more focused approach offered in the specialized indexes. Unfortunately, the UMI indexes, hence the database, are incomplete.

Of potential significance, participation in the UMI indexing programs may lead to decisions against the ILL loaning of dissertations by participants who may suggest that prospective borrowers obtain such materials from UMI. Considering such possible restriction on ILL borrowing, it may be necessary for future investigations into the use of dissertation information to consider UMI order files as more indicative of demand for and use of dissertations than ILL borrowing. If, in the future, relatively few academic libraries allow unrestricted borrowing of dissertations included in the DAI program, UMI may be the only good source of information on scholarly demand for dissertations.

Though the responsibility for providing subject access, as with providing for dissertation bibliographic control, falls to libraries at the degree-granting institutions, these libraries may be well advised to examine policies that prescribe LCSH subject analysis for dissertation cataloging, especially if they participate in the DAI program. Though it may seem an abdication of responsibility to leave subject analysis to commercial indexers or dissertation authors, applying subject analysis at the time of cataloging is of extremely limited value to the extramural scholar. It does not appear certain that including subject access with dissertation cataloging input on the utilities is of sufficient merit to justify its expense relative to its availability. Since only a portion of OCLC is available on BRS, only a sampling of LCSH access is available to dissertations nationwide. The chief benefit of including subject analysis at time of cataloging is still to the intramural scholar, arguably a good investment in providing service to local clientele through manual or online public
catalogs, even though these same researchers would be expected to behave much as the survey respondents when extending their inquiries to the external scholarly community.

As subject access to the OCLC database expands under a configuration expected to be in place by 1988, there may be greater reason for providing subject analysis in input cataloging for locally produced materials. On the other hand, as more searching hardware and software, more subject databases and offline databases on CD-ROM become available to potential end users, researchers may begin to make less use of the subject approach to dissertation information and make better use of the capabilities of keyword searching whether in the UMI database or a discipline specific database.

Because the literature amply supports the superiority of Boolean combinations of keyword search terms over the use of standardized subject headings in the context of the online environment, the question of whether or not to continue subject analysis in cataloging these materials, for potential use by other members of a bibliographic utility or potential use in the academic library public catalog, may yet be moot.

SUGGESTIONS FOR FURTHER RESEARCH

It should be apparent from the discussion of this study that there are many topics related to, or concerned with, the location and use of dissertation information that are worthy of further study. Among the greatest needs:

1. Further in-depth study of the manifestations of dissertation information, dissertations and their derivations, in the scholarly community. Existing studies are quite dated, and even narrow, discipline-specific treatment on use would be very helpful.

2. A closer exploration of the relationship, if any, between particular disciplines and the recency of dissertation information. This could take dissertation-derived manifestations into account.

3. Examination of whether or not the use of dissertation information is increasing outside academia.

4. A study of how anticipated use of dissertation information might influence the choice of tools or choice of search term in locating relevant information.

5. Exploration of the relationship between the choice of search tools and a discipline: determining which factors contribute to furthering effective research methods concerning dissertation information; discovering which methods of training and promotion might be furthered by library involvement.

6. Full study of the content and coverage of various general dissertation indexes with the intent of determining their reliability in providing full availability of dissertation information to respective disciplines, perhaps with the aim of conveying any discovered gaps to the scholarly community and suggesting more comprehensive resources available beyond a given hard-copy index.

REFERENCES AND NOTES


5. Donald Davinson, Theses and Dissertations as Information Sources (Hamden, Conn.: Linnet, 1977), p.44-47.
Foreign Students, Libraries, and Culture

Mary Alice Ball and Molly Mahony

The number of foreign students in the library is increasing, and, with it, librarians' commitment to improve service to this portion of the academic community. This paper discusses two approaches to place the foreign student and the academic library in a cultural context: bibliographic instruction and staff development.

How often do you cringe when a foreign student approaches the reference desk, anticipating at best an awkward, at worst a failed attempt at communication? If your college or university is typical, the number of foreign students enrolled has increased steadily in the past decade. As the cost of a college education in the United States has risen beyond the means of many American families, students who, a decade ago, would have attended four-year colleges are opting for community colleges, technical schools, or the armed forces. Academic administrators are compensating for this decline by recruiting new students from overseas. If this is the case, they have a responsibility to help the university recruit new students by assessing services currently offered to foreign students, redesigning them or creating new ones. Even if it is not the case, librarians should take advantage of an excellent opportunity to expand services to an often neglected segment of the university community.

Much has been written about bibliographic instruction for foreign students. Some have written of specific teaching strategies, and others have concentrated on cultural or communication problems. Terry Ann Mood has suggested staff development programs as a way to increase sensitivity to the problems encountered by foreign students, and thus, to improve service to them.

This article describes efforts on the part of the undergraduate library at the University of Michigan to respond to these ideas in concrete ways. Classes designed for foreign students have been taught for the past three years, and the first staff development workshop...

Mary Alice Ball and Molly Mahony were both Research Library Residents at the University of Michigan Undergraduate Library, Ann Arbor, Michigan 48103. Ms. Ball is now at NOTIS, Northwestern University Library, Evanston Illinois 60201. Molly Mahony is at the Library, Keene State College, Keene, New Hampshire 03431.
Foreign Students, Libraries, and Culture

was held in summer 1985. Certainly not all academic institutions have the resources of the University of Michigan, but this should not keep them from experimenting with some or all of our programs and adapting them to suit local conditions.

LIBRARIES REFLECT CULTURE

Sally G. Wayman stresses the importance of recognizing the differences between overseas libraries and those in the United States and how different expectations can affect a student’s use of the library. A glance at the International Handbook of Contemporary Developments in Librarianship shows exactly how resources can vary from one country to another. In Saudi Arabia, university libraries have two identical facilities with duplicate collections, one for men and the other for women. Books in most Third World countries are valuable resources and their use is discouraged so they will not be damaged. Most foreign libraries have closed stacks, and material is paged by clerks. In all too many countries the librarian is not considered a professional and when a library administrator is designated he is almost without exception a male professor. Public service is a uniquely Western concept with which most foreign students are unfamiliar.

Most students come to the United States fully understanding that they must adapt to our institutions, and they are eager to do so. Western universities are distinguished by their emphasis on independent research; students who do not acquire this skill can never fully profit from an education in the United States. It is our responsibility then to define the library setting for these students, to let them know what services are available, and to teach them how to use the basic research tools.

BUILDING A RELATIONSHIP WITH YOUR CLIENTELE

Identifying students for these specialized bibliographic instruction classes may or may not be difficult, depending on the institution. Often foreign students congregate at an international center, English-language school, or the office of the foreign student advisor. The campus newspaper and bulletin boards can be used to advertise the program. Professors themselves may contact the library about orientation sessions for their students. In the fall of 1985, the University of Michigan Undergraduate Library was invited by the International Center to participate in orientation sessions for visiting scholars from the People’s Republic of China. In the United States only for limited periods, these professors are an often ignored part of the foreign community on campus.

It may be difficult for foreign students to overcome linguistic and social insecurities and approach a stranger at the reference desk. The bibliographic instruction session provides the librarian with an opportunity to become a friendly face in this land of unfamiliar ones. If we show foreign students that we do not expect perfect English from them and that we value the considerable effort they are making by studying in the United States, they will respond by opening up and trusting us to help them. Sometimes the results may be more than we expected, as students return at a later date to request help organizing or researching a term paper. In our experience, students who heard of us through friends have arrived with a request to edit a dissertation proposal or demonstrate the use of a microcomputer. Once a librarian is recognized as a person who is able and willing to help, foreign students will not hesitate to ask for assistance. A positive or negative experience with one librarian may influence a student’s perception of an entire staff.

How does a librarian begin to build this relationship? Often by doing little more than beginning a class by asking students’ names and home countries, writing down and memorizing those names, and using them during and after class, the first steps are taken. Foreign students will want to address you appropriately, but may be confused by American informality. To avoid any misunderstanding let them know what you want to be called. You may also want to tell them how you became interested in working with foreign students.

When developing goals and objectives
for the bibliographic instruction class, the librarian should consider what is important besides teaching cultural knowledge or practical research skills. One objective of most public service librarians is to build a positive relationship with the students. This may be difficult to do in a fifty- or sixty-minute class period, but is necessary if we expect them to come back in the future for help. Usually class size should be kept to ten to fifteen students so the librarian can respond to individual needs. By being flexible when teaching and allowing enough time for the lesson, most objectives can be achieved.

Teaching aids are especially important when dealing with foreign students because they will not be able to absorb a spoken lesson as well as native speakers of English. They will probably read English much better than they speak it or comprehend it aurally, so using the blackboard or handouts to emphasize important points is recommended. Handouts that duplicate the lesson shown on overhead transparencies can be used by students to take notes and can be reviewed by them later, reinforcing the classroom lecture.

Often we fall into the trap of assuming a basic level of knowledge. We should be particularly wary of assuming a basic level of knowledge. Average college students are confused by words like citation and bibliographic. How much more baffling for a foreign student! It is useful to develop a glossary of library terminology the students can refer to during class.

Foreign students also need to be informed of the services available in the library and exactly what they comprise. Services such as reserves, interlibrary loan, database searching, and term paper consultation should be explained briefly. They may not exist in the students’ home countries and without prior experience it will be easy for them to overlook these integral parts of American college libraries.

TEACHING RESEARCH METHODS

In many overseas universities, resources are so limited that it is almost impossible to do independent research, because the necessary books and journals are not available. The teacher, not the library, is the repository of knowledge, and critical analysis is a function of the teacher, not the student. It is the student’s responsibility to listen to and absorb the lecture without questioning its validity.

Coming from such a highly structured environment, students may not know where or how to begin a research project. A general discussion of the relative merits of books and journals will help students learn to assess the types of material most appropriate for their work. Foreign students may find encyclopedia or other reference sources especially valuable because they present important vocabulary and information with clarity and conciseness.

The core of any bibliographic instruction class for foreign students should be an explanation of the card catalog and periodical indexes, with subsequent practice in how to use them. It is necessary to explain the classification system in concrete terms, perhaps even supplying call numbers for the students to arrange. The link between the call number and the physical item must be made clear.

Detailed transparencies of catalog cards with their components clearly indicated are another essential tool easily forgotten by librarians. With so much written on a card, students need help interpreting important information.

Students are often unaware of the variety of periodical indexes available. This is particularly true of foreign students, so it is important to show and not just tell them about some of the available indexes. Just as it is useful to discuss the differences between books and journals, it is also valuable to distinguish between scholarly journals and popular magazines. Foreign students may have difficulty understanding what a citation is and how to interpret it. Assigning a class exercise using a periodical index will help to identify students in need of further help. The librarian must explain the scope of an index and then show students how to find out which periodicals are available in their library and where they are located, otherwise, stu-
dents may assume the library holds all titles indexed.
It is unrealistic to expect any student to retain all of what is covered in a class, especially students dealing with a foreign language. Ultimately, we want students to know where the card catalog and indexes are located so they can come back and work on their own. We want them to know where they can find help when they need it. Every class is followed by a short tour of the library so the students can make the connection between what they learned in class and the actual library. When time permits, the tour includes looking up a journal title in the periodical file and going to the stacks to locate it.
The teachers who have requested bibliographic instruction for foreign students often coordinate the class with a term paper assignment. This has proved to be a useful extension of the class, since afterwards, the team of teacher and librarian can continue to assist students as they begin their research, pointing out indexes or other sources that will help them.
Teaching foreign students is a time-consuming job and one that requires a special sensitivity on the part of the librarian. Bibliographic instruction works well for those students whose teachers bring them to the library, but what about those international students who walk into the library on their own? Where, and how, do they begin? Are library personnel aware of the problems that foreign students must overcome?

INCREASING STAFF SENSITIVITY

There are many library staff who have neither the opportunity, the inclination, nor the position to teach foreign students; yet these same people may encounter more international students than the typical reference/instruction librarian. Terry Ann Mood discusses the importance of staff development, and suggests “providing reading lists of the foreign student experience in United States libraries to full time staff; a lecture series by foreign students at staff meetings; encouraging staff attendance at foreign student meetings; and offering the library as a site for their meetings.” At the University of Michigan Libraries we chose to provide a more formal staff development program, due to the impact of a very large foreign student population.

DESIGNING A STAFF DEVELOPMENT WORKSHOP

A needs assessment was conducted to determine if other public service supervisors in the system felt that such a workshop was necessary, and if so, which members in their units would be interested in attending. An overwhelmingly positive response was received, and a four-hour workshop was planned. The goals were for the participants to “learn to differentiate between cultural and individual behavior patterns; heighten their sensitivity to problems facing foreign students; and learn to communicate more effectively with the foreign student population.” The workshop was limited to twenty-five participants to facilitate discussion and small-group exercises. Participants were primarily from public service units (e.g., engineering library, graduate library circulation, and reference), and rank ranged from clerical to professional.

A videotape prepared by the University of Arizona Libraries was used to help sensitize workshop participants immediately to the importance of understanding the experiences of foreign students. The videotape is composed of three different segments: interlibrary loan procedures, bibliographic instruction techniques, and cross-cultural communications at the reference desk. After watching the interlibrary loan segment, which is primarily in Spanish, participants took a written quiz (also provided by the University of Arizona Libraries) on the correct procedures for interlibrary loan. This method succeeded in demonstrating to staff the plight of foreign students using American libraries and the difficulty of following instructions in another language. For example, even those with a working knowledge of Spanish were unable to understand completely the directions given on how to complete forms. A general discussion of
the varied communication problems of international students was followed by an exercise in stereotyping.

**STEREOTYPES AND CULTURAL TRAITS**

Stereotypes can be a dangerous concept on which to build an exercise, but this part of the workshop turned out to be a useful lesson in cultural awareness. Stereotype has been defined by J. W. Vander Zanden as "a category that singles out an individual as sharing assumed characteristics on the basis of this group membership." Walter Lippman believes that people react to the stereotype of the object and not to the object itself. One objective of the workshop was for participants to realize that although everyone is a member of some culture, he or she is also an individual with a unique personality and problems. Some patrons may be difficult as individuals for which their cultural group is not to blame.

The University of Michigan has more than 2,000 foreign students. The largest cultural groups are from East Asia, India, the Middle East, and Southern Europe. The class was divided into small groups to represent each of the above cultures. In addition, a group representing the United States was included.

Using a modified version of a questionnaire designed by Dixon C. Johnson, a list of cultural and linguistic attributes was created prior to the workshop. Copies of the list were distributed, and the groups stereotyped their cultures. Many of the participants were initially uncomfortable in being asked to stereotype, but once negative feelings were confronted, the group was able to deal with them in an open manner. The results were tabulated on the board, and a final column was added, labeled "effective techniques for communicating." Many of the participants had lived in foreign countries, were born overseas, or were related to foreigners, and so discussion was lively. For example, the East Asian group selected the adjectives quiet, strong accent, restrained, stiff, formal, passive, and respectful as stereotypical attributes. Polite, kind, formal, serious, studious, friendly, courteous, and shows appreciation were used to describe them culturally. Communication strategies suggested for dealing with East Asian students were to speak slowly, avoid idioms, and use written handouts. Also, staff were encouraged to phrase questions in the least confusing manner, avoiding sentences like "You didn't use the card catalog, did you?" Some students will respond to this positively, but actually mean, "Yes, I didn't."

Different cultures have different concepts of personal space. North Americans feel comfortable with a conversational distance of about five feet; Arabs, two feet. As a result, it is common for North American women to feel that Arabs are more interested in them as women than as professionals. This is not the case. Arabs communicate nonverbally through touch and eye contact much more than westerners. This can be disconcerting when a librarian is helping someone from the Middle East. Keep in mind that they are not leering and do not shy away from establishing eye contact while you respond to the reference query as usual. A librarian may want to treat an extreme situation as an opportunity to educate, calmly explaining that most Americans are uncomfortable by extended eye contact or touching. The stereotype exercise proved valuable, leading participants to analyze behavior and distinguish cultural from individual patterns. The ability to assess objectively a cross-cultural situation will help these staff members in future interactions with foreign students. Neither the leaders nor the participants were experts in this area, but benefited from exchanging successful techniques and strategies.

The session also included discussion of high- and low-context cultures and libraries as a product of culture. A high-context culture, such as that of the Middle East or China, has these characteristics: greater distinction between insiders and outsiders; polychronic time (many things happening at once); greater interdependence among people; and subtlety in discussion. United States culture, which is low context, is more open to outsiders, uses linear time, and promotes self-sufficiency. Learning is a process of imita-
tion and rote memorization in high-context cultures, whereas low-context cultures emphasize questioning and challenging authority.

Another exercise was conducted to demonstrate how libraries reflect their cultural contexts. Attributes common to U.S. libraries, both public and academic, were compared with qualities common to libraries overseas. Curiously, people were slow to name characteristics of the libraries that they utilize on a daily basis. However, once begun, it became clear that as Americans we have high expectations of our libraries: free access, open stacks, borrowing privileges, computer access, interlibrary loan, professional help, and a place to stay warm in the winter and cool in the summer.

STUDENTS USING LIBRARIES

Institutions, regulations, and communication patterns reflect the particular culture in which they are developed. American students take it for granted that they may browse, look for their own books, and have instant access to a variety of resources. Foreign students often do not make these same assumptions. They may have used the library merely as a study hall, never asking for professional help. A foreign student in the United States not only has to learn a new language but also must learn an entirely new set of rules if he or she is to function properly in society. Every culture has its own subtleties and distinctions that often cannot be translated but must be learned through experience. Weston La Barre has pointed out that one must understand the context to interpret everyday customs correctly. Understanding this concept is a major step toward accepting those different from ourselves.

To close the workshop we viewed the "Cross-Cultural Communication" segment of the Arizona videotape. Discussion focused on scenes in which students, one foreign and one North American, ask to borrow a reference book overnight. Though the script was the same, nonverbal communication was very different in the two cases and was more powerful than the verbal exchange. The videotape prompted an exchange of ideas on how to handle similar situations productively.

Participants' evaluations showed the workshop was successful in broadening their understanding of the foreign student's perspective. This is only one of a number of approaches that could be used to help library staff interact better with foreign students. A workshop with foreign students describing their experiences firsthand would also help to raise consciousness. Mood suggests that by designating a special liaison for foreign students the library would demonstrate its willingness to respond to their needs. A program of awareness training, even if not an entire workshop, on handling the problems of foreigners in the library, could be designed for public service staff.

SUMMARY

Bibliographic instruction and staff development programs designed for foreign students not only sensitize personnel but also encourage cross-cultural understanding at a grass-roots level. As these students become a more visible part of the academic community, the library and its parent institution should take the initiative to meet their needs. Each library must assess its own situation; considering how many foreign students are on campus; what their impact may be on the library; what type of interaction takes place presently; and what future institutional and individual goals and objectives for working with international students are. Once these questions have been answered, one only needs the energy, enthusiasm, and desire to achieve the goals.

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9. Mary Alice Ball and Molly Mahony, Staff Development Workshop Proposal (University of Michigan, March 25, 1985).
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18. Ibid., p.113.
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Research Notes

Ratings and Rankings: Multiple Comparisons of Mean Ratings

William E. McGrath

Ranking of journals or other objects according to mean ratings computed from an opinion survey is shown to be inappropriate if a test of significance shows no difference between them. A Scheffé test for comparisons of mean ratings of journals ranked by Kohl and Davis [C&RL 46:40-47 (Jan. 1985)] was performed. The results indicate no significant difference between means. Confidence intervals for every adjacent pair of journals in the list of ratings by ARL directors were also computed. The results indicate that every adjacent interval overlaps, and that the means are essentially tie scores. Treating them as significantly different, therefore, is a Type 1 error.

Rank ordering of mean ratings, a common practice in library science research, can lead to serious Type 1 errors if the mean ratings are not first submitted to tests of significance. "Type 1" errors are those in which a hypothesis assuming no difference between two means, say, is actually true but is treated as untrue by the researcher. In turn, Type 1 errors, if not recognized, may lead to unjustified social or administrative actions or other errors of judgment or policy.

Two examples will illustrate. The first is from my own research some years ago, which inconclusively attempts to correlate mean ratings of subject-area characteristics (computed from a 10-point scale) with variables of library circulation. The absence of strong correlations may be attributed to the probable absence of significant differences between the mean ratings of subject areas. Had those differences been tested, the limitations of my design might have been realized. Fortunately the long-term consequences were as negligible as the correlation, as I had merely failed to build good theory.

The second example appears in an article by Kohl and Davis. These authors asked ARL library directors and deans of accredited library schools to rate thirty-one library journals in terms of their importance to evaluations of publications by librarians or faculty being considered for promotion and tenure. Each journal title was rated by each respondent on a 5-point Likert scale. The authors computed the mean rating of each journal, then ranked the journals according to these means. As in my own research, the authors did not test to determine whether means were significantly different from each other—although they did compare directors' ratings to deans' ratings. Without such a test there is no evidence that one mean rating is any different from any other.

The rankings in question appear in their
These ranks seem to assume that each mean is different—for example, that the mean for Library Quarterly, 4.4048, is different from that for Journal of Academic Librarianship, 4.3810—when in fact they are probably not different. That is precisely the same error cited in the first example—a Type 1 error.

Kohl and Davis, however, did seek to avoid Type 1 errors, first by performing t-tests for the differences between the means of ARL directors and library school deans, then by looking at internal consensus. They report the results of that test in their table 2. They conclude, that because deans and directors appear to agree on their ratings of journal "importance," there is a "perceived hierarchy of journal prestige."

However, their Type 1 errors are between journals, not between deans and directors. Thus, their finding of a "perceived hierarchy of journal prestige" is not supported. Although a perceived hierarchy may exist, it cannot be determined from their table 1. Therefore, acceptance of these journal ranks at face value for the purpose of determining promotion and tenure of librarians and faculty could lead to inappropriate evaluation.

The small visual differences between the means in table 1 and the small sample size from which the journal means were computed also cast suspicion on conclusions drawn from them. The Scheffé test is appropriate for all possible comparisons. The data reported in their tables 1 (mean ratings) and 2 (sample sizes and standard deviations) make it possible to compute an overall mean square within (MSw), which is required to compute an F statistic, which, in turn, is required to perform the test. The equation for F is

$$F = \frac{(M_1 - M_2)^2}{MSw \left( \frac{1}{n_1} + \frac{1}{n_2} \right) (k-1)}$$

with df = k-1, N-k.

Working backwards, it is possible to compute MSw from the statistics reported in table 3, as follows:

$$MSw = (\Sigma S^2_j n_j - \Sigma S^2_j) / (N-k),$$

where $S_j^2$ and $n_j$ are the squares of the standard deviations and the sample sizes for each journal respectively. A sample size of 42 for each journal, reported in Kohl and Davis' table 3, is assumed in computing the above equations.

The Scheffé test was performed on means of ARL directors' ratings (left column of table 1) but only for the journals in Kohl and Davis' table 3, which contains the standard deviations necessary for the computation. From (b) above, $MSw = 2.23$. This value was used in (a) to compute F values for the Scheffé tests appearing in table A.

For no adjacent pair of journals did the computed values of F exceed the test value of 1.57, indicating true null hypotheses in every comparison—i.e., that the means for every adjacent pair in the list are not significantly different from each other. Not until the journal at the top of the rankings, College & Research Libraries, was compared with one well down in the list, namely Library and Information Science Research, was a significant difference observed. Furthermore, Library and Information Science Research is not significantly different from the journals following it in the list. This general lack of significance does not appear to support the rationale for strict ranking of these journals. At best, one might postulate two clusters of journals, with each journal in the first cluster essentially tied for first place and each in the second cluster tied for second place. To paraphrase Consumer Reports, journals within clusters are approximately equal in importance.

Nearly identical results were obtained when a t-test for independent samples (though these samples may not be truly independent) was performed, again working backward from the standard deviations to obtain sums of squares and standard errors of the differences between each pair of means.

Finally, confidence intervals for all means in the ARL directors' list were computed, again at the .05 significance level. For every journal, the confidence interval overlapped the one above it and below it. For example, the lower and upper limits for C&RL were 4.60 and 4.87, respectively, while the lower and upper limits for LQ
were 4.09 and 4.72. Clearly, the upper limit of LQ falls well within the interval for C&RL, indicating that their means cannot be distinguished from each other.

Visual inspection of the means for library school deans’ rankings (right column of table 1) suggests that few significant differences would be found between adjacent journals in that list either.

This analysis suggests that ranking average ratings without submitting them to appropriate tests of significance cannot be trusted. Such tests are necessary even when data are trustworthy—for example, when the sample is large, or when it otherwise represents the population with a high degree of confidence. Here, a distinction should be made between performing tests of significance to guard against sampling errors on the one hand and measurement errors on the other. Here, the rating scores can properly be considered as measurements subject to error. For example, an average score can hide a great diversity of opinion. If we ask 100 respondents to rate journals on a 1-to-5 scale, a particular journal could receive an average of 3.0 in several ways. At the extremes, all respondents could give the journal a rating of 3; or 50 respondents could give a rating of 1; and 50, a rating of 5. Both scenarios produce an average of 3.0, but the first represents exact consensus. In the second, the average score hides a considerable degree of measurement error. In fact, in the second scenario no individual respondent gives the journal a rating of 3.0, and we might well question whether a real consensus exists that a journal with a rating of 3.0 is really higher than one with a rating of 2.9.

Kohl and Davis sprinkle cautions throughout their study, noting that it has “important limitations” that must be considered “to maintain a proper perspective on the findings.” Perhaps the major caution should address the use of these or similar ranks for determining tenure and promotion.

If journal prestige and importance must be studied, then many related questions—including those raised here and by Kohl and Davis—must also be studied. Which journals do the larger population of non-
ARL directors and ACRL members feel are important? What is the relationship between a respondent’s own specialized area and the subject area of the journal being rated? What are the correlates of “prestige” or “importance”? Can prestige or importance be predicted from other variables? What is the basis for equating prestige and importance? Is prestige a variable of real utility, or does it merely make an author feel good? Do studies of prestige contribute to the knowledge base of our profession? Or does the knowledge base contribute to prestige? Prestige is not a guarantee of quality, say Kohl and Davis. Likewise quality is not a guarantee of prestige. Then what is quality, and what is the relationship between prestige and quality? Kohl and Davis suggest citation analysis; other kinds of impact should also be examined. It seems that whenever we attempt to measure attitudinal variables, we can never really pin them down without reference to behavioral variables. Understanding of behavioral variables has much the greater potential for contributing to good theory.

In conclusion, whenever rating scores are used to produce rankings of items being rated, those rankings should be subjected to appropriate tests of statistical significance.

REFERENCES AND NOTES

1. William E. McGrath, “Predicting Book Circulation by Subject in a University Library,” Collection Management 1, no.3/4:7-26 (Fall/Winter 1976-77). Average ratings in this research were for the variables Hard/Soft, Pure/Applied, and Life/Nonlife.
3. All references to tables are to Kohl and Davis except for table A.

Authors’ Reply

David F. Kohl and Charles H. Davis

We read William McGrath’s comments on our study with considerable interest. Our only concern is that in order to make his point he has to make us say more than we were, in fact, comfortable saying. It frankly never occurred to us that anyone would take the listing in Table 1 as some kind of precise ranking where “each mean is different,” since that is obviously not the case. Not only did a number of the journals listed in Table 1 have identical means and were, in those cases, "ranked" in alphabetical order but in addition we present two other possible "rankings" which vary in detail from the lists in Table 1. The point of the article, which was fairly explicitly made, was not that any one journal stood in a specific relationship to any other journal, but that a clearly recognizable general pattern did exist with some journals consistently emerging toward the top, others toward the middle, and others toward the bottom.

David F. Kohl is Assistant Director for Public Services, University of Colorado, Boulder, Colorado 80309. Charles H. Davis is Professor, Graduate School of Library and Information Science, University of Illinois, Urbana, Illinois 61801.
In fact, Professor McGrath's own analysis seems to confirm this general hierarchy or, as he calls it, clustering. It should be noted that he finds this very general clustering (into two groups) using the Scheffe test—the most conservative test of this kind possible. A less restrictive test such as the Duncan, Tukey, etc., would invariably have suggested finer distinctions among the journals. The issue, which McGrath's comments may obscure, is not whether there is or is not some hierarchy or ranked clustering but how fine the gradations of the hierarchy or clustering are.

We agree with McGrath's point that averages don't necessarily constitute a detailed ranking and hope that his comments may help prevent a misreading of Table 1 of our study by casual readers. We do feel, however, that his misinterpretation of Table 1 created a bit of a straw man in our case.

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To the Editor: I read with great interest Barbara J. Ford's "Reference beyond (and without) the Reference Desk" (C&RL, September 1986) about complements and alternatives to traditionally designed and located reference desks. She is right in suggesting that reference desks ought not be a "sacred tradition," one "uncritically accepted." I did not realize that anyone regarded the tradition in question as sacred; still, there may be some who do so and many who accept it uncritically. She is also right in observing that conventional reference desks are unsuitable for extended consultation; and while I don't mind reference librarians being desk-linked I certainly do not want them desk-bound. And I rejoice in her emphasis on the idea that as user needs and expectations change so must we review our notions concerning facilities and equipment.

I should like, however, to suggest a few possibilities which I offer to some extent as alternatives but mainly as complements to what Ford says. (1) Despite our orientation and training programs, is there not likely to be, in all but very small, remote, and/or closed institutions, a significant number of "walk-in" patrons, e.g., visiting scholars, not familiar with our collections and services, hence a need for fairly conspicuous inquiry-reception points? To have librarians out "on the floor" may not be enough in libraries serving adults, unless they wear identifying uniforms. (2) Some librarians have compromised, I gather, by stationing aides at "information desks" and more or less secluding their reference librarians. Reports on how well this works vary. In any event, let us not overstate the triviality of questions received at such service points: they can call for translation not only instant but sensitive, and your best reference librarian may therefore be the one most needed at your information desk. (3) Ford suggests some decentralization of reference service within reference areas: assuming that this is desirable and on the whole feasible, may not there still be a need for inquiry points or switching centers, e.g., places to go to ask for particular places of software, to pick up handouts, and to make appointments to see reference librarians? (4) As someone, I forget who, has pointed out, hi-tech needs to be supplemented by hi-touch. Ford is right in noting that today's students are increasingly at home with computers and therefore accustomed to working through problems without incessant association with directive adults; and I for one do not want any perpetuation of the sort of reference service that encourages helplessness on the part of inquirers. Still, does not experience suggest that in many academic settings student-teacher relationships are very impersonal—and that in such situations reference librarians—friendly, helpful, shock-proof, non-threatening, and seemingly omnipresent—may be just about the only such adults in young persons' everyday experience? I suggest, too, that although most student questions may be related to academic objectives, some may not be—and may be unlikely to be anticipated in orientation/training programs. For a complementary picture of academic life, see Kathleen Dunn's article in the same issue as Ford's. I suspect, from reading Dunn, that an important variable may be how much teachers are perceived as valuing the concerns and aspirations of young people and willing to mix with them in the extra-curriculum.

After reading Ford, I found it helpful to reread Joan C. Durrance's and Constance A. Mellon's articles in the January and March 1986 issues and to read Mark Schumacher's and Connie Miller's September 1986 responses—with special reference to the questions (1) What help do students need and/or want? (2) How can we make best use of staff time? and (3) How available must reference librarians seem to be in order not to seem remote or to be offering their services grudgingly?

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At first, Tom McArthur's Worlds of Reference looks like just another history of books and printing. It is distinguished, if at all, by a philo-technological conclusion, a somewhat unexpected concentration on reference books, and an overall emphasis on the impact of books generally and printing specifically that is deeply indebted to Elizabeth L. Eisenstein's Printing Press as an Agent of Change (Cambridge, 1979). In 230 copiously illustrated pages, it moves swiftly and glibly from Cro-Magnon cave paintings at Lascaux and Altamira across 30,000 years of human history. McArthur stops at Sumer and Egypt to admire the invention of writing on clay and papyrus, meanders through the codex on parchment of late antiquity and Christian Europe, notes Chinese developments in papermaking and printing, and spends a bit more time on the implications of printing from movable type in the post-Gutenberg era. He eventually lands atop the computer revolution scarcely out of breath, indeed, with energy enough for a little bit of crystal-ball gazing into the shape of things to come.

Within this broad context, the Glaswegian linguist and lexicographer looks most specifically at the history of the study of language and at what he regards as the related creation of reference books, mainly lexicographic but also encyclopedic. (This is a distinction McArthur himself wants to blur; see, e.g., chapter 13, especially p.109.) It seems unfortunate that this focus should be burdened by his charmingly confessed ignorance of firsthand scholarship in many of the topics on which he speaks; a bibliography that is a pastiche of scholarly, semischolarly, and popular secondary sources; and a text filled with sweeping generalizations on a variety of subjects, not all of them equally agreeable, others merely obvious. (These flaws may also reflect his debts to Eisenstein, whose book also exhibits them.) It is, for instance, hard to imagine the librarian who will be either astonished by or in disagreement with McArthur's remarks that "the essence of information handling is that by imposing shape it banishes randomness" and that "the greater the certainty of finding what you want when you want it, the better the system" (p.11).

Like Eisenstein, McArthur has produced a book that is awfully easy to distrust. It resembles nothing so much as Al Capp's Shmoo. It waddles over to a reviewer and urges him to dine out on it. I want to resist this temptation. Flaws and all, McArthur's is an oddly important book that will repay the time a reader spends with it. Though its dust wrapper tells us that Worlds of Reference is intended "for 'lexicographers, historians, educators and information scientists as well as the general reader,'" librarians ('information scientists'?!) and library educators will want to pay attention to it.

McArthur is not interested in the history of books and printing per se. If he were, then his book would be almost entirely without merit. His topic is rather humankind's efforts to bring the universe of information under command. In this his-
tory, the development of writing systems, and then of printing, plays a crucial role; efforts to control information not only antedate writing but also will postdate printing, as McArthur understands. His book is, in fact, a prolonged "meditation" on reference, by which I think he means—Frederick C. Crews’ joke in *The Pooh Perplex* about Murphy A. Sweat’s “large freshman anthology, *All Previous Thought*” (p.64) notwithstanding—quite literally “all previous thought” and the ways in which it is stored, accessed, and classified.

 Significant to his argument, and a point that he rightly stresses, is the close relationship between *classification* and *stratification*: “we don’t just classify, we stratify,” he remarks (p.176), and discussion of “canon-formation” as part of the taxonomic process is a recurrent theme in his book (e.g., p.35ff.). The impact of stratification on the shape of reference tools, as their compilers have recognized and accepted various hierarchies, failed to think about them at all, or sought to neutralize them through adoption of, for instance, alphabetical organizing principles (*A* is *not* superior to *L*; it simply precedes it in an invariant series) is something that we don’t often think about. Yet it affects the ways in which information and decisions about what constitutes information reach us. The tension between topical and alphabetical organizing systems is an issue that, in libraries, is familiar to catalogers. I am by no means certain how many reference librarians also consider it with respect to their own tools. That a concealed thematic organizing principle may underlie even an ABC approach to an encyclopedia (p.157) is worth pondering.

 Nor am I certain how frequently the authority (as opposed to the authoritative or accuracy) of reference tools is considered within the field. This too, however, is a topic that McArthur usefully considers. His discussion of the controversy surrounding the publication of *Webster’s Third New International Dictionary* in the 1960s is illuminating in this regard (chapter 16). Whether or not its compilers...
wanted it to have prescriptive as well as descriptive authority, the society into which that dictionary emerged assumed that it did and objected loudly to the way in which it handled that authority. The more widespread social and political implications of reference books also attract McArthur's attention. His discussion of the significance of vulgarisation is not unrelated to a reader's increasing sympathy with McArthur's own reliance on secondary scholarship; more importantly, he shows how reference books, unmediated by teachers and the academy in the fashion of textbooks, directly affect their users. They may thus serve to undermine accepted canons of truth and significance (Diderot's *Encyclopédie* is, of course, the locus classicus for such a reference book).

McArthur ends with a discussion of the future of reference in a computerized society. The perennial issues of reference—"how best to scan for, amass, file, retrieve, define, illustrate, display and distribute lexicographic and encyclopedic information" (p.170)—have been complicated by additional issues, most of them resulting directly from the introduction of the computer (whose development McArthur suggestively parallels to the impulses behind the development of encyclopedias).

A short review cannot indicate the range of this book. I have called it a "meditation" above, but it may mean more just to call it an essay in a slightly older sense of the word essay: a preliminary effort toward understanding something about the ways in which the human mind works at keeping the knowledge it acquires. "When I first started ... this book," McArthur writes, "I thought I was engaged in outlining the history of lexicography and its related disciplines. It took some time ... before I realized that I was in fact toy ing with a distinct way of looking at human history" (p.16). One can carp all day long about the flaws of a 230-page book that "toys" with such a topic. Yet *Worlds of Reference*, though far from magisterial, offering no answers, and sometimes obvious, is the product of an intelligent author dealing with issues utterly fundamental to the business of li-
It is always suggestive, always worth thinking about.—Daniel Traister, Van Pelt Library, University of Pennsylvania, Philadelphia.


Both Slavens’ study of Oxford’s theological collections and his lengthier treatment of the library at Union Theological Seminary (New York) were undertaken in the belief they might “provide guidelines for the development of other libraries” (p.v, Theological Libraries; p.ix, Great Library). The work treating Oxford briefly examines the accumulation of theological and church history collections held in the Bodleian, the History and Theology Faculty libraries, and thirty-one other Oxford libraries. The reproduction of the double-spaced typescript is marred by a number of typographical errors, and poor punctuation hampers clear reading. Several factual errors also detract. For example, Archbishop Laud was executed in 1645 and could not have donated manuscripts to the Bodleian up until 1650 as suggested (p.51). The marvelous, early seventeenth-century frieze in the upper reading room of the Bodleian is turned into evidence of the first librarian’s narrow religion and collecting (p.49). However, the frieze included not only church fathers and Protestant reformers but also featured Wyclif, Hus, Savonarola, and scientists such as Copernicus, Brahe, Mercator, and Ortelius.

More fundamental faults prevent the work from fulfilling its stated purpose. In the absence of any conclusion, we are left with “two themes” briefly noted in the preface: the importance of starting early—in the case of Oxford, eight centuries ago—and the important development role played by gifts as well as copyright deposits and endowment funding (p.v). For obvious reasons the first “theme” does not advance academic librarianship. The second “theme” is important and distinctly relevant, but its promise is unrealized.

In recounting the development of the various libraries’ theological holdings, Slavens offers a compilation of notable acquisitions accumulated over centuries. Many are gifts of splendid rarities invaluable to theological scholarship, but he does not ascribe the origins of all the important holdings. Furthermore, the overall importance of gifts to the building of Oxford’s fine collections is not well demonstrated. The single numerical indication of the importance of gifts is for 1978-79. In that year, only 22 percent (£520,000) of the Bodleian budget was available for materials purchases (p.92). A total of 79,000 books and pamphlets were accessioned, 43,000 of which were obtained through copyright deposit and 25,000 through purchase (p.74), leaving 11,000 unaccounted. How many were in theology? Were they gifts? If so, how could that year be considered representative of the relative importance in past centuries of donations and copyright deposits?

A serious omission is the failure to explain the motivations and mechanisms of donation. We can readily deduce the motivations of alumni and faculty donors, but why do apparently unaffiliated donors give? Is there now or has there ever been a plan for systematic development and donor cultivation such as a number of leading academic libraries have instituted in recent years? A Friends group is mentioned only once as playing an unspecified role in an acquisition during the 1940s (p.67).

The listing of many collections and single items of scholarly interest, coupled with the inclusion of the Bodleian’s 1980 reading regulations, points to possible use of the work as a very selective guide to theological research at Oxford. However, the lack of indexing and inadequate discussion of present access tools prevent ready use even in this manner.

Slavens’ effort to describe the importance of gifts to the development of the library at Union Theological Seminary is more successful. Listed again are notable acquisitions, including many significant
gifts of materials and funds. However, by using a wider range of sources, including budgetary and other annual reports, Slavens is able to indicate the vital importance of gifts relative to purchases in Union's collection development since its 1836 foundation. As late as 1939-40, half the volumes acquired were gifts (p.267). Although comprehensive supporting statistics are not offered, the numbers and importance of gifts are convincing for an age when acquisitions budgets were quite modest. Building upon loyalties of faculty, alumni, and others, Union assembled major research collections through gifts of books, manuscripts, and archival materials. Especially successful were named collections honoring or initially assembled by members of the faculty or board of directors, such as David McAlpin. While some donors' relationships to the seminary are explained and their motivations implied, more is wanted in this area. Slavens frequently only alludes to fund-raising activities among wealthy New Yorkers and alumni. For example, an Alumni Library Endowment Fund attracted $10,000 shortly after its 1906 announcement by the Alumni Club, but we do not learn what prompted this or how the successful drive was conducted (p.181). In Slavens' account, too many major benefactors, such as Willis James, suddenly appear proferring cash (p.174). We know they were rewarded by named alcoves, buildings, and collections, but again, how were they identified and cultivated? Fund-raising was a major component of the seminary presidency, but how active were the librarians in this arena?

Union's experience with named collections illustrates the benefit of “sharing bibliographical achievements” (p.341), as well as the wisdom of obtaining endowed funds to continue active collecting and processing of these materials. These endowments should not be over restricted; in the late nineteenth century Union found itself embarrassed by well-endowed special collections and insufficient funds for much-needed current and reference materials (p.160-61).

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There is no substitute for general, unrestricted institutional support. Slavens hints that Union librarians have subsequently experienced difficulty handling numerous special collections encumbered with names and conditions (p.337), but the collections would clearly not be the fine resources they are today without the support of both the donors and the parent institution. The critical role of the faculty in building a fine collection for teaching and research is also emphasized throughout this work. They actively recommended particular acquisitions (although this is too often asserted without documentation), promoted theological bibliography, and donated their own working collections. Their partnership with Union's librarians is worthy of emulation.—Jonathan LeBreton, Albin O. Kahn Library & Gallery, University of Maryland, Baltimore County, Catonsville.

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