Why wait?

You don't have to. Baker & Taylor supplies more than twice the first fill of other vendors. In fact, many of your orders will be in stock and ready for immediate delivery, so you won't have to wait months for books your students and faculty need right now.

When it comes to your academic book ordering needs, why wait? Call Baker & Taylor. We deliver.

For more information call 1 (800) 775-1800.

© 1993 Baker & Taylor

Now you can have it all—current awareness and retrospective coverage of the scientific journal literature. On one disc! With Current Contents on CD-ROM. This remarkable table-of-contents database provides extended access with weekly updates and a fifty-two week rolling file. So you can review data from the latest week...or whatever weeks you choose!

And with its OVID® search and retrieval software, you’ll quickly pinpoint every relevant item in the literature...complete bibliographic data from the world’s key science journals...searchable, full-length author abstracts. Plus information that other databases don’t even offer!

What’s more, every record provides a convenient link to ordering full-text documents! So you can continue your research in-depth. Why settle for a single searching capability when you can have it all? Call ISI® today to request a sample disc of Current Contents on CD-ROM.

Choose the database researchers have relied on for over thirty-five years...choose Current Contents.

OVID software produced by CD PLUS Technologies, Inc.
For Access to the World's Life Science Literature, There's No Comparison.

When it comes to comprehensive, cost-effective life science reference tools, there really is no comparison. Biological Abstracts® and Biological Abstracts/RRM® (Reports, Reviews, Meetings) are the foremost sources for multidisciplinary coverage of life science research literature.

**BA: Your Link to 7,000 Worldwide Serials.**

In 1994, Biological Abstracts (BA) will supply 350,000 references derived from nearly 7,000 international sources. BA records contain author-written abstracts so researchers can save time determining an article's relevancy to their research topic.

**BA/RRM: Your Source for Papers From 1,500 Meetings.**

Biological Abstracts/RRM (BA/RRM) offers unmatched access to 130,000 references to international meetings – no other source supplies this vital information. Plus, BA/RRM contains citations to reports, books, reviews and software.

**Look to BIOSIS First.**

For all your life science research questions, look to BIOSIS first. We think you'll agree that no other reference tools compare to BA and BA/RRM. Find out for yourself – subscribe today!

Call toll free 1-800-523-4806 (USA and Canada); (215) 587-4847 (Worldwide). Or, complete the coupon.

Yes!

Send me a free copy of *How to Use Biological Abstracts and Biological Abstracts/RRM (Reports, Reviews, Meetings).*

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>State</td>
</tr>
<tr>
<td>Country</td>
<td>Postal Code</td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
</tr>
</tbody>
</table>

Return this coupon to BIOSIS, Inquiry Fulfillment CRL394GF, 2100 Arch Street, Philadelphia, PA 19103-1399 USA, or the Official Representative or Authorized Distributor in your area. Fax (215) 587-2016; Internet: biosis@al.relay.upenn.edu
99 Guest Editorial
Defining Success. Irene Hoadley

101 Scholarly Communication as a Loosely Coupled System:
Reassessing Prospects for Structural Reform. Charles A. Schwartz

119 The Impact of Computerization on Library Support Staff:
A Study of Support Staff in Academic Libraries in Wisconsin.
Cathleen C. Palmini

129 Document Delivery: A Comparison of Commercial Document
Suppliers and Interlibrary Loan Services. Kathleen Kurosman
and Barbara Ammerman Dumiak

141 Specialized Accreditation and Academic Libraries. Stuart Frazer

149 A New Strategic Planning Model for Academic Libraries.
Douglas G. Birdsall and Oliver D. Hensley

161 Beyond Orientation: The Roles of Senior Librarians in
Training Entry-Level Reference Colleagues. Mary M. Nofsinger
and Angela S. W. Lee

171 Research Notes
Determination of Sample Size and Selection of the Sample:
Concepts, General Sources, and Software. Peter Hernon

181 Letters

183 Book Reviews

183 World Encyclopedia of Library and Information Services.
Reviewed by James McLean Campbell

184 Representations. “Special Issue: Future Libraries.”
Reviewed by Ross Atkinson

186 Carlson, David R. English Humanist Books: Writers and Patrons,
Manuscript and Print, 1475–1525. Reviewed by Elizabeth Swaim

Issue Title: “The American Research University.” Reviewed by
Scott Bennett
COLLEGE & RESEARCH LIBRARIES

EDITOR: Gloriana St. Clair, Pennsylvania State University, University Park, PA 16802
BOOK REVIEW EDITORS: Stephen Lehmann and Bob Walther, University of Pennsylvania, Philadelphia, PA 19104
RESEARCH NOTES EDITOR: Larry R. Oberg, Willamette University, Salem, OR 97301
ASSISTANT TO THE EDITOR: Martha Bright Anandakrishnan, Pennsylvania State University, University Park, PA 16802

EDITORIAL BOARD

Robert K. Baker
Pima Community College

Karyle Butcher
Oregon State University

Jinnie Y. Davis
North Carolina State

Larry Hardesty
Eckerd College

Rod Henshaw
Emory University

Peter Hermon
Simmons College

Irene Hoadley
Texas A & M University

James Neal
Indiana University

Larry R. Oberg
Willamette University

Emma Perry
Southern University

Ruth Person
Ashland University

Donald E. Riggs
University of Michigan

Michael Ryan
University of Pennsylvania

Althea H. Jenkins
Executive Director, ACRL

Mary Ellen K. Davis,
C&RL News Editor

Ex Officio:

Jacqueline McCoy
Past President, ACRL

Karen Seibert
Chair, ACRL Publications Committee

Interns:

Fred J. Hay
Harvard University

Cheryl Metoyer-Duran
UC-Riverside

College & Research Libraries (ISSN 0010-0870) is the official journal of the Association of College and Research Libraries, a division of the American Library Association. It is published bi-monthly at 50 E. Huron St., Chicago, IL 60611. Second-class postage paid at Chicago and at additional mailing offices. POSTMASTER: Send address changes to College & Research Libraries, Subscription Department, c/o CHOICE Magazine, 100 Riverview Center, Middletown, CT 06457-3445.

Manuscripts of articles should be sent to the Editor: Gloriana St. Clair, c/o E506 Pattee Library, The Pennsylvania State University Libraries, University Park, PA 16802; 814-865-1858; FAX: 814-863-7293. INTERNET acct.# gss@psulias.psu.edu. Copies of books for review should be sent to Stephen Lehmann and Bob Walther, Reference Department, Van Pelt Library 6206, University of Pennsylvania Libraries, Philadelphia, PA 19104.

Advertising office: Stuart M. Foster, Advertising Sales Manager; Dolores L. LaPointe, Advertising Coordinator, Choice, 100 Riverview Center, Middletown, CT 06457, 203-347-1387. Production and circulation office: ALA Production Services, 50 E. Huron St., Chicago, IL 60611: David Epstein, Eileen Mahoney, Dianne M. Rooney, Bruce Frausto, and Josephine C. Sharif, Project Editor. Change of address and subscription orders should be addressed to College & Research Libraries, Subscription Department, c/o CHOICE Magazine, 100 Riverview Center, Middletown, CT 06457-3445, at least two months before the publication date of the effective issue.

Subscription price: To members of ACRL, $25, included in membership dues; to nonmembers, U.S. $50; Canada and Mexico $55; and other foreign countries $60. Retrospective subscriptions not accepted. Single copies and back issues, $14 each.

Inclusion of an article or advertisement in College & Research Libraries does not constitute official endorsement by ACRL or ALA.

A partial list of the services indexing or abstracting the contents of C&RL includes: Current Index to Journals in Education; Information Science Abstracts; Library & Information Science Abstracts; Library Literature; and Social Sciences Citation Index. Book reviews are included in Book Review Digest, Book Review Index, and Current Book Review Citations.


© American Library Association, 1994

All materials in this journal subject to copyright by the American Library Association may be photocopied for the noncommercial purpose of scientific or educational advancement granted by Sections 107 and 108 of the Copyright Revision Act of 1976. For other reprinting, photocopying, or translating, address requests to the American Library Association, Office of Rights and Permission, 50 E. Huron St., Chicago, IL 60611.
A BETTER WAY TO SEARCH DATABASES

We started in 1985, database searchers committed to better search software design. We became the premier vendor of Medline, then expanded our catalog to other databases. Last year we won Information World Review's PRODUCT OF THE YEAR for faster, easier search software. But a better way means meeting the evolving needs – individual and campus wide – of today's library users.

Announcing OVID: a database interface so flexible it molds itself to your search environment.

With OVID you're free to move from one operating system to another without retraining. OVID's Common User Interface assures identical functionality in DOS, Windows and UNIX.

A haven for beginners, OVID's Easy Mode has on screen prompts. The more experienced can pull-down menus showing an array of search options. Experts will feel at home using online syntax.

Search with natural language if you like. OVID mapping cuts through the mystery of controlled vocabularies, homing in on precisely matching subject headings.

There's an unprecedented array of search tools - indexes, thesauri, limits and fields - many never before available in an interface. They're all standard OVID features.

HELP for every search function is context-sensitive and on screen, never more than a keystroke or mouse click away.

OVID. A better way to search ERIC, Current Contents*, PsycINFO*, Medline, Readers' Guide Abstracts, EMBASE and more.

CD PLUS Technologies

New York 800-950-2035/212-563-3006  London 44-(0)81-748-3777  Amsterdam 20-672-0242
Sometimes the right partner can make a world of difference...

READMORE
ACADEMIC SERVICES
700 Black Horse Pike; Suite 207
Blackwood, NJ 08012

READMORE CANADA
P.O. Box 119,
Milbrook, Ontario,
Canada LOA 1GO
Guest Editorial

Defining Success

In the library profession success is usually measured in terms of status—the position one holds, the honors achieved, the offices held. There are many who manifest these levels of achievement—library directors, ALA presidents and other officers, the winners of awards. These are the people whose names we recognize, whose pictures are familiar, and whose words often appear in the literature. These individuals represent visible success; i.e., achieving recognition through position. We would expect a high correlation between successful library directors and those who achieve success in professional organizations. There should also be a high correlation between library directors and award winners. Neither is apparent, though I have not done a scientific study. For example, the last time a director of a large academic library served as ALA president was in 1978/79. And if someone did a correlation study of directors of large libraries, academic or public, and award winners, the outcome would probably be disappointing.

If success in the professional context is the attainment of status, power, and fame, only a very few of our profession could be termed successful. There is, however, another type of success which is not tied to position or status but is based on a different kind of accomplishment. The individuals who make a difference because of the way they do their jobs do not often receive public acclaim, yet they are successful because they represent the fulfillment of the goals of the library profession.

Success can be achieved without public recognition. Each of us can think of individuals who have influenced our careers, and in many instances, these were people who have not been recognized successes in the profession. They are the people who have served as mentors for generations of good reference librarians or catalogers. They are people who care about people. These individuals have bequeathed us a legacy—a standard by which successful activities are judged over time.

Perhaps for too long the profession has reserved the term success for the visible successes attached to status. In the last few years, there have been some efforts to provide visible recognition for some of the individuals who are making a difference. Both American Libraries and Library Journal annually recognize individuals who have made a difference in a way that is not usually visible within the profession, but is obvious to the users of libraries. Library Journal also regularly features a variety of individuals on its covers, many of whom are not recognized library leaders. A journal cover does provide recognition, but it will not necessarily increase status.

Success most often implies a level of achievement whether by position or by accomplishment. For some, attaining the goal of status is most important. However, what should be important is what a person does after that status is achieved. Many library directors never make an impact on the libraries they direct or on the profession. They come, they carry on the regular routines, they make a few changes, perhaps introduce a new service, but they do not really inspire the organization or leave any legacy. They do not make the library a more vital organization.
Unfortunately, it appears that there are not nearly enough people building on their successes. There are many opportunities to make a difference, but too few people who are willing to take the necessary risks. Why are so few willing to make an impact on the profession? How can this be changed? These are questions that the profession needs to address.

There is a third definition of success which is often overlooked. Success by status or by accomplishment is determined by external measures. Others determine if individuals are successes by electing them to office or appointing them to positions. External success can also be self-defined. Who is more successful—an individual who wants to be a superior reference librarian and achieves that or the person who wants to be president of ALA but who never quite makes it? What about the person who aims too high, whose vision outpaces reality? Are such people failures or successes? In reality, success is really a continuum rather than a constant state. It includes both successes and failures because true success is not possible without some trial and error, without some stretching of boundaries. Success is a process which needs to be nourished, expanded, and diversified to be realized.

These are conventional definitions of success which have reigned unchallenged by the profession. Maybe it is time to reexamine the real meaning of success. Success can continue to mean position, prestige, and accomplishment, but it should also mean vision, dignity, quality, and values. Success should be a multidimensional term rather than a narrow concept. There should be room for the risk takers, the visionaries, and those whose independence and creativity tend to set them apart. There must also be a place for those individuals who uphold the values that should be basic to all librarians.

A long time ago at a management seminar, an individual commented that she thought the worst thing that could happen to a person was to pass through life unnoticed. Millions of people do pass through life unnoticed, but millions also look for their fifteen minutes of fame. Librarianship follows a similar pattern—many pass through our professional world unnoticed, and many have their fifteen minutes of recognition. If our profession is to be successful, we need more individuals who are making a difference on a long-term basis—not for fifteen minutes and not simply by occupying a position—because the successes of individuals are what creates professional success.

It is time that librarianship increase its recognition of those individuals who make a difference by what they do and what they think, not merely by virtue of the position they hold. The room at the top has always been small, and perhaps it should remain small, but if that is so we need to create new entrance criteria so that the profession will be enhanced rather than simply maintained.

IRENE B. HOADLEY
Texas A&M University
Scholarly Communication as a Loosely Coupled System: Reassessing Prospects for Structural Reform
Charles A. Schwartz

Scenarios of restructuring the scholarly communication system have dominated our profession's view of how major problems confronting libraries will have to be resolved. This paper comes to a different view. It suggests that any fundamental reform would presuppose an interdependent system, one with a fair amount of integration or consensus. Scholarly communication, however, is in reality a loosely coupled system of largely autonomous constituencies with little communication, coordination, or even direct cause-and-effect relationships. Loose coupling reflects certain functional needs, such as flexibility, local adaptation, and innovation, afforded by such "organized anarchy." This structural property of loose coupling is the essential reason why structural reform is an unrealistic prospect and a poor idea, since it would run the risk of impairing the system's capacity to handle constant environmental change. The paper concludes with some suggestions for alternative approaches to future research and analysis in this area of inquiry.

Over the past decade, study of the scholarly communication system has attracted broad interest in the library field. The consensus is that the system has broken down under the combined weight of price inflation and publication proliferation, and that restructuring it will require major allied actions on the part of the nation's universities.

Three scenarios of structural reform dominate discussion. One scenario is technological; it anticipates a historic transformation of scholarly communication from the print age to the electronic era now under way. Another scenario concerns the publisher base; it envisions university presses greatly expanding their role, particularly in science and technology journals, with the aim of displacing the monopoly position of commercial presses. The third scenario focuses on the academic rewards system; it foresees administrators making a concerted move toward qualitative measures of faculty research performance, with the aim of displacing the publish-or-perish syndrome of insignificant articles.

How well do those scenarios capture the likely prospects for structural reform? Taken literally, none of them can be assessed very realistically. Each scenario is indeterminant about the short-term future. In the case of technological transformation, this difficulty is understandable. Writers generally refrain from their role, particularly in science and technology journals, with the aim of displacing the monopoly position of commercial presses. The third scenario focuses on the academic rewards system; it foresees administrators making a concerted move toward qualitative measures of faculty research performance, with the aim of displacing the publish-or-perish syndrome of insignificant articles.

How well do those scenarios capture the likely prospects for structural reform? Taken literally, none of them can be assessed very realistically. Each scenario is indeterminant about the short-term future. In the case of technological transformation, this difficulty is understandable. Writers generally refrain from

Charles A. Schwartz is Social Sciences Librarian at the Fondren Library, Rice University, Houston, Texas 77251-1892; e-mail: schwart@riceum1.rice.edu. The author wishes to thank Gary D. Byrd, Dennis Carrigan, Richard M. Dougherty, Karen Hunter, David Kaser, Susan K. Martin, Charles B. Osburn, and Herbert S. White for their helpful comments on an earlier draft of this paper.
making specific projections on technolo-
gical development because of the
known tendency to overestimate what is
possible in the short run and underesti-
mate what could happen in the long run.

For the other scenarios involving con-
certed initiatives on the part of the na-
tion's universities, the indeterminate
nature of discussion is troublesome.
There is no time frame or specific plan,
only an expectation that the "sleeping
giant of higher education will soon wake
up" to the need for structural reform.4
Nor is any salient role assigned to librar-
ies. Rather, the literature in our field
stresses that libraries, as captive markets,
are in a dependent position in the sys-
tem, with little potential for collective
action.

This structural property of loose
coupling is the essential reason why
structural reform, which presupposes
a considerable degree of integration
and consensus in the system, is a poor
theory and an unrealistic prospect.

Overall, the issue of prospects for
structural reform has reached an im-
passe. Libraries have, in effect, placed
the burden of responsibility on groups
and events beyond their sphere of con-
trol. At the same time, a decade of
deliberation in our field on the plausi-
bility of such wishful scenarios has
stunted consideration of real-world ap-
proaches that are practical and within
our control. As Karen Hunter has ob-
served, it is rather "bewildering that
there are relatively few articles on what
can be done to improve access [now].
Instead, the emphasis is on creating a
utopia for the twenty-first century."5

To assess the realism of the three
scenarios, a fundamental shift in per-
spective is necessary. Underlying all the
scenarios is a basic assumption: that
scholarly communication constitutes an
interdependent system. This assump-
tion originated in The National Enquiry
into Scholarly Communication, a 1979 re-
port by the American Council of Learned
Societies (ACLS). The report begins with
an "axiom" that the "various constitu-
encies involved in scholarly communica-
tion—the scholars themselves, the
publishers of books and of learned jour-
nals, the research librarians, the learned
societies—are all components of a single
system and are thus fundamentally de-
pendent upon each other."6 A few pages
later, the report picks up that thought
once again with the assertion that, al-
though different constituencies may
adopt conflicting approaches to particu-
lar problems, the "binding forces, the com-
mon interests, are ultimately stronger."7
Yet, nowhere else in the 166-page report
is system interdependency even men-
tioned. Evidently, it was included as a
matter of presumed logic (that systems
are supposed to be interdependent) or
normative value (that all groups should
cooperate).

The impact of those brief passages has
been profound. As Charles Osburn has
pointed out, while the report's findings
and recommendations were soon forgot-
ten, its notion of an interdependent sys-
tem paved the way for scholarly
communication to become a research
area in its own right.8 Discussion since
then has adopted a refrain that the prob-
lem is systemic and its solution must
address the entire system of scholarship,
from the production of research to its
dissemination and rewards. Perhaps
more than any other idea, that dual
image of system interdependency and
structural reform has shaped our view of
how major problems confronting the li-
brary field will have to be resolved.

The analysis presented here comes to a
different view. It suggests that scholarly
communication is not an interdependent
system in any meaningful sense, even
theoretically. Rather, it is a loosely coupled
system, comprised of largely autonomous
components with little communication,
coordination, or even direct cause and ef-
fect relationships. This structural property
of loose coupling is the essential reason
why structural reform, which presup-
poses a considerable degree of integra-
tion and consensus in the system, is a
poor theory and an unrealistic prospect.
Loose coupling does not require us to conclude that nothing can be done, through deliberate plan, to improve the operation of the scholarly communication system. But it does point up the need to consider the remoteness of grand structural reform and its likely futility, as well as question its very relevance. Loose coupling is not accidental or incidental, nor does it represent a flawed system. It reflects certain functional needs, such as flexibility, local adaptation, and innovation, afforded by such "organized anarchy." In this perspective, structural reform—to the extent that it means tightening up patterns of influence or interaction for the sake of institutional order, as reflected in the scenario of a university-based publishing apparatus—would run the risk of impairing the system’s capacity to handle constant environmental change.

Beyond this introductory sketch, the analysis is developed in five main parts. Part one describes the origin of the assumption of system interdependency. Part two sets out a model of scholarly communication as a loosely coupled system. As opposed to the previous literature, in which interdependency is an assumed condition, this model treats it as an independent variable. Part three surveys a few components of the system where tightly coupled patterns of influence or interaction are prevalent. Part four assesses certain prospects for electronic development of the system and how such development would affect its loosely coupled structure. The last part outlines some suggestions for future research and analysis.

**ORIGIN OF THE ASSUMPTION OF INTERDEPENDENCY**

The economic recession in higher education during the early 1970s, following the end of the “Great Society” spending spree on academic libraries, brought an initial shock at the real (unsubsidized) cost of scholarly publishing. Executive committees of learned societies made swift cuts in the size of their serials. Hardest hit were the university presses. The book budgets of academic libraries fell so suddenly that many presses were caught with unsalable inventory. Price increases, intended to make up for lost revenue, depressed sales further. Then in 1973, a group of university press directors asked the ACLS to undertake a study of trends affecting scholarly publishers and academic libraries. In 1975, following two conferences and a $600,000 funding drive, The National Enquiry was launched.

When the report came out four years later, however, the university press directors denounced it as “trivial, if not downright silly... poorly formulated, inadequately researched, badly interpreted, and presented with overstatements, contradictions, and logical fallacies.” A review of their specific criticisms is hardly necessary, since the report had only one lasting impact: its notion of system interdependency, which the press directors dismissed as "simplistic." The only recommendation that came to pass—the creation of an Office of Scholarly Communication within ACLS itself—folded after a few years.

**MODEL OF A LOOSELY COUPLED SYSTEM**

A “system” is not simply or necessarily interdependent. Systems vary significantly in the extent to which components and processes constitute an integrated whole, one with salient cause and effect relationships. In a now famous paper, Karl Weick introduced the concept of loose coupling to convey the image of two structural properties of large-scale social systems: component semiautonomy and means-ends ambiguity.

**Component Semiautonomy**

In a loosely coupled system, components are somewhat responsive but essentially autonomous. Their connections may be sudden (rather than continuous), occasional (rather than frequent), negligible (rather than significant), indirect (rather than direct), or eventual (rather than immediate).

Thus, connections in the scholarly communication system may appear suddenly:

The advent of the computer had such jolting impact on scholarly communica-
tion, primarily because of the swiftness of change it generated, that it is very largely responsible for the attention now given to scholarly communication as a system. 14

Further, connections in the scholarly communication system may occur occasionally, as campus administrators generally do not maintain regular communication with either library directors or university press directors. Connections may be negligible, with libraries tending to preserve their institutional autonomy and freedom of action within resource-sharing programs. Connections may be indirect; publication proliferation (as discussed below) is an offshoot of the growing complexity of the modern world and the size of higher education, and is not tightly coupled to either the publish-or-perish syndrome or the academic rewards system. Connections may be eventual, as illustrated by the fact that the economic recession that got under way in higher education in 1970 did not begin to influence library perceptions or practices until the latter half of that decade.

Means-Ends Ambiguity

The other major structural property of a loosely coupled system is that organizational means and ends (costs and benefits, inputs and outputs) may have ambiguous relationships. There is an absence of functional linkages to support a theory of organizational effectiveness.

Such loose coupling, to take a familiar example, pertains to collection development in academic libraries. Bibliographers are somewhat responsive to general or interdisciplinary concerns but work basically on their own, with fluid participation on the part of faculty. Means and ends are not closely tied: collection goals are broad and idealistic; selections are problematic owing to the extraordinary growth, price inflation, and uneven quality of scholarly publishing; technology for collection evaluation is hazy; and there is little feedback about the eventual use or value of a given selection. 15

In contrast, tight coupling refers to interdependent subsystems or, within an organization, to direct means-ends relationships that can be controlled, restructured, or at least understood in systematic ways. Loose and tight couplings can be used as building blocks in modeling the complex workings of the scholarly communication system. The few general accounts of this system published up to now describe its various constituencies with little attention to their actual patterns of influence or interaction. 16 In other fields, coupling analysis is one of the more powerful ways of depicting large-scale system complexity; about 300 such studies have been done. 17 One advantage is the flexibility it affords theory-building; readers can add, critique, or rearrange certain blocks (sets of couplings) without having to rethink the whole conceptual scheme.

Libraries and Academic Institutions

An image of loose coupling between academic libraries and their parent institutions is evoked by a number of long-standing concerns. One is the general lack of regular communication between library directors and deans. Conventional wisdom holds that the library suffers from a kind of benign neglect because it does not pose either great problems or great opportunities. 18 The relative autonomy of the library, however, need not be viewed pejoratively. It reflects a certain logic of confidence associated with loosely coupled systems in which "parties bring to each other the taken-for-granted, good faith assumption that the other is, in fact, carrying out his or her defined activity." 19 Tightening up such patterns of interaction would be a reciprocal process involving a greater role for the faculty in the governance of the library. Librarians, understandably, may not be very comfortable about such faculty involvement. 20

Another concern indicative of loose coupling is the absence of direct exchange relations between the library and the faculty in the political economy of collection development:

Library directors, who have responsibility, lack authority. Faculty members, who have authority, lack responsibility. University administrators, who at least conceptually have
both authority and responsibility, have abdicated both when it comes to libraries. Many librarians have virtually no contact with administrators except in times of painful financial discussions. Such dispersion of power is reinforced by a third concern: the lack of cost-benefit analysis to indicate how investments in library resources are related to gains in campus productivity. Little wonder that administrators find it easier to discuss the symbolic importance of the library than to defend or refute its budget requests, which do not have even theoretical limits.

**Library Networks**

It is easy to describe the American library system, with its extraordinary decentralization, as loosely coupled. Each library has a unique culture, with its own organizational mission and freedom of action. What is troublesome about that truism, however, is that librarians are influenced by certain opposing professional norms (normative linkages) about "the way things should be." Against the norm of organizational autonomy is the counternorm of network interdependency, which calls for cooperative arrangements to cope with the growth and inflation of scholarly publishing.

University administrators, who at least conceptually have both authority and responsibility, have abdicated both when it comes to libraries.

The dichotomy between autonomy and interdependency has not been dealt with satisfactorily in the library literature. Discussions have tended to be speculative and abstract, as in the 1970's model of "Combined Self-Interest," based on the ideal assumption that research libraries' strengths and weaknesses can be combined rationally in regional schemes of coordinated collection development. Or, when discussions have turned to debates, writers treat the professional norm and counternorm as rhetorical devices. Clearly, whatever insights we might gain in the autonomy-interdependency dichotomy must come from broader considerations than the norm-counternorm frame of analysis. A brief sketch of some discontinuities in library interdependency over the past half-century might put this problem in better perspective.

Toward the end of the Second World War, Robert Downs made a precursory case for coordinated collection development, arguing that it was impossible for even the largest libraries to hold more than a fraction of the world's literature. Yet, this proposition took thirty years to become a professional norm. Until the mid-1970s, organizational autonomy—reflecting the "bigger is better" philosophy of collection management—overshadowed the idea of network interdependency.

Strikingly different was the latter half of the 1970s. That was the period in which coordinated collection development became what theorists call an "institutionalized thought structure." Whereas only a handful of consortia had been established between 1931 and 1972, fifty-three new consortia comprising at least one member of the Association of Research Libraries (ARL) were set up between 1975 and 1982.

The early 1980s marked a third period of discontinuity, as the immense difficulty of taking interdependency from theory to practice became evident. As reported in a national survey, nearly all collection development consortia became stymied in the attempt to move beyond the beginning stage of fostering organizational relationships to the point of determining specific goals and responsibilities. Indeed, once participants became aware of the sheer diversity of organizational interests and collection management structures, they found themselves unable to specify even the general aims of their respective programs.

Over the past decade, the autonomy-interdependency dichotomy seems to have disappeared from active consideration. We now take for granted that libraries inevitably preserve their freedom of
action within consortia, finding joint acquisition interests only on the margins of academic programs. The transition in paradigms from resource-sharing to "access, not ownership" has reinforced such freedom, since the optimal or affordable level of access is a local prerogative.

Scholars

Despite their central role in the scholarly communication system, scholars themselves have relatively bounded perspectives. This situation is evident from their segmented schools of thought, as well as their incomprehension of the system at large.

The fragmentation of scholars into rather isolated schools of thought is a familiar but barely understood process. So far, no model of the growth of knowledge has managed to account for the extent of "disconnectedness" in communication ties between scholars. The broad effects of such fragmentation on the workings of the scholarly system, however, are clear enough.

Research specialization (a function of intellectual efficiency) and research diffusion (a function of the growing complexity and uncertainty of the modern world) proceed in a mutually reinforcing fashion. The proliferation of journals generates new opportunities for debate, leading to even more highly specialized research aimed at nearly exclusive audiences, who become increasingly selective in their reading.

Since the 1960s, that process has swept away much of the intellectual unity of the various disciplines. Learned societies now encompass scores of diverse groups with competing scientific or humanistic values and practitioner interests. While such conflicts have subsided in those learned societies no longer capable of close communication, they still tend to disrupt campus politics. As a primer on faculty governance warns, "Authoritarianism and chauvinism within the academic disciplines pose more direct barriers to collegiality than the most autocratic of administrators." Scholars apparently do not fully grasp, let alone appreciate, the concept of an interdependent scholarly communication system. That concept is almost completely absent from the literatures of the physical sciences, the social sciences, and the humanities. As a rule, scholars have no real interest in the organization or finance of scholarly communication beyond their own immediate needs. Some partial exceptions—episodes of broader awareness in the early 1970s—only serve to support the rule.

Research specialization (a function of intellectual efficiency) and research diffusion (a function of the growing complexity and uncertainty of the modern world) proceed in a mutually reinforcing fashion.

In 1972 Robert Lane, in his presidential address to the American Political Science Association, observed that research diffusion was hindering the cumulative development of that field and proposed the organization of a comprehensive database. At about the same time, Carl Beck proposed that the United Nations organize a comprehensive database on peace research. Both proposals were dropped, failing to elicit sufficient interest.

In 1975 James McCartney organized a conference of sociology journal editors to establish some means of coordinating research dissemination. His concern was that high rejection rates of manuscripts meant that articles took three or four years to get published. His proposal to expedite the resubmission process by allowing editors to refer manuscripts directly to one another was not supported by the conference because of "many sociologists' fears against centralized planning and control of any form in the discipline." In 1976 David Mermin and Ken Wilson, physicists at Cornell University, responded to announcements of two new physics journals by writing a letter to Physics Today, urging for the sake of science libraries everywhere that people not support any such unnecessary new
journals. As Mermin recalls, "From around the world we were attacked with a fury I couldn't have imagined. Many held us to be the running dogs of . . . a blatant conspiracy to stifle [the marketplace of ideas]." 32

By the latter half of the 1970s, scholars' concerns about the scholarly communication system had run its course—just as interest began to gain momentum in the library field. The appearance of The National Enquiry at the end of the decade marked this disjunction: the report was reviewed only in library and information science journals, with all reviewers remarking on its distinctive integrated-system approach. 33

University Presses

In the 1970s the relationship between university presses and academic libraries was tightly coupled. Since then, it has loosened considerably as the presses, once utterly dependent upon library sales, have gained a more independent market position by deemphasizing their scholarly mandate. Such decoupling does not augur well for the scenario envisioned by librarians in which the presses would assume a much greater role in scholarly publishing.

Before 1970 the university presses typically published 2,000 copies of a scholarly monograph, even one intended for a specific audience. Since then, the average publication run for works in that category has been only about 500 copies. Gradually, the presses began publishing in other categories, such as mid-list books (serious nonfiction for the general public with projected sales of 2,000 to 10,000 copies), textbooks and reference works (with potential sales of 10,000 to 25,000 copies), and fiction. As a result, while the past twenty years have seen an almost unbroken decline in sales of scholarly monographs, university presses as a group have become bigger, healthier, and more diverse in their operations. 34

University press directors apparently do not comprehend the librarian scenario of their taking charge of scholarly publishing. In all the literature, only one article written by a press director even refers to the idea. 35 Press directors, who have been under university pressure for years to become completely self-sustaining, regard journal publishing—especially in science and technology fields—as too speculative (given the entrenched market positions of certain companies), too expensive (in terms of up-front capital investments), and not scholarly enough (since most of the presses do not play the same role in adding value to journals that they do with monographs).

Tightly Coupled Patterns

Analysis of interdependency in the scholarly communication system can be turned around and made more representative, by considering patterns of influence or interaction that are tightly coupled. Such patterns, involving direct means-end relationships in the system, are few in number but historically durable. They involve price discrimination, informal information exchange mechanisms, and academic rewards.

Price Discrimination

A number of studies on discriminatory pricing practices have come to the same conclusions, that the best journals discriminate the most against libraries (in the form of institutional prices) and that a few European firms discriminate the most against U.S. institutions. 36

In view of the close relationship between price and quality, it is not surprising that library journal cancellations are only loosely coupled to journal prices. As Jean Haley and James Talaga found in an extensive survey, 80 percent of academic libraries tend to cancel less-expensive journals, whereas only one in six tend to cancel expensive ones. 37

Informal Information Exchange Mechanisms

Earlier, mention was made of swift adjustments by learned societies to cut publication costs during the economic recession of the early 1970s. At least a decade earlier, scholars had begun to make individual adjustments to a differ-
ent problem—the flood of information. To cope with publication lags, they developed a variety of informal exchange mechanisms to expedite the transfer of information.

Most of what we know in any detail about this phenomenon was discovered in the Project of Scientific Exchange by the American Psychological Association (APA). In 1963, for example, half of the authors in core psychology journals distributed preprints, whereas by 1976 three of four authors distributed preprints and nearly all authors distributed reprints. As the APA observed, the “burden of dissemination of scientific information has, to some extent, been taken on by the authors themselves.”

The publish-or-perish standard that supposedly governs American higher education actually applies to only a small number of institutions.

Formal publication channels—being a year or two behind the scholars—became increasingly archival in character. In a study of 200 research projects in psychology during the late 1960s, ideas for only one of seven projects originated from published sources, the inspiration instead coming from informal networks. More recent studies in other fields corroborate the primacy of informal exchange networks over formal publication channels in stimulating intellectual innovation.

Academic Rewards

The strategy commonly advocated in the library field is simple in concept: administrators should make a concerted move toward quality-based measures of faculty research performance in order to displace the publish-or-perish syndrome of insignificant articles. This strategy is usually postulated in a paragraph or two without any consideration of its feasibility, or whether the sort of simplification it offers is justified.

Several considerations cast doubt on any such strategy. In the first place, the publish-or-perish standard that supposedly governs American higher education actually applies to only a small number of institutions. Most academics publish little or nothing in their careers. Publication proliferation is not an individual phenomenon but rather one of sheer mass. Consider the trend in U.S. doctoral programs: in 1960, 9,829 Ph.D. degrees were conferred; in 1970, 29,866; in 1986, 34,829; in 1990, 38,283.

Ironically, as the numbers of scholars have multiplied, fewer people have the expertise to evaluate any particular piece of research because fields of knowledge have become increasingly specialized. Faculty committees have little choice but to rely on publication counts in administering the rewards system. Among its advantages—or virtues of its defects—are that such counts can be standardized (and weighted according to the reputation of the publisher); that they can be done in a reasonable amount of time, year after year; and, most important, that they remove personnel matters from campus politics, paradigm conflicts, and subjective issues of intellectual quality.

Editorial boards have the relevant expertise, but no serious observer would claim that the manuscript review process is tightly coupled to objective criteria. Instead, even in the best of circumstances, such criteria tend to get displaced by certain random factors. Such factors include the availability of space for the acceptance of new papers and what is known as the luck-of-the-reviewer draw. In the social sciences and humanities, random factors account, by some estimates, for 50 percent of accept-or-reject decisions. In science and technology fields—having more “physical reality” to gauge research design, as well as more journal space—the role of chance is reduced to about 25 percent.

As opposed to such loose coupling between manuscript review and intellectual quality, as well as between publish and perish, the academic rewards system is tightly coupled to numbers of publications. In terms of merit pay increases, economists have figured lifetime returns per article produced. In terms of pro-
fessional recognition, sociologists have made the principles of accumulative advantage and the competence multiplier major themes in the literature.46

Thus, the strategy now espoused in the library field—to simultaneously increase research quality and decrease publication proliferation by changing the rewards system—would surely break down in any test.47 Finally, the academic rewards system is none of the business of librarians. As one administrator gently warned at an ARL meeting, “nothing is more likely to be misunderstood and to anger academics than even thoughtful comments on this subject.”48

ELECTRONIC PROSPECTS

Development of the Internet as a global telecommunications network has largely reinforced the loosely coupled structure of the scholarly communication system. Management of the Internet resembles an “organized anarchy” with its philosophically pluralistic notions of decentralized initiative, local autonomy, and intellectual diversity.49 While use of the Internet—navigating its 11,000 semiautonomous networks, finding and downloading subject-specific files—no longer requires much technical sophistication, widespread adoption of its command-driven protocols (file transfer and telnet, as opposed to mail) across the scholarly communication system remains problematic. Indeed, the literature paints a fairly bleak scenario in which the scholarly system becomes more or less balkanized along the lines of differing Internet competencies:

Gaps in network attitudes and skills exist along several dimensions: between older and younger researchers, between researchers and network administrators, between people in different sectors, between researchers from different disciplines, and between researchers working on different kinds or different stages of problems.50

In that broad respect, the Internet will likely contribute to internal divisions within the disciplines for some years.

The basic issue in the library field involves prospects for the development of a university-based electronic publishing apparatus, principally to resolve the serials crisis. Contrary to popular belief, such a development would likely exacerbate the current situation by (a) impairing intellectual innovation, (b) accelerating publication proliferation, and (c) intensifying price inflation.

First, consider certain basic decision rules in the editorial process for evaluating intellectual innovation. Science journals have acceptance rates in the 60–80 percent range because they seek to minimize the chance that worthy papers will be rejected (a so-called Type I error), whereas social science journals have acceptance rates at the other end of the spectrum—in the 5–25 percent range—because they would rather risk rejecting a worthy paper than accepting an unworthy one. The latter situation (of avoiding a Type II error) is a condition of fields that are beset with differences over what problems are really important, what techniques are most useful, how much evidence is sufficient, and whether a solution to a given problem exists.51

If one rationale for a university-based publishing apparatus is to stem publication output by emphasizing quality control, turning around the decision rule for science journals from the established aim of avoiding Type I errors (rejection of a worthy paper) to a different aim of avoiding Type II errors (acceptance of a possibly unworthy paper) may disrupt intellectual risk taking and innovation.

Much the same can be said about a general publishing apparatus based on learned societies. They tend to be intellectually conservative and slow to develop a consensus on emerging research trends. Commercial publishers, in contrast, are concerned primarily with business risk and cannot afford to worry much about intellectual risk or conservatism.52

Now consider the potential for acceleration of publication proliferation in an electronic system. As noted, since the 1960s journal space has become increasingly valuable, with upward to half of editorial decisions in the social sciences
and humanities depending on the availability of space for the acceptance of new papers. (In science and technology, fewer editorial decisions depend on space constraints, since journals in those fields impose page charges, deal with much shorter manuscripts, and have a stronger consensus on how to apply criteria of intellectual quality.)

Although criticism of the refereeing process as being too conservative or slow is commonplace, no other process is workable for full-text articles.

Electronic journals, however, are not faced with space constraints. What happens when editors no longer must consider which papers merit the expense of publication? From a strictly economic standpoint, the refereeing process would be unnecessary:

No longer do we need to treat publication space as a precious resource to be doled out according to a schema of merit. Everything can be made available to everyone. We will no longer need a chosen few to do our choosing.53 Such a situation would serve no beneficial purpose. Although criticism of the refereeing process as being too conservative or slow is commonplace, no other process is workable for full-text articles (as opposed to the posting of abstracts of draft manuscripts on the Internet to elicit critiques).

Of historical note, in 1969 the APA started an Experimental Publication System as a way of dealing with growing publication backlogs. The idea was to publish an abstract of any paper submitted to it within sixty-five days of receipt (with papers available by mail). That experiment was discontinued after eight months because neither authors nor readers favored fast dissemination at the expense of the refereeing process.54

Thus, one can only hope that when scholarly journals go electronic, a kind of Gresham’s law of publications—based on the fear that bad papers will drive out authors and readers—will keep traditional ground rules of the editorial process in place. By then, journal space scarcity based on economic cost will no longer enforce standards of intellectual quality.

Now, consider what would happen to the structure of knowledge under the simplistic scheme of each university becoming its own publisher. Universities rarely have enough faculty to provide in-depth coverage of a given research area; instead, faculty hiring is geared to broaden instructional coverage (i.e., a university hires only one or two professors of British history, or of comparative politics). If a university were to publish its own research, the literature in any given area would be dispersed over scores or hundreds of journals, rather than collected in a few specialized ones. Surely, there would be no economy or bibliographic control in that. Nor could the refereeing process be adequately handled on campus.

A necessarily more elaborate scheme would have universities publish specialized electronic journals in line with the international division of intellectual labor. What effect would that have on library subscription rates? Would university presses set rates more or less altruistically, at the cost of production—or would they treat journals as valuable-added commodities to be sold at market value? Richard Rowe suggests that universities would operate in a businesslike fashion:

With the economic pressures upon universities and with the shortening of the time frame between a scientific discovery and its commercial application for profit, . . . royalties from faculty products will be increasingly used as a source of revenue. I expect universities to look more and more to other intellectual products—the ideas, the publications, the writings of faculty—as potential sources of revenue to offset the escalating costs.55

That view is also found in economic forecasts for American higher education. Universities, having increased tuition charges to maximum levels during the
1980s, are generally adopting more opportunistic standards of entrepreneurial behavior.56

Over time, the scholarly communication system will become article-based, rather than journal-based. As Clifford Lynch observes, the ensuing financial environment may be far more volatile and complex than libraries are prepared to handle:

Libraries have assumed that prices per article would be relatively constant from one article in a given journal to another, and over relatively long time periods... But it is easy to imagine publishers applying information technology to vary prices of articles over days or weeks, based on usage levels, topic interest, citation analysis, or media coverage. (A Nobel Prize, for example, might stimulate immediate doubling of prices for recent articles authored by the recipient.) One can imagine speculative markets in article futures much like a commodity market. Are libraries ready to... adapt their budget and acquisitions policies to the realities of this new environment?57

Clearly, any major shift in the scholarly enterprise away from disinterested inquiry to ventures that are primarily profit-oriented would undermine the traditional rationale of the university press, as well as worsen the financial situation of academic libraries.

SUGGESTIONS FOR FUTURE RESEARCH AND ANALYSIS

Prospects for restructuring the scholarly communication system are nil. From a systems perspective, the overall configuration of loosely coupled patterns of influence or interaction vis-à-vis tightly coupled patterns are the reverse of what reformers would need. On the one hand, those patterns on which reformers would base a different system—academic library relations with university administrations, with university presses, with scholars, and with scholarly societies—are all loosely coupled, relatively weak, and hardly given to social engineering. On the other hand, those patterns which reformers seek to change—price inflation and discrimination, publication proliferation, and academic rewards—all involve tightly coupled patterns of cause and effect that are historically durable. Moreover, structural reform is not simply remote but also misguided because certain functional needs—for flexibility, local adaptation, and innovation—would likely be impaired. Nonetheless, some suggestions for future research and analysis in this area can be outlined in order to provide a few guidelines for determining what is practical and desirable.

In Conceptual Matters, Look to Complexity and Controversy—Not to Simplicity and Interdependency

In the library field, the usual approach to discussing structural reform of the scholarly communication system is to state seemingly plausible propositions, as if they could supply enough evaluation or incentive to spur action by other parties that would serve the interests of libraries. For example:

Universities should cease giving away the results of their research, only later to have academic libraries re-acquire the same information in the form of an expensive journal. Why not create a university-based publishing system?58 Even when such a proposition is backed by some economic claim—"universities would save half a billion dollars" is the figure bandied about—this approach leads to nothing more than rhetoric. Indeed, that has been the situation over the past decade.

Since the scholarly communication system includes a multitude of segmented groups, each with quite different interests, any realistic approach to reform of the system would have to anticipate in some detail the difficulties in strategy, plans, and sequences of action that inevitably would occur. Policy makers in the groups will simply rule out of bounds structural reforms based on relatively narrow subsystem (academic library) interests as being uninteresting, too removed, or poorly understood, no matter how theoretically important.59

The great difficulty of basing analysis on what seems rational or plausible is
finding and choosing a desirable position for one's own group (subsystem) that is at the same time acceptable to other groups and good for the system as a whole. Writers in the library field, for example, complain of publishers maximizing profits, of administrators simplifying the rewards system, of scholars turning out so-called LPUs (least publishable units of research), and so forth.

An elementary theorem holds that loosely coupled systems provide greater room for self-determination than is true of more centralized systems, in which local adaptation and initiative are limited.

Yet, writers in the library field expect university presses to assume not only a much greater subsidization of scholarly publishing but to do so in domains relatively foreign to their experience: science and technology journals. They would have university presses absorb heavy capital outlays, ignore the market value of publications, and price them at roughly the production cost. Such change would merely shift the financial burden from academic libraries to other budgets within the university. The "half billion dollars" in savings to universities is an amorphous claim.

The essential point is that complex or controversial aspects of scholarly publishing—such as the function of journal space constraints, the role of Type I and Type II editorial decision rules, the difference between production cost and market value, and the prospect of universities practicing economic altruism—should not get lost or blunted through the arbitrariness of centralizing schemes. Such aspects must be fully considered before any scenario of structural reform will be taken seriously. Consider paper costs. Ann Okerson states that "by some accounts, dropping paper distribution cuts publishing costs approximately in half." Yet, libraries or computer centers will foot the bill for all the paper used to download thousands of articles from the Internet, many in multiple copies.

For those who remain steadfastly interested in pursuing structural reform, the first step would be to scale down grand scenarios to specific projects by deciding on a field and then make changes on an exploratory basis in order to determine what is actually possible and desirable. Such disjointed incrementalism would allow the opposition, the neutrals, and even the supporters to digest the process with a minimum of problems.

A logical field would be library and information science, where structural reform is already an institutionalized concept and the rewards system is not generally based on publication counts. Some questions directly pertinent to reform would crop up. According to Library Journal's latest survey, there are 118 journals in our field—is that too many? The average price is $60.81—is that too much? Price inflation has been 358 percent since 1977—is that, to an undue degree, the result of greed? Which uni-

In Policy Matters, Look to Disjointed Incrementalism and the Demonstration Effect—Not to Radical Reform

The social engineering implicit in proposals to transform the publisher base or the rewards system is rare in democracies. It would require extraordinary intellectual and political comprehensiveness. Local needs and functional arrangements are liable to be "coordinated" out of sight by any grand plan. An elementary theorem holds that loosely coupled systems provide greater room for self-determination than is true of more centralized systems, in which local adaptation and initiative are limited. The essential point is that complex or controversial aspects of scholarly publishing—such as the function of journal space constraints, the role of Type I and Type II editorial decision rules, the difference between production cost and market value, and the prospect of universities practicing economic altruism—should not get lost or blunted through the arbitrariness of centralizing schemes. Such aspects must be fully considered before any scenario of structural reform will be taken seriously. Consider paper costs. Ann Okerson states that "by some accounts, dropping paper distribution cuts publishing costs approximately in half." Yet, libraries or computer centers will foot the bill for all the paper used to download thousands of articles from the Internet, many in multiple copies.

For those who remain steadfastly interested in pursuing structural reform, the first step would be to scale down grand scenarios to specific projects by deciding on a field and then make changes on an exploratory basis in order to determine what is actually possible and desirable. Such disjointed incrementalism would allow the opposition, the neutrals, and even the supporters to digest the process with a minimum of problems.

A logical field would be library and information science, where structural reform is already an institutionalized concept and the rewards system is not generally based on publication counts. Some questions directly pertinent to reform would crop up. According to Library Journal's latest survey, there are 118 journals in our field—is that too many? The average price is $60.81—is that too much? Price inflation has been 358 percent since 1977—is that, to an undue degree, the result of greed? Which uni-
versity presses would volunteer to displace commercial presses and to practice price altruism?

If such an unlikely project proved moderately successful, we might have a case (in the form of demonstration effects) for encouraging projects in other fields. However, that prospect is weakened by the very nature of loosely coupled systems. Local autonomy allows such systems to respond to environmental change with more novel solutions than is true of tightly coupled systems. Yet, the very looseness of structure that allows subsystem innovations to flourish may retard their diffusion across the system. Thus, loosely coupled systems tend to have conspicuous cultural lags, as well as strong functional restraints on structural reforms. It is always easier to effect change within a subsystem than introduce change across subsystems.63 In the scholarly communication system, the strikingly different requirements of journal-based fields and book-based fields foreclose any general strategy of structural reform.64

All things considered, scenarios of grand structural reform will probably become a passing phase in the literature. The "logic of confidence" associated with loosely coupled systems—whereby parties expect each other to handle factors within their respective spheres of control—will compel us to return to themes of coordinated collection development once dominant in the 1970s. Whether that is a viable strategy remains to be seen. But greater attention to resource sharing is clearly preferable to another decade of rhetoric about overhauling the scholarly communication system as a whole in order to resolve certain problems confronting academic libraries.

Postscript

Some of our idealism in face of the serials crisis has rested on the assumption of system interdependency—that although different constituencies may adopt conflicting approaches to particular problems, the "binding forces, the common interests, are ultimately stronger." To shift our assumption-ground to one based on a loosely coupled system does not imply an end to optimism. But it should remind us of the simple truth that America has no national consensus about what constitutes the good scholarly communication system. Recognition of complexity and controversy should be an intellectual stimulus in the coming debate, not a provocation for either wishful or pessimistic scenarios. The challenge is to summon our own considerable collective ingenuity, focusing on systemwide perspectives and field-specific exemplars, to demonstrate what is possible and desirable.

REFERENCES AND NOTES


7. Ibid., 6.
12. Ibid., 67.


29. For example, the November 1990 issue of *Psychological Science* has as its theme “intellectual perestroika” through electronic publishing; in eleven articles, libraries are mentioned only twice—once to suggest their demise (p. 348).


47. For a satire on faculty members’ behavior when the system for measuring scholarly merit is radically changed, see George J. Stigler, *The Intellectual and the Marketplace* (Cambridge, Mass.: Harvard Univ. Pr., 1984), 3-9.


58. Abridged from Dougherty, "Turning the Serials Crisis."


We've kept track of Bill Clinton's career...

CLINTON, BILL (D)
Atty Gen, Ark.
b Hope, Ark, Aug 19, 46; m Hillary Rodham; c Chelsea.

CLINTON, BILL (D)
Gov, Ark.
b Hope, Ark, Aug 19, 46; m Hillary Rodham; c Chelsea.

CLINTON, BILL (D)
President of the United States
b Hope, Ark, Aug 19, 46; m Hillary Rodham; c Chelsea.

and 26,000 others.


"The only source available that covers the full range of U.S. politics... indispensable for any respectable reference collection."
— AMERICAN REFERENCE BOOKS ANNUAL

Featuring over 2,000 new entries!

Bill Clinton wasn't the only one to get a new job as a result of the last national election... it ushered in a host of new people in new positions all across the country.

From the President to local politicians, Who's Who in American Politics 1993-94 is the only source for current biographical information on over 26,000 elected and appointed officials, party functionaries, former office holders, and more.

The personal histories of people making headlines today

Featuring over 2,000 new office-holders, Who's Who in American Politics 1993-94 gives you accurate biographical listings — information you can count on because it's provided by the entrants themselves... 100% of the existing entries have been updated or verified since the previous edition.

PLACE A STANDING ORDER AND SAVE!

Place a new standing order for Who's Who in American Politics and you'll save 5% off the list price. Plus, you'll get 5% off all future editions.

1993 • 0-8352-3285-9 • 2-vol. set • 2,113 pp. • $225.00
Available on Standing Order.

Also of Interest

Who's Who in European Politics, 2nd Edition
— accurate information on over 8,000 European politicians.
A Bowker-Saur title.
February 1993 • 0-8379-0418-8 • 1,083 pp. • $225.00
Available on Standing Order.

Call toll-free
1-800-521-8110,

dial 1 for Customer Service, and ask for Department FXQ3.
Or fax your order to: (908) 665-6668.

1993-1994
The Impact of Computerization on Library Support Staff: A Study of Support Staff in Academic Libraries in Wisconsin

Cathleen C. Palmini

This 1992 survey explores the effects that computerization of libraries has had on the work and job satisfaction of over 200 support staff employed in academic libraries in Wisconsin. Among the questions addressed are period and area of employment, type of automated systems used, percentage of time spent at computer terminals, adequacy of training, change in overall effectiveness since computerization, and change in job satisfaction. Responses to open-ended questions reveal that many support staff are concerned not only with the specifics of their jobs but also with larger questions facing academic libraries.

The computerization of libraries has changed and continues to change the positions of academic library support staff. A growing body of literature addresses other library support staff issues. In "The Role, Status, and Working Conditions of Paraprofessionals," Larry R. Oberg et al. provide an excellent review of the literature on support staff as well as information on paraprofessionals in academic libraries based on administrators' responses to a nationwide survey. In "Job Satisfaction among Support Staff in Twelve Ohio Academic Libraries," Coleen Parmer and Dennis East explore support staff satisfaction in five job dimensions (supervision, coworkers, work, benefits, and pay), but they do not isolate computerization as a factor in job satisfaction.

In 1987 Dorothy E. Jones surveyed support staff in three academic libraries to determine their attitudes toward technology in what she terms the "the technology-acquisition period." The impact of computerization on support staff, both in the work they do and in their attitudes toward their jobs, has not been explored across a large number of academic libraries or since the use of computers in libraries has become widespread.

The purpose of this survey was to explore the effect computerization has had on Wisconsin academic library support staff. The resulting objective data are reported. In addition, a sample of the statements written by support staff in response to the questionnaire is quoted. This approach provides the reader not only with the percentage response to questions but also with an indication of the outpouring of comments written by support staff. From these written comments, the picture of support staff which emerges is that of a vital and vocal group of individuals who wish to express themselves and to be heard on issues relating to the computerization of libraries.

Cathleen C. Palmini is a Library Services Assistant II, Government Publications Department, University of Wisconsin-Stevens Point, Stevens Point, Wisconsin 54481.
SURVEY METHODOLOGY

This survey was supported by the University of Wisconsin-Stevens Point and the Support Staff Roundtable of the Wisconsin Library Association. The sixteen-question survey instrument was developed to elicit information from Wisconsin academic library support staff on their library background, working conditions (especially with regard to computer use), attitudes toward the computerization of their positions, and causes of job satisfactions and frustrations. In addition to objective responses, eight questions allowed for written comments from the respondents and the final three questions were open-ended. Librarians and support staff at the University of Wisconsin-Stevens Point reviewed the questionnaire and support staff at four academic libraries pretested the questionnaire.

The picture of support staff which emerges is that of a vital and vocal group of individuals who wish to express themselves and to be heard on issues relating to the computerization of libraries.

Since no statewide directory of support staff existed, contact people in each of the University of Wisconsin System Libraries (with the exception of University of Wisconsin-Madison) distributed the questionnaire in January and February of 1992. These contact people on campuses statewide were support staff known by the author or officers of the Wisconsin Library Association Support Staff Roundtable. Contact people agreed to distribute the questionnaires to mailboxes of support staff, refer questions back to the author, have questionnaires returned to their mailboxes, and mail questionnaires back by a specified date. University of Wisconsin campuses at Eau Claire, Green Bay, La Crosse, Milwaukee, Oshkosh, Parkside, Platteville, River Falls, Stevens Point, Stout, Superior, and Whitewater were involved in this method of distribution.

Because of its widespread system of general and specialized academic libraries, questionnaires were sent in February 1992 to the University of Wisconsin campus using personnel lists through campus mail. The questionnaires were returned to a library contact person. In addition, a small sample of support staff employed at private academic libraries was obtained by distributing questionnaires at the April 1992 statewide Support Staff Conference in Madison, Wisconsin.

The overall response rate from the approximately 400 support staff employed at University of Wisconsin system libraries was 50 percent. The response rate from the two largest University of Wisconsin campuses, University of Wisconsin-Madison and University of Wisconsin-Milwaukee, was 30 percent. The relatively large size of their library systems and the lack of personal acquaintance of respondents with the contact person may account partially for the response rate. The response rate from the other twelve University of Wisconsin system campuses (listed above) was 80 percent.

SURVEY RESULTS

Length of Employment

When asked about longevity on the job, library support staff in Wisconsin proved to be a stable group. Sixty percent reported working in a support staff position in a library for over ten years, and nearly one-third of the total group has been employed in a support staff position for over fifteen years (see table 1).

One might suspect that such long-term employees would have difficulties adapting to the new procedures brought on by computerization or express less

<table>
<thead>
<tr>
<th>YEARS EMPLOYED IN A LIBRARY SUPPORT STAFF POSITION</th>
<th>% of Support Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>22</td>
</tr>
<tr>
<td>11-15</td>
<td>18</td>
</tr>
<tr>
<td>16-20</td>
<td>15</td>
</tr>
<tr>
<td>20+</td>
<td>17</td>
</tr>
</tbody>
</table>
job satisfaction. However, in response to other questions, most support staff did not report this to be the case.

**Area of Employment in the Library**

When asked of what their work consisted, the largest percentages of respondents reported working primarily in Circulation (24 percent) or Cataloging (21 percent). The next largest areas of employment were Serials and Acquisitions, each at 11 percent. If support staff worked in more than one area (and over one-third did), they were asked to indicate the percentage of time worked in each area. For the numbers in table 2, support staff were counted in the area in which they worked the most.

For example, only 5 percent of support staff reported working primarily in Reference, but another 14 percent worked in Reference as a secondary part of their job. Several of the support staff working in a combination of areas mentioned the difficulty of mastering computer applications in more than one area. One respondent commented: “Because of the variety of computers I work on in a day, there are times I sit down at a screen at the end of the day and draw a blank as to what protocol, codes, passwords and system I’m on.”

**Years of Library Automation**

Most support staff are no longer newcomers to using computerized systems in libraries. At the time of the survey, 89 percent of support staff reported their library had been using computerized systems for three years or longer. Only 11 percent reported that their library had been using computers less than three years. These support staff worked in private academic libraries or small, specialized libraries in the University of Wisconsin-Madison library system.

**Support Staff Use of Automated Systems**

When asked which automated systems were used on their job, 75 percent of respondents reported using an online catalog regularly. Those support staff employed by the University of Wisconsin-Madison or Milwaukee used the NLS system (as the online catalog is known), while other University of Wisconsin system libraries used the LS2000 online catalog system at the time of the survey.

“Because of the variety of computers I work on in a day, there are times I sit down at a screen at the end of the day and draw a blank as to what protocol, codes, passwords and system I’m on.”

Nearly two-thirds of support staff used word processing programs and two-thirds also made regular use of e-mail. Nearly half did cataloging/searching on OCLC. Nearly half also used an automated circulation system. Automated cataloging systems, such as NOTIS or LS2000, were used by 37 percent of support staff. Use of CD-ROM databases was reported by 22 percent of support staff and use of automated acquisitions systems was also made by 22 percent (see table 3).

**Hours of Work at Computer Terminals**

Widespread use of such systems means hours spent working at computer terminals for support staff. Half of support staff spend more than 50 percent of their working day at a terminal. Twenty percent of total support staff work over 75 percent of their time at a computer (see table 4).
Some support staff believed that their management showed indifference to the working conditions that cause computer-related health problems.

While some support staff stated they enjoyed the challenge of learning on their own computer applications necessary for their job, more said they felt dissatisfied with having to learn on their own and cited poorly written manuals as part of the problem. In both cases many voiced frustration with the lack of time to learn new systems.

**Computer Background in Hiring**

Will some computer background be necessary for future applicants for support staff positions? Of the 47 percent responding yes, one person stated: “Library schools should emphasize that if you don’t like computers, stay out of the library field!” Only 13 percent responded that no computer background would be necessary, and 41 percent checked the answer “possibly” computer background would be necessary. Most of these support staff were trained on the job themselves because they were hired before the computerization of their libraries. Several felt as this respondent did: “I think it is necessary for applicants to be willing to learn, not necessarily have specific knowledge. There are so many programs, etc. that knowledge of one does not mean you will know all others—it will make you more comfortable learning new systems, however.”

Computer background for student assistants was not addressed on the questionnaire but was an issue brought up by support staff answering the questionnaire. In addition to training new student assistants in the usual tasks, support staff now must train them also

### TABLE 3

**AUTOMATED SYSTEMS USED ON THE JOB**

<table>
<thead>
<tr>
<th>Automated System</th>
<th>% of Support Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online catalog</td>
<td>75</td>
</tr>
<tr>
<td>E-mail</td>
<td>66</td>
</tr>
<tr>
<td>Word processing</td>
<td>63</td>
</tr>
<tr>
<td>Circulation system</td>
<td>46</td>
</tr>
<tr>
<td>OCLC</td>
<td>46</td>
</tr>
<tr>
<td>Cataloging system</td>
<td>37</td>
</tr>
<tr>
<td>Other (spreadsheet, data-manager, graphics, etc.)</td>
<td>31</td>
</tr>
<tr>
<td>CD-ROM databases</td>
<td>22</td>
</tr>
<tr>
<td>Acquisition system</td>
<td>22</td>
</tr>
<tr>
<td>Serials system</td>
<td>13</td>
</tr>
<tr>
<td>Interlibrary loan system</td>
<td>13</td>
</tr>
</tbody>
</table>

### TABLE 4

**TIME SPENT AT A COMPUTER TERMINAL**

<table>
<thead>
<tr>
<th>% of Time at Terminal</th>
<th>% of Support Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–25</td>
<td>19</td>
</tr>
<tr>
<td>26–50</td>
<td>31</td>
</tr>
<tr>
<td>51–75</td>
<td>30</td>
</tr>
<tr>
<td>76–100</td>
<td>20</td>
</tr>
</tbody>
</table>

Such long hours at computers led some respondents to comment about health problems related to computer use, including eyestrain and the problems caused by repetitive motions. Some support staff believed that their management showed indifference to the working conditions that cause computer-related health problems.

Other comments indicated that support staff were not unhappy with computers, but with the amount of time they were expected to work at computers. One wrote: “I’ll admit, my first reaction to inputting on a computer is ‘this is fun.’ But eight hours a day? Not good for anyone.”

**Training for Computer Use**

In responding to a question on training for computer use, 62 percent believed that training was adequate and 38 percent found training inadequate for the use they made of computers. Since over one-third of support staff said they were inadequately trained for computer use, this response indicates a problem area for academic libraries.
on one or more computer systems. The staff of one Acquisitions Department believed that students stayed with them too short a time to make it effective to train students in computer functions.

**Effect on Job Satisfaction**

Over half of support staff reported feeling more job satisfaction since the computerization of their libraries. They cited such factors as the opportunity to learn new skills, better ways to find things for patrons, and the streamlining of procedures.

Thirty-two percent felt about the same job satisfaction before and after computerization. Many explained that they felt about the same because new satisfactions and new frustrations balanced out, as this respondent expressed: "I feel very satisfied when I accomplish a major task on the computer. I also feel very frustrated when things don’t work right—especially after several attempts."

Only 13 percent of support staff reported feeling less job satisfaction since computerization. While this was a small group, they voiced strong feelings in their written comments. One commented: "Before computerization, I felt like my workload was reasonable and procedures were relatively stable. Since computerization, the workload is impossible and because of the ever-changing procedures, staff have trouble digesting everything, resulting in inconsistent work and frustration."

**Computers as Timesaving**

In the opinion of many, computerization of support staff’s work load has not been a big timesaver. When asked about the portion of their job which was computerized, only 39 percent reported it had become less time-consuming, while 36 percent reported that it was more time-consuming and 26 percent said it had remained about the same.

One group of support staff, catalogers, mentioned having to perform too many steps to complete a single task and said that they found some procedures laborious on the computer. Another group working in serials areas noted that working on serials with their title changes and frequency changes did not adapt efficiently to computerized systems. Support staff from other areas responded more positively to the time-saving aspects of computers. In circulation, a support staff member emphasized the freedom of letting the machine generate overdues and statistics.

**Over half of support staff reported feeling more job satisfaction since the computerization of their libraries.**

Support staff pointed to poorly designed systems as being part of the problem of the lack of efficiency of computer use. One respondent, after first identifying herself as a computer enthusiast, stated: "I’m very frustrated by what libraries put up with in poor quality systems for the tremendous expense." Also mentioned were software changes that made procedures different, but not better as promised: "It seems obvious that users are not consulted in software updates." Another support staff member stated: "Some things are facilitated but there is a lot more equipment to troubleshoot and explain. There should be standards in writing software so that a person needn’t have to remember five or six ways to do the same operation depending on the system."

**Effectiveness**

In a related question, support staff were asked: "Has automation increased your overall effectiveness on the job? (Are you getting more done?)." Of those responding, 64 percent said yes to an increase in overall effectiveness, 18 percent no, and 18 percent about the same. These results seem somewhat contradictory to the results of the previous question, but comments written by respondents indicated that this question was often interpreted in a larger sense of what computerization means to the overall functioning of the library. Thus, many support staff felt that because of automation, they were providing better
overall service or providing better cataloging records or making the library easier to use for patrons.

When responding to this question, some support staff pointed out that increased efficiency should not be viewed alone. In Interlibrary Loan, one respondent wrote that yes, she was getting more done but the volume had increased almost 600 percent since automation. Another staff member was unsure whether she was getting more done: “There seems to be more I should have done than ever. Maybe the expectations have increased faster than my ability to complete them.” Comments of several support staff echoed this statement: “I’m getting more done, but working much harder. Stress levels are much higher.”

**Causes of Job Frustration**

One of the open-ended questions asked: “What part of your job causes you the most frustration?” Note that this question did not indicate that the frustrations were to be solely computer-oriented. Similar written-in responses were grouped in categories. Percentages were calculated using those similar responses appearing five or more times (see table 5).

Computer-related frustrations totalled 62 percent of all responses. The biggest single source of job frustration was when the computer was down (26 percent of all responses). Because of the extensive use of computers by support staff, this means that staff will experience interrupted workflow or perhaps accomplish nothing until the computer is functioning again. Other respondents mentioned the lack of computer support or repair staff as a major frustration.

The computer being down creates even more stress among the many support staff who felt there was not enough time to do their job. The second-largest group of responses (21 percent) mentioned that the workload was too great, that their libraries were understaffed, and that they did not have enough time to complete their work. While most respondents did not indicate whether this lack of time was primarily computer-related, some mentioned the lack of time to learn new systems.

Other respondents indicated frustration with computer problems: slow response time of computers (9 percent), not enough terminals (7 percent), too many different systems to learn (6 percent), too much time on computers (5 percent), and too much time on computers (3 percent). It should be remembered

<table>
<thead>
<tr>
<th>% of Support Staff Responding</th>
<th>Cause of Frustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>The computer is down.</td>
</tr>
<tr>
<td>21</td>
<td>Work load, being understaffed, lack of time.</td>
</tr>
<tr>
<td>9</td>
<td>Slow response time on computers.</td>
</tr>
<tr>
<td>7</td>
<td>Not enough terminals.</td>
</tr>
<tr>
<td>7</td>
<td>People, problem personalities.</td>
</tr>
<tr>
<td>7</td>
<td>Management/librarians and their attitude toward support staff.</td>
</tr>
<tr>
<td>6</td>
<td>Too many different systems to learn.</td>
</tr>
<tr>
<td>5</td>
<td>Not enough training (38% of total respondents on the adequacy training question).</td>
</tr>
<tr>
<td>5</td>
<td>Health problems related to computer use.</td>
</tr>
<tr>
<td>4</td>
<td>Computers, too much time on computers.</td>
</tr>
<tr>
<td>3</td>
<td>Other staff.</td>
</tr>
</tbody>
</table>
that this was an open-ended question asking for one response (what part of the job causes the most frustration). It did not provide respondents with a list to check several causes of frustration.

Comments of several support staff echoed this statement: "I'm getting more done, but working much harder. Stress levels are much higher."

The remaining 17 percent of respondents mentioned people-oriented frustrations (counting lack of time responses as neither computer- nor people-oriented), such as coping with problem patrons (7 percent) and other staff (3 percent). Another group of respondents cited the main source of frustration as administrators (or librarians) and their attitudes toward support staff (7 percent). One Circulation support staff member's frustration was: "unhappy patrons—whether with the computer system, our library policies—or whatever they decide to take out on the staff at the desk." One cataloger mentioned: "Cataloging positions now leave little contact with other patrons/staff. We're glued to a terminal whereas with the card catalog, we knew there was life through the cataloging doors." Several support staff mentioned stress levels on the job: "Life is more stressful because of the tremendous quantity of details which now must be addressed, plus there is a constant pressure to upgrade technical knowledge—always adding more and more to do."

Sources of Job Satisfaction

The question on job satisfaction was similarly open-ended: "What part of your job gives you the most job satisfaction?" Responses were tallied using the same method as the question above (see table 6).

A total of 60 percent of the responses on the primary source of job satisfaction were people-oriented. Of these responses, the largest number (43 percent of the total) came from support staff who indicated that their greatest job satisfaction came from dealing with patrons or working with people. Other people-oriented satisfactions came from working with other staff members (10 percent) and supervising students (7 percent). One support staff member wrote her greatest satisfaction "continues to be the patrons who express satisfaction or appreciation for a great service."

Computers as a primary source of satisfaction were cited in 11 percent of the responses (accuracy and speed of computers, liking computers, job more interesting since computers). Finding satisfaction in computer use, one support staff member stated that computerization "has offered new challenges and opportunity for personal growth, making my position more stimulating."

Another wrote: "I enjoy the challenge and

<table>
<thead>
<tr>
<th>% of Support Staff Responding</th>
<th>Cause of Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>Helping patrons, working with people, being thanked.</td>
</tr>
<tr>
<td>18</td>
<td>Getting the work done, doing a good job, completing a challenge.</td>
</tr>
<tr>
<td>11</td>
<td>Accuracy and speed of computers, like computers, job now more interesting.</td>
</tr>
<tr>
<td>10</td>
<td>Other staff.</td>
</tr>
<tr>
<td>7</td>
<td>Supervising students.</td>
</tr>
<tr>
<td>5</td>
<td>Diversity of the job.</td>
</tr>
<tr>
<td>4</td>
<td>Working in cataloging, making materials more easily accessible.</td>
</tr>
</tbody>
</table>
excitement of using computer products and services."

Other responses may be based on satisfactions related to computer use but were not clearly stated by support staff as such: getting the job done or doing a good job (18 percent), the diversity of the job (5 percent), cataloging work or making materials more easily accessible for patrons (4 percent). "Seeing an empty cart after it was full!" was how one respondent expressed herself.

Additional Comments on Computerization

The final question asked for additional comments on how computerization has affected the support staff member's position. Most support staff wrote a response to this and other open-ended questions. The comments here ranged from some very positive comments about computerization to a few very negative. Many support staff wrote at length and many thoughtfully considered both what has been gained with computerization and what problems it has caused. A sample of the written responses follow.

"Computerization has been an interesting and stimulating addition to my job. The only frustration has been that there often is not time to 'play around' and learn new applications and systems."

"Overall, I believe that computerization has increased the workload of my job. In some instances it has made tedious tasks much less time-consuming and deadening; but in other respects, there is greater pressure to use all the latest technological advances and there does not seem to be adequate time to familiarize oneself with all the programs one needs to know."

"I’ve found that patrons seem to expect the sky now. . . . These expectations, not based on what can realistically be provided, can cause a lot of stress at a public service point."

"Library administration is not fully tuned in to the time demands of the procedures expected."

"I used to be a cataloger on OCLC and disliked all the time I had to spend in front of a VDT screen; since moving to Reference, all is different. I’m checking into many different databases searching for the right one for each question and I feel I’m using it, rather than being used by the machine."

"As far as I’m concerned, either you roll with the punches or you get left behind, and it can be great fun!"

"There are days you can’t live with it [computerization], but most days you don’t want to live without it either."

For those support staff spending large amounts of time working on terminals, the need is expressed to spend less time in that area, to have more people contacts or more variety in the work involved in their positions.

"It’s important to remain flexible and open to change. My position will probably change as much in the next ten years as it has in the previous ten. These are exciting times in the information field and I look forward to the innovations which are sure to come."

CONCLUSION

The comments of three support staff respondents help to summarize the findings of this survey.

"Although learning the new methods has been challenging, the old methods were more peaceful." In recent years, most support staff have moved from the comfortable into the unknown. Learning the new methods and ongoing work with computers have been stressful for many support staff. Changes suggested by the respondents of this survey would help alleviate part of this stress. More adequate training on computers is considered essential by many support staff. The need for administrators to recognize and take action to eliminate computer-related health problems (such as better designed workstations) is cited by some support staff. For those support staff spending large amounts of time working on terminals, the need is expressed to spend less time in that area, to have more
people contacts or more variety in the work involved in their positions. Support staff see themselves as good sources of information on the better design of systems on which they spend long hours.

"Things seem to be happening almost faster than even reasonably extraordinary people can keep up with them." Support staff have been "reasonably extraordinary" in adapting to the computerization of their positions. Most have been successful in adapting to radically different procedures in a relatively short period of time. Despite computer-oriented frustrations, most support staff feel that overall their effectiveness has improved and that their job satisfaction has improved or not been affected. An often-expressed feeling was that there is not enough time to keep up, either with the present work load or with the changing technology.

"Access to information is so much greater now and users appreciate the power and relative ease of use." This writer helps to put the use of computers by support staff into perspective. In libraries, support staff aid in the process of getting information to the library user, and most support staff find their greatest satisfaction in working with these library users as well as working with other staff members. While support staff are frustrated with computers when they are down, are poorly designed, or have other problems that interfere with completing work, staff laud computerization of libraries as an improvement in providing this access to information.

REFERENCES AND NOTES

4. The term support staff will be used throughout this article. It was adopted by the Wisconsin Library Association Support Staff Roundtable and is interchangeable with the term paraprofessional as defined and used in Oberg's article.

MAPS is now Preservation Resources. Our name change reflects the evolution of our organization and reiterates our ongoing commitment to provide the library and archive community with the highest quality preservation microfilming and other related services.
You get one chance with authority control, so it's important to get it done right. LTI guarantees that its affordable, machine-only authority control will link 95% or more of your library's controlled headings to an LC or LTI authority record. No exceptions! No excuses!

When manual review is requested, only professional librarians are used as editors and link rates approach 100%.

LTI maintains the complete LC MARC authority files (updated weekly), supplemented with over 410,000 LTI authority records and 350,000 proprietary “cross links.”

Contact LTI for more information on authority record link results.

“Authority Control for the 21st Century”

LIBRARY TECHNOLOGIES, INC.
1142E Bradfield Road  Abington, PA 19001
(215) 576-6983  Fax: (215) 576-0137
(800) 795-9504
Document Delivery: A Comparison of Commercial Document Suppliers and Interlibrary Loan Services

Kathleen Kurosman and Barbara Ammerman Durniak

Cost-effective and timely document delivery is becoming a major concern as many academic libraries face cuts in serials budgets. This study examines the costs and response times of traditional interlibrary loan (ILL) services and four commercial document suppliers. From October 1991 to February 1992, a total of 52 periodical requests were sent through Online Computer Library Center's (OCLC's) Interlibrary Loan subsystem simultaneously to academic libraries and to four document suppliers. Data were gathered on each supplier's ability to fill the requests, and the costs, turnaround times, and the quality of the articles supplied. Results indicated that traditional ILL was the most cost-effective and one of the quickest means of obtaining articles not owned by our library.

In 1990 Vassar College, like many other colleges and universities, was forced to cut its serials budget. An intense review by librarians, faculty, and the administration resulted in a 25 percent reduction of serial subscriptions. By May of 1991, 1,100 titles had been selected for cancellation. Although some of the titles cancelled were of marginal utility, a number of useful journals were sacrificed. One outgrowth of this experience was an interest in exploring alternative means of obtaining journal articles.

Vassar College, established in 1861 as the first college to offer a liberal arts education to women, became coeducational in 1967, and has a current enrollment of 2,272 students and a faculty of more than 200. Despite the cancellation project, Vassar's serial holdings are extensive, comprising over 3,000 non-GPO titles. However, the research needs of faculty and students are such that conventional interlibrary loan (ILL) has been an integral part of the research process for many years. In 1991/92, faculty borrowed 1,194 journal articles and 1,371 articles were borrowed by students. Charges for materials ordered by faculty are absorbed by the library, while students must pay any fees incurred.

Although patrons were generally satisfied with the turnaround time for filling requests via ILL, there was some concern that ILL would not be able to provide quick enough delivery of articles from some of the journals cancelled during the serials review. While we were aware of the existence of other document-delivery options, we had not ever used any of these services. We were interested in finding out how some of these alternatives compared to ILL in ability to supply requested items, cost, delivery

Kathleen Kurosman is Coordinator of External Resources and Barbara Ammerman Durniak is Electronic Reference Services Librarian at Vassar College Libraries, Poughkeepsie, New York 12601.
time, and quality of copies. A grant from Vassar's Research Committee enabled us to conduct a limited study which examined these factors.

LITERATURE REVIEW

A search of the literature revealed that some investigation into this area had already been done. In 1985 a study conducted by Jean Currie at the Albert R. Mann Library of Cornell University compared the costs and turnaround times of three different types of document delivery services: "publication-specific" (ISI's Genuine Article, CAS, and CAB), commercial (Information on Demand), and library-based (RLIN or ALA forms).1 Dialog's DialOrder was used to place orders with the publication-specific services and with Information on Demand. Currie concluded that there was little difference among the three sources in terms of turnaround time, but there was a significant difference in terms of cost, with ILL clearly the most cost-effective. Hurd and Molyneux compared conventional ILL service to the UMI Article Clearinghouse in order to fill article requests for the University of Virginia's Science and Engineering Library.2 All requests were sent via OCLC's ILL subsystem. They found that UMI delivered documents more quickly than ILL, at a slightly higher price. A third study, conducted at the University of Illinois at Chicago by Miller and Tegler, reordered previously requested articles from various commercial suppliers available through Dialog's DialOrder service.3 The authors found that commercial suppliers charged more but did not necessarily provide faster service than ILL.

Despite the fact that some comparisons between ILL and commercial document delivery services had already been drawn, we decided to continue with our study for several reasons. First, the Currie, Hurd, and Miller studies all were conducted at scientific, primarily graduate-level libraries, and we were uncertain that the conclusions drawn from them would apply to an undergraduate liberal arts college. Second, only one of the studies used the ILL subsystem to transmit ILL requests, and we were interested in seeing whether cost analyses would be the same for requests transmitted via OCLC as they were for the studies which used Dialog for verification and ordering. Finally, we planned to investigate the performance of five document suppliers systematically, something none of the other studies had done.

THE COMMERCIAL SUPPLIERS

The document suppliers chosen represent two distinct service approaches. The UMI Article Clearinghouse (UMI) and ISI's The Genuine Article (TGA) are based on fixed inventories of journals. The UMI Article Clearinghouse, introduced by University Microfilms in 1983, has holdings of 12,500 journals, magazines, conference proceedings, newspapers, and government documents in a closed, in-house collection. Coverage ranges from general-interest periodicals to highly specialized publications, with an emphasis on scientific and technical literature. Other concentrations include business, science, arts and humanities, international affairs, and social sciences. The clearinghouse provides forty-eight-hour in-house turnaround for articles published within the last five years.4 Articles can be ordered through OCLC, BRS, Dialog DialOrder, telephone, etc., and will be available through CitaDel and OCLC's FirstSearch. Articles can be delivered by mail or fax and will also be provided via Ariel. UMI is at present working with Wilson on an agreement to supply full text for citations found in the Wilson databases.

The Genuine Article (TGA) is the document delivery service of the Institute for Scientific Information (ISI), Philadelphia. Over 6,000 titles, covering the social sciences, sciences, arts, and humanities, are listed in The Genuine Article Source Publication Listing, which includes both the standard service (current year and past four calendar years) and an extended service which covers about 3,500 journals with some issues dating back to the 1800s. The Genuine Article is
also the source for copies of articles cited in ISI publications such as Current Contents, Social Science Citation Index, and Science Citation Index.

Articles from the standard service will be provided either in the form of “tear sheets,” articles torn from the original journal, or photocopies if no tear sheets are available. Only photocopies are provided for articles ordered through the extended service. Articles can be ordered by mail, telephone, fax, e-mail, or online through OCLC, BRS, Dialog, etc.

Two other document delivery services have “open inventories” in the sense that they have staff in or have agreements with university libraries and research centers to provide articles. Information on Demand (IOD), a subsidiary of Maxwell Online at the time of the study, is based in Virginia and was founded in 1972. IOD provides items such as journal articles, technical reports, conference papers, government documents, patent information, standards and specifications, etc., from staffed sources at institutions such as the University of California, University of Michigan, University of Texas, University of Virginia, Library of Congress, and Stanford University. In addition to staffed sources, IOD has a number of in-house collections: Biomedical Specialist Collection, NTIS Report Collection, GAO Legislative History Service, and Japan Technology Database Documents. Items not available from a staffed source or IOD collection may be available through an international network which includes sources such as the National Library of Medicine, the British Library Document Supply Centre, Centre National de la Recherche Scientifique (France), and the Lenin State Library. If necessary, staffers go to publishers, private information centers, and even authors. IOD also has a customized information retrieval service called Research on Demand. Orders can be placed through OCLC, BRS, Dialog, IOD Direct, mail, phone, or fax.

The Information Store (TIF) is based in San Francisco and advertises itself as able to provide “anything ever published, anywhere in the world.” TIF will supply journal articles, proceedings, government reports, theses, translations, newsletters, price lists, etc. TIF does not maintain an inventory and relies heavily on the University of California system for its document retrieval. Orders can be placed through OCLC, BRS, DialOrder, and a number of other online methods as well as by fax.

**METHODOLOGY**

Of the many document delivery options, we decided to investigate only commercial document delivery services which allowed ordering through the OCLC subsystem. The decision was made for the following reasons: (1) the fact that orders could be placed via OCLC obviated the need for specialized training of the ILL office staff (in the use of Dialog’s DialOrder, for instance) and also meant that no reorganization of the workflow was necessary; and (2) no specialized equipment was needed. Beginning the first week of October 1991, one ILL periodical request was chosen randomly each day (Monday–Thursday), and requests were sent simultaneously through the OCLC-ILL subsystem to ILL-participating libraries and to each of the four suppliers. Except when no “source of information” was given, no further verification was done. For the two suppliers with fixed inventories, requests were only sent if the needed journal appeared on the inventory list. It was assumed that ILL, IOD, and TIF could fill any request received; accordingly, all requests were directed to these sources. Although several of the suppliers offered quicker means of sending materials, such as fax or overnight delivery, in order to contain costs, all articles were sent via U.S. mail. Records were kept for each request sent out. The first copy received was sent to the patron; subsequent copies were kept. The study ran from October through the end of February 1992, at which point funding ran out. No tests were run for a six-week period beginning mid-December, since the college was on break and few requests were generated. In all, the study comprised 14 weeks, with 52 requests being sent. Data collection ended
on May 19, 1992, with receipt of the last outstanding request.

DESCRIPTION OF REQUESTS

The 52 randomly selected requests amounted to approximately 5 percent of all articles requested (1099) during the 6-week time period. Each of the 52 titles requested was unique; there were no repeats. Student requests totaled 79 percent; the remaining 21 percent were ordered by faculty. Publication dates ranged from 1918 to 1991, the majority within the last five years. Page lengths ran from 1 to 41. All but 9 articles were English-language. With respect to subject matter, a breakdown by LC classification revealed that the majority of requests were for articles from journals in the social sciences (22), followed by the sciences (14), language and literature (9), and general (7). A "source of information" was supplied for all but 5 requests. CD-ROM indexes were cited most often (25), followed by bibliographies (16), paper indexes (5), and an online database (1).

FILLING OF REQUESTS

We first examined the success of each document supplier in providing the articles needed by our patrons. Because two of the suppliers (TGA and UMI) had fixed inventories, we knew in advance whether or not an article from a particular journal could be supplied. Of the 52 requests, 22 titles were available from UMI and 12 were available from TGA. For the other 3 suppliers (IOD, ILL, and TIF), it was assumed that, potentially, they could supply any article requested; accordingly, all 52 requests were sent to these 3 suppliers.

Every article requested was delivered by at least 1 of the 5 document suppliers, but only 4 requests (7.7 percent) were filled by all 5. Of the 52 articles requested, 2 were filled by only 1 supplier, the remaining articles were filled by 2 or more suppliers. Table 1 compares the potential and actual performance of the five suppliers.

Since all but 2 requests were filled by more than 1 supplier, we were curious about why some suppliers were able to furnish the article when others could not. An unfilled request was defined as one which the supplier potentially could supply but did not. Also included in this definition were requests reported as filled and sent by the supplier but never received. Of the 2 fixed-inventory suppliers, UMI filled all requests and TGA filled all but 2. One article was unfilled because TGA was under contract with the publisher to supply only original copies of that article, and their supply of originals was exhausted; no explanation was given for the other unfilled request.

The problem of items being sent but not received was also encountered with IOD and TIF, but seemed most serious with IOD. Of the 8 articles not supplied by IOD, 5 were sent, according to IOD, but never received. Four of the articles were listed on the same (November) invoice, so it is likely that they were shipped together and the parcel lost (3 of the 4 articles were requested within a week of each other; the remaining article was requested 3 weeks earlier). The last unreceived article was requested in February. We were charged for these 5 items. Of the remaining 3 unfilled requests, 2 were reported as being "unobtainable."

After exhausting "all" other sources, IOD offered to contact the author for 1 article, but the article was never received. We were charged the $4 fee for unfilled requests and an additional $2 for reference work (see the COST section for an explanation of pricing structures). In the meantime, this item had been supplied
via ILL from Hunter College in 10 days. We were not charged for the remaining unfilled requests, but we were told the title was unavailable from the 2 libraries identified by IOD as holding that title. This article was also received through ILL, from the University of Texas at Austin, with a turnaround time of 15 days.

TIF was unable to supply 6 articles. One request was filled incorrectly, and 5 were unfilled. No explanations were given as to why 2 of these articles could not be located. The 3 other requests, unfilled because TIF could not locate them in any libraries, were all Spanish-language items. Two of these items were supplied by ILL (from the University of Texas at Austin and from Syracuse University), and 1 was supplied by IOD.

DELIVERY TIME

Another important criterion was the speed with which requests were filled. Delivery time was defined as the number of calendar days between the sending of a request and receipt of the document. Of the 52 articles requested, 3 (6 percent) were either received from only 1 supplier or else arrived the same day from multiple suppliers. Overall, ILL delivered documents on the most timely basis; 65 percent of the time, ILL was the first to send the article. Additionally, articles requested via ILL were least likely to be received last (9 percent). The supplier with the slowest turnaround time was IOD; this supplier was able to fill requests first only 16 percent of the time, and was the last to supply 60 percent of the time. Table 2 shows the average turnaround time in days for the 5 suppliers and also compares them in terms of overall timeliness.

For several titles, one supplier was able to send the article quite quickly, while other suppliers took considerably longer. For 14 articles, the number of days between receipt from the first supplier and the last was under 10 days. For 19 titles, the differential ranged from 11 to 20 days; in 8 cases, there was a differential of 21 to 30 days; for three articles, the differential ranged from 31 to 40 days; and for 5 articles, the differential was between 41 and 90 days. Of special interest were the articles with receipt differentials of over 30 days. Table 3 compares the number of days it took for each supplier to fill these 9 requests. Additionally, the charges of each supplier are also given.

COST

In 1972 the Palmour study reported that the average cost of borrowing an item via ILL was $7.61. In 1990 the University of Pennsylvania, using a methodology developed by Dickson and Boucher, calculated the per-title borrowing cost for that institution to be $17.83. A study done at the University of Wisconsin system in 1991 found that the average cost of borrowing a journal article was $6.26. A recent study of ILL costs for ARL libraries put the average cost of borrowing an item at $18.62.

Since all but two requests were filled by more than one supplier, we were curious about why some suppliers were able to furnish the article when others could not.

These figures were derived by factoring in direct costs as well as indirect costs, such as staff time and supplies associated with the filling of requests. Additionally, since libraries which borrow materials also have an obligation to lend, the cost of lending an item may also be considered part of the cost of each ILL transaction. The University of Wisconsin study found the total cost of

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Average Time</th>
<th>Fastest</th>
<th>Slowest</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGA</td>
<td>12</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>ILL</td>
<td>13</td>
<td>65%</td>
<td>9%</td>
</tr>
<tr>
<td>UMI</td>
<td>15</td>
<td>49%</td>
<td>14%</td>
</tr>
<tr>
<td>TIF</td>
<td>22</td>
<td>21%</td>
<td>37%</td>
</tr>
<tr>
<td>IOD</td>
<td>23</td>
<td>16%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Table 2

DELIVERY TIME BY DOCUMENT SUPPLIER
### TABLE 3
COMPARISON OF DELIVERY TIMES

<table>
<thead>
<tr>
<th>Journal Title</th>
<th>Supplier</th>
<th>Delivery Time (Days)</th>
<th>Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Psych. Aspects of Mental Retardation</em></td>
<td>TIF</td>
<td>96</td>
<td>$27.75</td>
</tr>
<tr>
<td></td>
<td>IOD</td>
<td>25</td>
<td>33.00</td>
</tr>
<tr>
<td></td>
<td>ILL</td>
<td>6</td>
<td>4.40</td>
</tr>
<tr>
<td><em>Le Figaro Litteraire</em></td>
<td>TIF</td>
<td>104</td>
<td>$27.75</td>
</tr>
<tr>
<td></td>
<td>IOD</td>
<td>15</td>
<td>14.92</td>
</tr>
<tr>
<td></td>
<td>ILL</td>
<td>Unfilled</td>
<td></td>
</tr>
<tr>
<td><em>Journal of the Ancient Chronology Forum</em></td>
<td>IOD</td>
<td>85</td>
<td>$49.00</td>
</tr>
<tr>
<td></td>
<td>TIF</td>
<td>filled incorrectly</td>
<td>27.75</td>
</tr>
<tr>
<td></td>
<td>ILL</td>
<td>14</td>
<td>0.00</td>
</tr>
<tr>
<td><em>World Health Organization Bulletin</em></td>
<td>UMI</td>
<td>77</td>
<td>$9.75</td>
</tr>
<tr>
<td></td>
<td>ILL</td>
<td>18</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TIF</td>
<td>11</td>
<td>15.25</td>
</tr>
<tr>
<td></td>
<td>TGA</td>
<td>11</td>
<td>9.95</td>
</tr>
<tr>
<td></td>
<td>IOD</td>
<td>unfilled</td>
<td></td>
</tr>
<tr>
<td><em>Journal of Clinical Psychiatry</em></td>
<td>UMI</td>
<td>54</td>
<td>$9.75</td>
</tr>
<tr>
<td></td>
<td>IOD</td>
<td>22</td>
<td>25.00</td>
</tr>
<tr>
<td></td>
<td>TIF</td>
<td>9</td>
<td>15.25</td>
</tr>
<tr>
<td></td>
<td>ILL</td>
<td>5</td>
<td>0.00</td>
</tr>
<tr>
<td><em>Entomologica Scandinavia</em></td>
<td>IOD</td>
<td>47</td>
<td>$5.60</td>
</tr>
<tr>
<td></td>
<td>TIF</td>
<td>29</td>
<td>24.24</td>
</tr>
<tr>
<td></td>
<td>TGA</td>
<td>9</td>
<td>19.75</td>
</tr>
<tr>
<td><em>Mosaic</em></td>
<td>ILL</td>
<td>45</td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>TIF</td>
<td>17</td>
<td>18.50</td>
</tr>
<tr>
<td></td>
<td>IOD</td>
<td>17</td>
<td>22.26</td>
</tr>
<tr>
<td></td>
<td>UMI</td>
<td>9</td>
<td>9.75</td>
</tr>
<tr>
<td><em>Environmental Entomology</em></td>
<td>IOD</td>
<td>45</td>
<td>$17.17</td>
</tr>
<tr>
<td></td>
<td>TIF</td>
<td>10</td>
<td>17.25</td>
</tr>
<tr>
<td></td>
<td>UMI</td>
<td>8</td>
<td>9.75</td>
</tr>
<tr>
<td></td>
<td>TGA</td>
<td>8</td>
<td>9.95</td>
</tr>
<tr>
<td></td>
<td>ILL</td>
<td>7</td>
<td>0.00</td>
</tr>
<tr>
<td><em>Michigan Quarterly Review</em></td>
<td>TIF</td>
<td>42</td>
<td>$27.75</td>
</tr>
<tr>
<td></td>
<td>IOD</td>
<td>11</td>
<td>19.58</td>
</tr>
<tr>
<td></td>
<td>UMI</td>
<td>9</td>
<td>9.75</td>
</tr>
<tr>
<td></td>
<td>TGA</td>
<td>8</td>
<td>14.95</td>
</tr>
<tr>
<td></td>
<td>ILL</td>
<td>8</td>
<td>0.00</td>
</tr>
</tbody>
</table>

The amount of staff time spent choosing an appropriate supplier, inputting requests, troubleshooting "problem" citations, monitoring receipt of articles, sending out requests to patrons, record keeping, paying invoices, and compiling statistics was constant across suppliers.

In our study all costs refer to direct charges, that is, fees levied by suppliers, both commercial and traditional ILL. Indirect costs were not addressed because an ILL article exchange to be $11.49 ($6.26 for borrowing, $5.23) using figures from the ARL study, ($18.62 for borrowing, $10.93 for lending), the average cost per filled transaction reaches $29.55.
(Note: costs cited are those in effect at the time of the study). Some of the commercial suppliers allow patrons to set up deposit accounts which are slightly less expensive than open accounts. Other suppliers base their rates on the volume of items requested. Another option is paying on a per-item basis.

UMI has two levels of deposit account: individual institution ($9.75/item) and multi-institutional (pricing for this account varies based on volume). Open invoice charges are $11.75/item. Except for special-delivery charges, no additional costs are applicable. TGA's prices changed as of January 1992; articles invoiced before that date cost $9.50 per item for libraries with a deposit account, $9.95 for an open account. After January 1, 1992, prices were $10.25 and $10.70, respectively. These fees cover articles of 10 pages or less; for each additional 10 pages a flat fee of $2.00 (deposit) or $2.50 (open) is charged (there was a $.10 increase in 1992). High-volume customers (1,200 or more items purchased per year) may prepay monthly or annually to take advantage of lower costs. "Special service" charges may be incurred for articles which are part of TGA's "Extended Service" ($7.55 for libraries with a deposit account, $7.75 for those with open accounts) and for any copyright fees exceeding $3.00.

IOD charges a base fee calculated on two factors: the volume of requests per month and whether the request is filled by IOD-staffed sources or by outside sources. According to the company brochure, this base fee "includes online ordering and online status reports from IOD DIRECT." Charges for these services are as follows:

<table>
<thead>
<tr>
<th>Requests/Month</th>
<th>IOD-Staffed Sources</th>
<th>Outside Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 or more</td>
<td>$10.00</td>
<td>$10.00 + costs</td>
</tr>
<tr>
<td>26-100</td>
<td>$11.50</td>
<td>$11.50 + costs</td>
</tr>
<tr>
<td>1-25</td>
<td>$13.00</td>
<td>$13.00 + costs</td>
</tr>
</tbody>
</table>

In addition to the above base charges, each page costs $.35. Postage fees are passed on, as are any copyright charges. Verification of incorrect citations, if required, reference work required to complete a citation, and charges for phone calls made in order to verify or locate items are also passed on. If it is not possible to photocopy an item, IOD will purchase it directly from the publisher; the cost of the purchase is added to the above charges. There is also a $4 handling charge per unfilled order.

Overall, ILL delivered documents on the most timely basis; 65 percent of the time, ILL was the first to send the article.

The base charge for articles ordered from TIF is $15.25 for the first 10 pages. For any copies made at California libraries, an additional charge of $.25 per page for pages over 10 is incurred. A search fee of $.25 is charged for establishing copyright royalty payments, and any copyright royalty fees are charged back. A charge of $7.50 is levied for the searching and verification of incorrect or obscure citations or online sourcing. Additional charges may be incurred for purchases from associations or publishers or for special library access; a $20.00 limit is in effect unless otherwise specified.

Amounts charged by the various suppliers for the articles requested in this study ranged from no charge to $49.00. On 6 occasions, charges were incurred for articles supplied via ILL; the remaining 37 articles were sent free of charge. Of course, all of the commercial suppliers charged for their services. Because we had set up a deposit account with UMI, the charge for each of the 22 articles from this supplier was $9.75. Table 4 gives the minimum, maximum, and average charges of the five suppliers. Costs were compared for articles which were provided by more than 1 supplier. The most expensive was IOD, which charged the most in 31 cases; the least expensive was ILL, which charged the least in 41 cases. Table 5 lists the 10 most expensive articles, and compares those costs with fees charged by other suppliers to fill the same request.
TABLE 4
CHARGES BY DOCUMENT SUPPLIER

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILL</td>
<td>$0.00</td>
<td>$5.60</td>
<td>$0.56</td>
</tr>
<tr>
<td>UMI</td>
<td>9.75</td>
<td>9.75</td>
<td>9.75</td>
</tr>
<tr>
<td>TGA</td>
<td>9.95</td>
<td>21.05</td>
<td>14.27</td>
</tr>
<tr>
<td>TIF</td>
<td>12.50</td>
<td>32.75</td>
<td>18.97</td>
</tr>
<tr>
<td>IOD</td>
<td>13.64</td>
<td>49.00</td>
<td>20.70</td>
</tr>
</tbody>
</table>

QUALITY OF DOCUMENT

A document copied in such a manner as to be unreadable by the patron is useless. Accordingly, each document received was rated as to the quality of the copy: poor, fair, good, or excellent. The quality of all 22 articles received from UMI was excellent. For the remaining 4 suppliers, quality was usually excellent or good, with only an occasional fair or poor copy. Poorer-quality copies seemed due to the condition of the original rather than the fault of the document supplier.

SUMMARY AND CONCLUSION

It appears from the data collected in this study that conventional ILL compares favorably with the services of the commercial suppliers chosen for this study in its ability to provide a cost-effective and reliable means of supplying researchers with the information they need. Furthermore, the average turnaround time for items received via ILL was only one day slower than the average speed of the fastest commercial supplier.

Regarding which supplier was most likely to be able to supply articles requested by our patrons, ILL scored fairly high. UMI and TGA were able to supply less than one-half and one-quarter, respectively, of the materials requested. TIF and IOD had slightly higher success rates than ILL (they were able to supply 89 percent and 87 percent, respectively, of the articles requested, compared to ILL’s 83 percent); however, the costs associated with these two suppliers were excessive compared to the slight gain in the number of filled requests.

The commercial document suppliers which had fixed inventory lists and closed, in-house collections (TGA and UMI) were able to supply documents at approximately the same speed as ILL; the average turnaround time for receipt of articles from ILL was 13 days, whereas TGA and UMI filled requests within 12 and 15 days, respectively. TIF and IOD, which have open inventories and rely heavily on staffers who go to libraries to photocopy articles, took longer to fill requests, averaging 22 days for TIF and 23 for IOD. Direct purchases seemed to take an especially long time; of the nine suppliers listed in table 3, in 4 instances, the slowest suppliers were those which ultimately purchased the article directly from the publisher.

We were troubled by the fact that for one-quarter of the items requested in this study, IOD found it necessary to charge for additional research in order to fill the requests.

In our study, most of items borrowed via ILL were filled within the local region. Of the 43 requests filled by ILL, 31 were filled by the first library in the string; in 27 instances, the first library in the lender string was located in New York State. The data seem to suggest that it takes both TIF and IOD considerably longer to cycle requests through the various collections available to them. The fact that ILL was able to supply items which were only available from IOD and TIF via direct purchase suggests that the “pool” of information resources available to these suppliers is not as inclusive as it could be. Discussions with a representative from TIF revealed that use of the OCLC database is not an option for TIF. TIF first attempts to fill requests from the 6 or 7 local libraries with which it has agreements; the next step is to search RLIN or sources in Canada. IOD does have access to the OCLC database, but since it considers searching OCLC expensive, this supplier turns first to its sources on the West Coast, and only then searches the OCLC database.
Although the cost of borrowing from commercial suppliers did not involve an obligation to lend, it did include not only certain indirect costs but a direct charge, often substantial. It appears that the suppliers which charge piecemeal for various "extra services" are ultimately the most expensive. ILL, at an average direct cost of $.56 per article borrowed, was by far the least expensive supplier of the five, followed by UMI, which charged a fixed rate of $9.75. The pricing schemes of the other 3 suppliers included additional charges which contributed to increased costs. A per-page charge was levied by IOD in all instances, by TGA for any pages over 10, and by TIF for any pages over 10 supplied by California libraries. IOD would

<table>
<thead>
<tr>
<th>Charge</th>
<th>Journal Title</th>
<th>Supplier</th>
<th>Delivery Time (Days)</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>$49.00</td>
<td><em>Journal of the Ancient Chronology Forum</em></td>
<td>IOD</td>
<td>85</td>
<td>4</td>
</tr>
<tr>
<td>27.75</td>
<td></td>
<td>TIF</td>
<td>84</td>
<td>4</td>
</tr>
<tr>
<td>0.00</td>
<td></td>
<td>ILL</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>$33.00</td>
<td><em>Psych. Aspects of Mental Retardation</em></td>
<td>IOD</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>27.75</td>
<td></td>
<td>TIF</td>
<td>96</td>
<td>4</td>
</tr>
<tr>
<td>4.40</td>
<td></td>
<td>ILL</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>$32.75</td>
<td><em>Journal of Reproductive &amp; Infant Psych.</em></td>
<td>TIF</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>9.75</td>
<td></td>
<td>UMI</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>0.00</td>
<td></td>
<td>ILL</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>unfilled</td>
<td></td>
<td>IOD</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>$29.25</td>
<td><em>American Journal of Comparative Law</em></td>
<td>IOD</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>23.00</td>
<td></td>
<td>TIF</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>9.75</td>
<td></td>
<td>UMI</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>0.00</td>
<td></td>
<td>ILL</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>$27.75</td>
<td><em>Sister</em></td>
<td>TIF</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>21.14</td>
<td></td>
<td>IOD</td>
<td>38</td>
<td>9</td>
</tr>
<tr>
<td>0.00</td>
<td></td>
<td>ILL</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>$27.75</td>
<td><em>Criminologist</em></td>
<td>TIF</td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td>19.25</td>
<td></td>
<td>IOD</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>19.58</td>
<td></td>
<td>TGA</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>14.95</td>
<td></td>
<td>UMI</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>9.75</td>
<td></td>
<td>ILL</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>$27.75</td>
<td><em>Le Figaro Litteraire</em></td>
<td>TIF</td>
<td>104</td>
<td>2</td>
</tr>
<tr>
<td>14.92</td>
<td></td>
<td>IOD</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>unfilled</td>
<td></td>
<td>ILL</td>
<td>19</td>
<td>28</td>
</tr>
<tr>
<td>$27.24</td>
<td><em>Journal of Personality Disorders</em></td>
<td>IOD</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td>9.75</td>
<td></td>
<td>UMI</td>
<td>7</td>
<td>28</td>
</tr>
<tr>
<td>0.00</td>
<td></td>
<td>ILL</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>unfilled</td>
<td></td>
<td>TIF</td>
<td>28</td>
<td>10</td>
</tr>
<tr>
<td>$26.50</td>
<td><em>Cahiers Int'l. de Sociologie</em></td>
<td>TIF</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>0.00</td>
<td></td>
<td>ILL</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

* filled incorrectly by TIF.
on occasion copy the title page of the journal, and add that page into the total page cost.

Royalty fees were passed on in some manner by TIF and IOD (Note: TGA passes on any royalty charges over $3, but this limit was not exceeded in our study). IOD's royalty charges, incurred in nine instances (17 percent), ranged from $2.50 to $7.75, with an average cost of $3.70. In addition to TIF's $0.25 charge for establishing royalty payment, charges were incurred 10 times (19 percent) for the copyright royalty itself; this fee ranged from $2 to $10, with an average of $3.30 per item. IOD's postage ranged from $0.29 to $3, averaging $0.88. IOD required "reference work" in order to fill 13 (25 percent) of the requests; these charges ranged from $2 to $8, with an average cost of $3.15. In two instances, this fee was charged for articles which IOD was ultimately unable to fill. For 3 items, IOD also charged for phone calls made in connection with filling the request; these charges totalled $15.50.

Eight (15 percent) of the articles requested from TIF could not be supplied through conventional channels; TIF supplied them by direct purchase from the publisher or some other source. Costs incurred for direct purchases ranged from $4 to $12.50, with an average cost of $10.53. IOD, which also makes direct purchases, did so on two occasions; one purchase cost $10 and the other cost $20. It must be remembered that all these fees are in addition to the base costs charged by the suppliers.

We were troubled by the fact that for one-quarter of the items requested in this study, IOD found it necessary to charge for additional research in order to fill the requests. Since most citations were complete, and almost all were cited in a standard source (an index or bibliography), we wondered about staff background and training, and whether difficulty in interpreting bibliographic citations added to the delay.

Differences among the 5 suppliers in terms of quality were negligible. Only 2 copies were judged to be so poor as to be difficult to read; the other copies were all passable. Once again, with the exception of the documents supplied by UMI, which were consistently of superior quality, higher costs did not guarantee better service.

Given the above findings, in most cases the use of commercial document delivery suppliers did not appear to be a more effective or efficient means of obtaining access to articles not available at our library. There may be occasions, however, which warrant the use of commercial suppliers. When items are needed urgently, special ordering from commercial document suppliers with fixed inventories, while expensive, may be worthwhile since receipt of the article is guaranteed (except when copyright or other limitations are reached). Additionally, the high quality of UMI's copies and/or TGA's tear sheets may be desirable when high resolution is needed for photographs or other graphics. Because TIF and IOD failed to provide materials in a timely manner, and because additional charges are likely to be incurred when filling requests, it would seem unwise to choose these vendors over ILL, except in cases where all other options have been exhausted.

REFERENCES AND NOTES


IN FORTHCOMING ISSUES OF COLLEGE & RESEARCH LIBRARIES

Librarians, Self-Censorship, and Information Technologies
John Buschman

Improving Reference Service: Borrowing Ideas on “Quality” from the Business Literature
Janet Dagenais Brown

Scholarship and the Academic Librarian
William K. Black and Joan M. Leysen

A Conceptual Analysis and Overview of Information Literacy
Shirley J. Behrens

Scientists’ Access and Retrieval of References Cited in Their Recent Journal Articles
Julie Hallmark
Real customer service.

In real time.

Providing the level of personal service we believe in requires being available when our customers need us. So our 11 regional offices in North America are staffed with customer service representatives who are only a phone call away. With at least one regional office located in each of the four major time zones, it's more likely our representatives will be where you need them when you need them — not several hours away. We believe in providing real customer service in real time.

EBSCO
SUBSCRIPTION SERVICES

International Headquarters
P.O. Box 1943
Birmingham, AL 35201-1943
(205) 991-6600
Fax (205) 995-1636

North American offices located in Birmingham, Ala.; Chicago; Dallas; Denver; Los Angeles; Montreal; Red Bank, NJ; San Francisco; Tenafly, NJ; Toronto; and Washington. Seventeen offices located throughout the rest of the world.
Specialized Accreditation and Academic Libraries

Stuart Frazer

Literature on academic libraries and the accrediting process has centered on regional accrediting agencies. Library guidelines from seventeen specialized accrediting bodies were evaluated and compared to guidelines from regional accreditors. Like the regional accrediting agencies, most specialized accrediting agencies stress input or process measures over output measures. A few specialized accreditors were found to be more prescriptive than the regional accreditors in their demands for collection inputs, particularly journal holdings. An overview of specific characteristics of the specialized accrediting process is offered, along with suggestions for improving the library's participation in the process.

Although specialized or professional program accreditation has been present in higher education for most of the century, recent events have intensified interest in the costs and benefits of this particular kind of academic review process. Proliferating accrediting bodies, rising costs, and stagnant or declining higher education funding have combined to make specialized accreditation a controversial topic on many campuses around the country. Because funding for public colleges and universities will likely continue to be problematic, and schools will continue the struggle to retrench, specialized accreditation may become an even more contentious issue over the next few years. Competition for scarce institutional resources may escalate interdepartmental conflict in academia. Specialized accreditation at times may be an important variable in these conflicts.

Specialized program accreditation issues are crucial to academic library administration. Usually libraries must generate self-study reports to be used in the accreditor's library evaluation. Moreover, academic libraries are sometimes influenced to set service priorities based on an institution's specialized accreditation agenda. American Chemical Society journal requirements, for example, may impose a strain on the financial resources of a small college library, affecting the overall adequacy of library services. Despite the importance and role of accreditation in higher education, much confusion exists about the process. Further, librarians may have to face the challenges accreditation brings with little background in the subject.

OVERVIEW OF THE PROCESS

Accreditation has been defined as: . . . a voluntary process conducted by peers via nongovernmental agencies to accomplish at least two things—to attempt on a periodic basis to hold one another accountable to achieve stated, appropriate institutional or program goals; and to assess the extent to which the institution or program meets established standards. Typically, two types of accreditation are recognized. Institutional accredita-

Stuart Frazer is Reference Librarian at West Virginia State College, Institute, West Virginia 25112. The author would like to thank Dr. Kerry Kilburn for her input into this article.
tion, usually carried out by one of six regional accrediting organizations, reviews entire institutions. Specialized or professional accreditation reviews individual programs within an institution. Although the organizations conducting institutional or specialized accreditation are nongovernmental, federal financial aid eligibility is often tied to the requirement that an institution or program be accredited. In some cases participation in a degree program accredited by a specialized accreditation organization is a legal prerequisite for eligibility to take a professional licensing or certification test. Because it has been the focus of recent higher education controversy and presents unique challenges to academic library administrators, specialized accreditation is the focus of this paper.

Efforts by professional organizations to monitor and influence professional training in the modern sense are usually traced back to the turn of the century. Medicine and law led the way, but a variety of other professions had followed by the 1920s. By 1991, seventy-three specialized accrediting groups were recognized by either the United States Department of Education or the Council on Postsecondary Accreditation (COPA), a private nonprofit corporation serving as an "umbrella" group for the various independent accrediting agencies.

COPA maintains stringent standards for recognition of new accrediting bodies, and membership is voluntary on the part of the aspiring accrediting organization. Various groups engage in specialized accreditation without benefit of COPA sanctioning. Although COPA has taken the problem of proliferating accrediting groups seriously, it lacks the authority to maintain control over all groups who may wish, for whatever reason, to engage in specialized accreditation activities. At the time of this writing indications are that the six regional accreditors may leave COPA to form their own organization. A subsequent collapse of COPA could lead to even greater proliferation of specialized accreditors. [Note: COPA disbanded in December 1993.]

The specialized accreditation review process begins with an institution's decision to seek or continue having a particular program accredited by the appropriate organization. A detailed self-study is produced by the department or program seeking accreditation. The self-study is submitted to the accrediting body, which then initiates a site visit conducted by a team of peers. During this visit the peer team examines the program in light of the self-study and the accrediting body's standards. The academic library is usually included in both the self-study and the site visit. The site visit team prepares a report which is submitted to the accrediting body, who next submits a formal response to the site visit team's report, after which the accrediting body makes a determination regarding accreditation status for the program.

ACADEMIC LIBRARIES AND SPECIALIZED ACCREDITATION

The literature on academic libraries and accreditation has concentrated primarily on regional accreditation. Much of the recent work focuses on the self-study process as a mechanism for planning and change. Little attempt has been made to differentiate between the two types of accreditation or to discuss the unique challenges specialized accreditation can bring to the academic library.

Although accreditation has not been a high profile subject in the library literature, some conclusions can be drawn from the work which has been done. Recent studies of regional accreditation standards indicate a heavy concentration on input or process measures, rather than output measures. Examples of
input measures include staff, money, materials, and facilities. Evaluation of access, cooperative agreements, and planning/organizing would be defined as process measures. Output measures would concentrate on "the effect of library service on its public." An emphasis on collection size, facilities, staffing, and networking or cooperative agreements can be expected from accreditors. There is general agreement that measures of library use are not emphasized in regional accreditation. Moreover, regional accrediting bodies do not make use of standards for academic libraries developed by the Association of College and Research Libraries. Casserly's work suggests that better guidelines for evaluation, from ACRL or other sources, are needed to carry out effective self-studies.

To explore whether specialized accrediting group library guidelines share the same characteristics as their regional counterparts, a study was made of the content of guidelines from seventeen specialized accreditors (see appendix A). The seventeen groups were selected to include a variety of agencies active on a large number of campuses around the country. Most of these groups share the tendency of regional accrediting organizations to stress vague input measures although groups vary in the inputs mentioned and their levels of specificity. Table 1 provides a summary of guideline content based on ten content analysis categories used in Kania's study of regional accrediting agencies.

Of seventeen specialized accrediting bodies examined, fifteen included criteria stipulating "adequate" or "sufficient" library resources. Typical of these criteria are the National Council for Accreditation of Teacher Education (NCATE) requirement that "Library holdings provide adequate scope, breadth, and currency to support the professional education programs" and the Joint Review Committee on Educational Programs in Nuclear Medicine Technology's assertion that "Students shall have ready access in time and location to an adequate supply of current books, journals, periodicals, and other reference materials related to the curriculum." In only one case studied are collection-related guidelines explicitly tied to a recognized set of library standards. The National Architectural Accrediting Board states that the library's collection should be compared to the "comprehensive, research, study, basic, and minimal levels defined by the American Library Association in Guidelines for Collection Development." That same group also suggests the use of "ACRL Guidelines for Branch Libraries." The American Chemical Society (ACS) and the Council on Social Work Education are more concrete than the other groups in their library collection requirements. Both focus heavily on journal collections and include lists of desired journal holdings. The American Chemical Society, which is not a member of COPA, is by far the most prescriptive of any of the specialized accrediting bodies examined. Their library guidelines state: "At minimum, all collections must have hard-copy subscriptions to 14 current journals from the CPT [Committee on Professional Training] list...." Examination of the CPT list shows that the absolute minimum cost a library would...
have to incur to meet ACS journal standards would be $5,245 per year, based on prices from the 1992-93 Faxon catalog. In addition, the library is required to offer access to Chemical Abstracts, either hard copy or online. The Council on Social Work Education includes a worksheet on library journal holdings designed to ascertain how many titles indexed in *Social Work Research and Abstracts* are available in the library. They do not specify a minimum number of journals required and acknowledge, "It is not expected that every program will have every journal...."\(^{27}\)

Statements about "access" to collection resources are included in the guidelines for twelve of seventeen accrediting groups examined, although "access" is never adequately defined. Other frequently included criteria are the existence of cooperative/ILL agreements and faculty participation in collection development decision making. Less frequently included are guidelines for budget, physical facilities, staffing, hours, library usage, administrative position/governance structure, or evidence of planning.

Library use, the only real output measure mentioned, is considered an important criterion by five of the specialized accrediting agencies examined. The Accreditation Board for Engineering & Technology points out: "The ultimate test of the library is the use made of it by the students, faculty, and institutional staff."\(^{28}\) The Accrediting Council on Education in Journalism and Mass Communication requests evidence of "Utilization of current periodicals by students in keeping abreast of the field."\(^{29}\) None of the groups mentioning library use suggests appropriate methods for assessing it.

Only six agencies mention library staffing. This reflects the view that libraries are composed primarily of monographs and journals rather than "human" resources. Exceptions to this position include the National Association of Schools of Music's statement: "Institutions are encouraged to engage specialized personnel," and the National Architectural Accrediting Board's query "Does the architecture library have sufficient professional librarians with a master's in library or information science and subject expertise in architecture or closely related fields?"\(^{30}\) For the most part, staffing is given a low priority.

**DISCUSSION**

Specialized accreditation, as with all assessment techniques, should be an authentic, good faith process designed to study and improve program quality. Librarians must, however, be aware that the political character of the process makes it ripe for misuse and abuse.\(^{31}\) Specialized accreditation's fundamental focus on the ability of particular academic programs to meet the standards of a professional association or advocacy group may provoke criticism that the institution is subsidizing a given discipline at the expense of other academic programs. Academic departments or divisions may attempt to use reports or standards provided by accrediting agencies as leverage to argue for an increased share of institutional funds, perhaps including a higher percentage of the library's materials budget. An institution as a whole may try to use specialized accreditation as an advertising tool to demonstrate the quality of the institution.

Critics have attacked the review process on a number of fronts.\(^{32}\) Perhaps the most basic criticism is simply the cost of the self-study process and the site visit, both of which the program or institution seeking specialized accreditation must pay. Institutions seeking specialized accreditation in several program areas may devote thousands of hours of faculty, staff, and administrative labor to creation of self-study reports.\(^{33}\) Institutional administrators may not be aware, moreover, that accreditation by particular specialized agencies may require significant channeling of library resources into a subject area on a permanent basis. At some institutions this may have a negative impact on the ability of the library to serve the entire college or university community.

As Antoinette M. Kania found for regional accreditation, the emphasis in specialized accreditation is on input or process guidelines.\(^{34}\) Although accredit-
Specialized Accreditation

ing bodies have incorporated methods designed to emphasize assessment of educational outcomes, recent work suggests that, in practice, progress in this area has been slow. Much of specialized accreditation review still revolves around standards for “budgets, teaching loads, facilities, and organizational questions.” Sarah M. Dinham and Linda M. Evans conclude that “professional schools cannot claim that accreditation provides the integrated view of student experiences and outcomes that a comprehensive assessment requires.” The findings presented here certainly show that progress toward an emphasis on outcomes in library evaluation is slow as well.

Although the general characteristics of library evaluation by specialized accreditors are similar to those of regional accreditors, specialized accreditation poses special challenges for academic libraries. Some specialized accrediting groups are more prescriptive in their demands for collection inputs than are the regional accreditors. This enables librarians to assess and forecast the costs of supporting an accredited program. However, while librarians may support increased use of professional standards in library evaluation, critics of specialized accreditation still cite the use of rigid standards as reason to reject the process. Prescriptive standards may raise very difficult questions about equity in resource allocation. Librarians must think critically about how specialized accreditation by groups like the ACS influences the distribution of funds in support of academic programs. Vague library guidelines, like those in use by regional accreditors and most of this sample of specialized accreditors, offer the advantage of easy manipulation, though they may not contribute to the overall success of the accreditation process. What is really needed are evaluative guidelines that take into account the variety and complexity of library services. A variety of evaluative methods are already formulated and in use by librarians. However, most accreditors are either not aware of them or choose not to use them. George M. Bailey’s work, based on comments solicited from forty academic librarians, suggests that “ACRL standards are unrealistic by the ... accrediting associations.”

What is really needed are evaluative guidelines that take into account the variety and complexity of library services.

Decisions about seeking accreditation will not always be based entirely on genuine efforts to improve program quality but instead may stem from efforts by individual departments to gain advantages over other departments. Librarians also use accreditation reports and guidelines in support of their own agendas. Not all academic or professional disciplines, however, have relevant accrediting agencies. Clearly, academic departments without access to accrediting bodies may find themselves at a serious disadvantage when trying to compete for increasingly scarce resources. This may contribute to the proliferation of specialized accreditors, as practitioners and educators in a discipline argue that more accrediting bodies are necessary to ensure an equal institutional playing field.

The accreditation process can be used to benefit the institution and the library. Librarians need to be advocates for the proper use of accreditation as a tool to improve program quality. This requires knowledge of the accrediting process, the characteristics of particular accrediting agencies, and of campus politics. Moreover, librarians must be knowledgeable about how the process is sometimes misused. If specialized accreditation continues to be a contentious issue in higher education, inevitably librarians must prepare to be drawn into the fray.
REFERENCES AND NOTES


4. Middle States Association of Colleges and Schools; New England Association of Schools and Colleges; North Central Association of Colleges and Schools; Northwest Association of Schools and Colleges; Southern Association of Colleges and Schools; Western Association of Schools and Colleges.


9. Ibid., A22.


Essentials and Guidelines for an Accredited Educational Program for the Nuclear Medicine Technologist (Salt Lake City, Utah: Joint Review Committee on Educational Programs in Nuclear Medical Technology, 1991), 6.


APPENDIX A

ACCREDITING ORGANIZATIONS EXAMINED

Accreditation Board for Engineering & Technology: Engineering
Accreditation Commission Accreditation Board for Engineering & Technology: Related Accreditation Commission
Accreditation Board for Engineering & Technology: Technology Accreditation Commission
Accrediting Council on Education in Journalism and Mass Communications
American Assembly of Collegiate Schools of Business
American Chemical Society
American Dietetic Association
Council on Education for Public Health
Council on Social Work Education
Joint Review Committee on Education in Radiologic Technology (guidelines for both Radiographer and Radiation Therapy Technologist programs)
Joint Review Committee on Educational Programs in Nuclear Medicine Technology
National Architectural Accrediting Board
National Association of Schools of Music
National Association of Schools of Public Affairs and Administration
National Council for Accreditation of Teacher Education
National Recreation and Park Association
The Human Development Race explains why some developing countries have readily succeeded at improving the health, education, and income of their citizens while others seem mired in failure. After examining economic and social factors in the performance of ninety countries, Lindenberg focuses on the experiences of six Central American countries, furnishing wide-ranging, and sometimes surprising, conclusions.

Marc M. Lindenberg is currently senior vice president of programs for CARE, on leave of absence from his position as a public policy lecturer at Harvard’s John F. Kennedy School of Government.

1993, 233 pages, Cloth ISBN 1-55815-277-6, $29.95
Paper ISBN 155815-278-4, $14.95

PUBLISHED BY ICS PRESS

"The Human Development Race combines human resource issues and quality of life issues in a creative fusion that allows a richer analysis than the usual economic approach. Lindenberg successfully tackles the thorny problems of measuring improvements in a practical and theoretically compelling way."

— William Ascher
Professor, Sanford Institute of Public Policy
Duke University

Order with MC or VISA: (800) 326-0263 in the United States
(415) 981-5353 outside the United States   Fax: (415) 986-4878
A New Strategic Planning Model for Academic Libraries

Douglas G. Birdsall and Oliver D. Hensley

Models provide a framework for visualizing effective action. This paper presents the application of a strategic planning model developed by Oliver Hensley and Martin Schoppmeyer for the Society of Research Administrators. It should have applicability for those who are seeking to establish the future purposes of academic libraries. The example of library development and fund-raising activity is used to illustrate the various stages of strategic planning. The Hensley-Schoppmeyer model operates on the assumption that people with similar motivations can agree on mutual goals and form beneficial partnerships that will advance a shared interest.

Strategic planning for libraries is no longer a new concept. University libraries first recognized its potential through David Kaser's landmark work in 1972 at Cornell, and monographs on the subject now include Donald Riggs' Strategic Planning for Library Managers, M. E. L. Jacob's Strategic Planning: A How-to-Do-It Manual for Librarians, and Strategic Planning in Higher Education: Implementing New Roles for the Academic Library, edited by James F. Williams II.

The journal literature discusses such subjects as the appropriateness of strategic planning for libraries, the incorporation of organizational values into the strategic planning process, the entrepreneurial spirit, implementation and first-year appraisal, and utilization of strategic planning by new directors at ARL libraries. There are also studies of strategic planning in public libraries, state chapters, a school of library and information science, urban libraries, rural libraries, national libraries, and international libraries.

The Association of Research Libraries issued a SPEC Kit on strategic planning as early as 1984, and the Association of College and Research Libraries has offered a continuing education course ("Principles of Strategic Planning in the Library Environment") and developed a strategic plan for charting the future direction of the Association.

In addition to publications in the literature of librarianship, libraries have access to the rich corpus of management literature on strategic planning, and are likely to be guided and directed by the broader strategic planning done in their institutional settings. George Keller's Academic Strategy: The Management Revolution in American Higher Education reported on the strategic planning undertaken by colleges and universities, which have traditionally been slow to adopt modern management and planning techniques. Ten years after Keller's study, many academic libraries are important participants in the strategic planning implemented by institutions that must adjust to new economic realities.

Can the library planner in academe find help from yet another source? A monograph published in 1992 by the Society of

Douglas G. Birdsall is Associate Director of Libraries for Information Access and Systems and Oliver D. Hensley is Professor of Education at Texas Tech University, Lubbock, Texas 79409-0002.
Research Administrators, Strategic Planning for University Research, offers a model for strategic planning which may be the best fit yet for academic libraries. Strategic planning for university research is a process of establishing the future purposes of a unit by striving for a consensus for developing its research with chief partners and major constituencies. This important collaboration between partners and constituencies has been missing from most libraries' strategic planning. This may be why library strategic plans often gather dust instead of momentum. Library administrators who operate in an increasingly complex information environment should consider carefully a planning process which can help to guide and to coordinate a university's diverse research activity.

The purpose of this article is to present the planning model developed in Strategic Planning for University Research and to illustrate its usefulness for academic libraries. The example of library development and fund-raising activities will be used to show how the model can be adapted by library planners. Fundraising is increasingly important to academic libraries, and the process is best understood when seen from a planning (development) context.

Modeling the strategic planning process allows all who are involved to share a common frame of reference for their planning activities. It also permits planners to monitor progress toward the development of an agreed-upon series of outcomes. The Hensley-Schoppmeyer model used in Strategic Planning for University Research is given in figure 1.

POSITIONING THE ARCHITECTS

Positioning strategic planning architects for creation of a plan that will enhance funding at a university library is represented in figure 2.

Positioning the architects is seldom discussed by writers on strategic planning, but the thought given to choosing the best people to do planning is vital for the success of the entire process. The library administration conceives the requisite organizational planning structure and then selects the best planners available. Authority is given to planners in a specific charge. Authority for the planning design can follow traditional hierarchical lines or functional divisions, depending on the chief administrator's propensity for managing planning activities.

The current funding crisis in higher education and alternatives to print medium and local ownership are changing the nature of collections and services in research libraries. These issues are of great concern to faculty, campus administrators, students, alumni, and others who seek the best libraries possible for the institution. The strategic planning involved with generating new funding sources should include all stakeholders, because mutual understanding about problems and obstacles can lead to goals that address the information needs of a diverse university community. The composition of the planning team should include representatives from major impact areas.

Strategic planning operates on the assumption that people with similar motivations can agree on what their mutual purpose should be and can form beneficial partnerships that will advance a shared interest. If long-term success is to be realized, it is critical that awareness, advocacy, and acceptance of needed change involve the library's chief partners and major constituencies. Research libraries have shifted from being supply-to-demand-driven operations, and this new alignment necessitates broadly based affiliations. Liaison structures involve the establishment of contacts with a wide spectrum of supporting partners. This includes the positioning of key library administrators on planning and decision-making teams of on- and off-campus organizations. Library administrators look for opportunities to convey their message and secure commitments.

SCANNING THE ENVIRONMENT

Environmental scans are a standard feature of strategic planning. They identify impact areas, as well as current conditions and future factors that will likely affect the institution or unit. An outline of an environment scan for library development and fund-raising is given in figure 3.
FIGURE 1
Hensley-Schoppmeyer Strategic Planning Model
The environmental scan should focus on those areas relevant to advancing the mission of the university and the library. The information gathered can help establish a planning framework by identifying the key players and bringing into focus their needs, issues, assumptions, and opportunities. Information is obtained from a number of sources, including librarians, campus administrators, faculty, and students. They are asked where the library is today, where it should be in five years, and the changes needed to move in the desired direction.

**ANALYZING STRATEGIC OPTIONS**

In this phase of planning, the advantages and disadvantages of various decision paths are identified and compared. In fund development, scenarios can be
FIGURE 3
Scanning the Environment

cast in various ways. One method is to
direct attention to the consequences of
various budgeting levels, such as reduc-
tion goals, minimal goals, and maxi-
mum goals. Other approaches include a
status quo or incremental policy, an “ac-
cess over ownership” orientation, an alar-
mist option (e.g., buy no books and reduce
all building hours), and an analysis and
development perspective. Targets exter-
nal to the library, such as corporate affil-
itations, individual giving, and the uni-
versity endowment, need to be ad-
dressed (see figure 4).

However they are presented, an
analysis of strategic options should
bring together the best scenarios and
allow planners to recommend several
courses of action at different levels. The
scenarios allow all to see what has been
FIGURE 4
Analyzing Strategic Options
recommended from a particular set of circumstances. Library administrators can then set realistic goals that will guide the library for an extended period of time.

**DESIGNING THE PLAN**

At this stage, planners align the goals of the library with the goals of the library’s constituencies and the mission of the university. Library administrators match the best ideas of planning participants with the library’s limited resources in order to achieve a specified outcome. They must decide on how development efforts will be funded, focused, organized, and staffed. A program for continuous planning and evaluation is created (see figure 5).

A description of design elements in the written plan is beyond the scope of this paper; however, many of the characteris-
tics of research unit plans are appropriate for libraries. A planning document should include concise statements on the following:

- Executive summary
- Mission statement
- Analysis of needs or motivating factors
- Value of strategic planning
- Uniqueness of libraries' strengths and weaknesses
- Identification of goals and objectives to be pursued
- Supporting partnerships and affiliations
- Supportive campus environment
- Development of human resources
- Financial planning to achieve objectives
- Time-line
- Methods of review and evaluation

The strategic planning document will provide the basis for the case statement used in fund-raising activities. Of particular importance is the articulation of funding goals. Library needs must be easily understood and marketable to donors. At the same time, these programs and projects have to represent accurately the priorities of the library. If funding is achieved for areas not compatible with planning goals, the library becomes reactive and diverges from the purposes that have been carefully constructed with the help of constituencies and partners.

ACCEPTING THE AGENDA

The acceptance phase of strategic planning is often neglected by planners. The

[Diagram: Accepting the Agenda]

FIGURE 6
Accepting the Agenda
differences between strategic planning and other types of planning need to be understood. Operational plans are the means of achieving institutional goals according to the budget presented to the unit. Tactical plans determine the specific objectives for achieving those goals. Unless strategic planning is conducted first, both operational and tactical planning are limited to the direction set for the unit by an outside office.

The process of strategic planning reverses in the acceptance phase. Planners stop searching for information and begin to affirm goals, prioritize plans, and seek endorsements from their partners. It is a mistake to think that planning is finished after the environment has been scanned carefully, options have been analyzed, and goals have been set. A design that has only unit support may be a long-range plan for the unit, but it falls short of being strategic planning. Strategic planning requires acceptance of the agenda by partners and constituencies. Acceptance depends on informing stakeholders about what is being planned and how their own goals are advanced by it (see figure 6).

Designing a library plan, even when it involves representatives from impact areas, concerns the articulation of operating activities at one administrative level. Because collegial power is charac-

FIGURE 7
Adopting the Strategic Plan
Characterized by the sharing of authority and resources, the acceptance phase involves validation from others that the plan is worthwhile and can be promoted as part of the university agenda. Supporting partners, both on and off campus, will have different planning and budgeting mechanisms from those of the soliciting unit, and adjustments will have to be made in order to align the plans, schedules, and budgets of all concerned.

ADOPTING THE PLAN

Adoption of a strategic plan can be thought to have occurred when principals commit their resources to the advancement of common goals. More important than the amount of enhanced revenue is the establishment of a joint planning process which will serve the mutual needs of participants far into the future.

Adoption, shown in figure 7, occurs in the following stages:

- **Architecture**—Carefully chosen planners conceive the ideas for change and project that vision to the unit’s many constituents.
- **Advocacy**—Plans are championed that will help to transform the unit’s future.
- **Awareness**—All stakeholders know the benefits and consequences of the plan and feel that the goals are attainable.
- **Acceptance**—Stakeholders give approval of a schedule for implementation of the plan.
- **Adoption**—Principals support and adopt both the plan and the strategic planning process. They implement objectives of the plan and contribute their resources to the achievement of mutual goals.

FIGURE 8
Change Cube for Library Development and Fund-raising
Using the example of library development and fund-raising, the change cube model shows the linked facets of agenda, stakeholders, and adoption stages in strategic planning, as shown in figure 8.

CONCLUSION

Models provide a framework for visualizing effective action. The strategic planning model developed by Hensley and Schoppmeyer is a design for change in a setting increasingly defined by its array of partnerships. Academic libraries have had long-standing links to the research environment. Now, as they engage in establishing future purposes, librarians may be well served by the planning perspectives being adopted by university research administrators and principal investigators.

REFERENCES AND NOTES


New from Greenwood Press

100 KEY DOCUMENTS IN AMERICAN DEMOCRACY
Edited by Peter B. Levy
This documentary collection traces the development and meaning of democracy in America from colonial times to the present. Written or spoken by presidents and ex-slaves, political theorists and poets, Supreme Court justices and suffragettes, liberals and conservatives, these documents reflect the diversity of the American experience and the ongoing struggle to achieve the ideals on which the nation was founded.
Greenwood Press. 1993. 536 pages. 0-313-28424-5. $59.95

THE ABORTION CONTROVERSY
A Documentary History
Edited by Eva R. Rubin
Organized by historical period, these 92 documents tell the story of this highly charged issue. The collection emphasizes the political and social aspects of the debate, and many voices and conflicting views resound—in congressional hearings, Supreme Court decisions, government reports, party platforms, position papers, statutes, biographical accounts, and news stories. The book concludes with a chronology of events in the abortion controversy and a list of decisions of the U.S. Supreme Court relating to abortion.
Greenwood Press. 1994. 336 pages. 0-313-28476-8. $45.00

By Marie Marmo Mullaney
This volume, which covers the period 1988–1994, is the latest in a series on colonial, territorial, and state governors from 1607 onward. It is organized alphabetically by state with biographical sketches of the governors appearing in chronological order of their terms of office. The 94 sketches contain information on date and place of birth, education, religion, marriage and family, and an analysis of each governor’s professional and political careers. Every entry contains a photograph of the governor and concludes with a bibliography.
Greenwood Press. 1994. 440 pages. 0-313-28312-5. $75.00

1-800-GPG-4FAX
(1-800-474-4329)
If you have a FAX machine and need more information on a GPG title listed here or any other GPG title, call 1-800-GPG-4FAX (1-800-474-4329) on your voice telephone. When instructed, press 1, enter the ISBN for the book you are interested in, then press 1 to receive a FAXed description (complete with table of contents). For a comprehensive list of GPG titles in the area of American History, press 7 for subject and title lists, then enter the subject code 082. A subject list will be FAXed to you at your request.

GREENWOOD PUBLISHING GROUP, INC.
88 Post Road West, P.O. Box 5007, Westport, CT 06881-5007
(203) 226-3571 Office Fax (203) 222-1502
Beyond Orientation: The Roles of Senior Librarians in Training Entry-Level Reference Colleagues

Mary M. Nofsinger and Angela S. W. Lee

Little of the professional literature on the training process for newly hired reference librarians discusses the roles and impact of senior, more experienced colleagues in academic libraries. This paper explores the significant ways in which senior librarians contribute to the long-term educational, professional, collegial, and career development of entry-level reference librarians. The authors emphasize that senior librarians play vital roles by assisting junior colleagues in learning essential library skills and knowledge, by facilitating the assimilation of organizational and institutional values and norms, by serving as role models for effective interpersonal relationships, and by mentoring entry-level librarians in professional development activities.

The old myth that reference librarians can perform effectively at the reference desk immediately after receipt of their M.L.S. degree has been widely disputed in library literature. Recent surveys by Ronald R. Powell and Karen Y. Stabler confirm that entry-level academic librarians frequently do not possess essential knowledge and proficiencies which are crucial for successful performance as reference librarians. These survey findings are supported by Ruth E. Bauner, who found that many newly hired academic librarians lack adequate knowledge of reference interview techniques, in-depth familiarity with general and specialized reference sources, knowledge of library policies and standard operating procedures, understanding of the philosophy of a particular library’s reference department, and skills in using new technologies such as CD-ROMs, computerized systems, and online searching.

LITERATURE ON REFERENCE TRAINING

Traditionally, heads of reference have been assigned most of the responsibility for teaching entry level reference librarians essential knowledge and proficiencies needed on the job after initial employment. Since the early 1980s, books and journal articles in the library literature have clearly delineated these roles and responsibilities for heads of reference. However, the professional literature largely has neglected the important roles that senior, more experienced librarians play in the reference training process. This is not surprising since reference training expectations vary widely, depending on the needs and circumstances of a particular institution.

Mary M. Nofsinger is Head of Reference and Angela S. W. Lee is Public Services Librarian at Holland Library, Washington State University, Pullman, Washington 99164-5610.
Furthermore, Stabler’s survey of recent library school graduates shows that the majority of academic library reference training programs in the United States are completed within a month. This a relatively short period of time, considering the quantity of knowledge and skills still to be learned and the high expectations of newly hired librarians. William F. Young theorizes that the most likely reason for this reliance on short reference training programs is the prohibitive expense in terms of personnel effort and time required for more extensive training. Additional factors may include the realities of modern day reference environments, such as stress and excessive workloads, and the necessity for heads of reference and other librarians to juggle additional duties and multiple roles simultaneously with training.

FOUR ROLES OF SENIOR LIBRARIANS

Given the realities of contemporary academic library reference environments and the typically short training programs provided by many heads of reference, how can entry-level librarians continue to build their skills, knowledge, and other proficiencies after initial training? The authors postulate that more experienced reference librarians play significant, perhaps vital roles in the completion of successful reference training programs. Senior librarians have a unique opportunity to guide and inspire junior colleagues who may be intimidated by the hierarchy of the library and the parent institution while they struggle for competence and confidence in their first professional position. Supportive senior colleagues can explicitly share their skills, experience, attitudes, and enthusiasm with newly hired librarians, thereby fulfilling a variety of essential roles. Although many of these senior librarian roles overlap and complement each other, the authors have roughly separated them into four categories in order to discuss and emphasize their importance: (1) teacher/coach; (2) interpreter/adviser for organizational and institutional cultures; (3) interpersonal role model; and (4) mentor for professional development.

The Teacher/Coach Role

When faced with gaps in knowledge regarding reference resources, techniques, or skills, entry-level librarians frequently find that their best source may be other, more experienced librarians. Although newly hired librarians may have acquired basic knowledge of reference resources through graduate education or through other positions, there is a vast array of specialized literature in a large academic library reference department and much to learn which is specific to a particular position in a particular library. Instead of relying solely on “reference osmosis,” the slow accumulation of knowledge and skills over time, junior librarians need to utilize the expertise of more experienced colleagues:

Much like an apprentice, the librarian must practice, refine, and develop his talents in all areas of librarianship. Studying specific reference tools, observing senior librarians as they conduct reference interviews, practicing search strategy on challenging questions, reviewing videotapes of instruction classes, and verifying difficult citations in various online systems are examples of ways in which these skills are honed.

The professional literature largely has neglected the important roles that senior, more experienced librarians play in the reference training process.

Thus, daily contact at the reference desk and discussion with more experienced reference librarians is an especially important aspect of learning on the job. Furthermore, Sheila Creth stresses the need to encourage newly hired librarians to accept coaching from other members of the library staff or in the profession because everyone involved benefits from a broad spectrum of views.
and opinions. However, there may be barriers to the coaching role; e.g., some librarians may be sensitive about asking questions which they do not feel capable of answering themselves. When such situations occur, entry-level librarians need to be proactive in consulting senior colleagues quickly in order to learn effective interpersonal skills and conflict management techniques.

Instead of relying solely on "reference osmosis," the slow accumulation of knowledge and skills over time, junior librarians need to utilize the expertise of more experienced colleagues.

Since reference librarians must deal with questions in a vast range of subjects and in varying degrees of complexity, it behooves them to pool expertise since no one can fully master all subject areas in the realm of knowledge. An alternative approach involves "the idea of 'the shared question,' a query that can be fielded and answered by more than one librarian." This approach encourages newly hired librarians to develop open communication patterns with senior colleagues long before difficult queries arise. If that has been accomplished, junior librarians will then feel free to ask for help or to contribute assistance to a fellow librarian without worrying about stepping on one another's toes or "turf."

More formal approaches to utilizing the expertise and skills of other librarians have been developed at various libraries. Several peer coaching or "partnering" programs have been used successfully to improve the transfer of new skills learned to the work situation and to improve reference desk behaviors. Such programs usually include the voluntary choice of a coach (mutual agreement is mandatory), the identification of objectives to be accomplished (observable behaviors), observation of "coachee" by the coach, provision of descriptive feedback from coach to the "coachee," and provision of intermittent reinforcement so that positive reference desk behaviors are maintained.

The reported effects of the program were (1) greater clarification of the reference process for all staff involved in coaching; (2) increased recognition of positive communication behaviors, both through observation and feedback; (3) increased self-awareness of individual communication style and desk behavior; and (4) increased reinforcement of positive desk behaviors.

In summary, utilizing the expertise of more experienced reference librarians as frequently as possible benefits not only the newly hired librarian, but probably also increases the skills and sensitivity of senior colleagues as well. Discussions of new perspectives and consideration of alternative ways of doing things might also increase esprit de corps within the reference department. Eventually, sharing information and consulting with colleagues could improve the overall quality of reference service provided to library users.

The Interpreter/Adviser Role

Senior librarians also play a significant role in helping entry-level librarians fully comprehend the unique climate and culture of their particular organization and institution. This culture includes numerous facets, such as:

- Policies, priorities, goals, and objectives for reference service
- Acceptable public service attitudes and behaviors
- Organizational values and norms
- Social, economic, and political context in which the library operates

Given the magnitude and complexity of an academic library, the diversity within individual units, and the changing objectives and priorities of library administrators, newly hired librarians may need an extended period of time to complete this assimilation process.

Policies, Priorities, Goals, and Objectives. Each reference department's policies, priorities, goals, and objectives for service should be communicated to newly hired librarians early in the training process:
Is the reference department's mission to educate users or provide them answers? ... Does the department provide different levels of service for different classes of users? ... What is the minimum level of service that is professionally and institutionally appropriate? ... How much time should reference librarians devote to handling individual questions? ... What types of questions are considered out of bounds and not to be answered?²⁶

What are the priorities for service when the librarian has several library users standing in front of the reference desk, another information request arrives via the telephone, and there is a backlog of additional questions requiring extensive research?

Is the primary objective one of service? ... Is the primary objective the production of research and publications for the enrichment of the professional family and to further the standing of the library within the national academic community? Perhaps the primary objective is concentration on the materials of the library? ... Or is the primary objective, at least for the next year or two, educating staff in the new technologies?²⁷

What are the priorities for service when the librarian has several library users standing in front of the reference desk, another information request arrives via the telephone, and there is a backlog of additional questions requiring extensive research?

More experienced librarians, by virtue of their experiences in having "learned the ropes," can help junior colleagues answer these and other questions within the context of each department's unique service environment. They can also ask hard questions about establishing, achieving, and reviewing individual performance goals, such as: Are those realistic goals? What are your primary objectives? Have other alternatives been considered? Is there enough time to work on all goals simultaneously? Which activities can be dropped to make time for priority tasks? In this manner, senior colleagues can assist junior librarians with integrating their individual priorities, goals, and objectives with those of the reference department and the library.

As part of becoming familiar with professional goals and objectives, senior librarians may also ask their junior colleagues to read and then discuss RASD's "Information Services for Information Consumers: Guidelines for Providers."²⁸ These guidelines present a national perspective on goals for both librarians and users in the areas of information services provided, allocation of resources, access to information and resources, library staffing, and the rationale for evaluation of services. Understanding and assimilating these professional guidelines will also help junior colleagues become more aware of the importance of improving public service.

Service Attitudes and Behaviors. Although there is no ideal combination of personality traits that all senior librarians consistently display when providing quality reference service, attitudes and behaviors strongly influence library users' perceptions in a positive or negative manner. "Perhaps no characteristic of academic reference librarians draws more praise from student users than all around approachability," which includes basic things like smiling, making direct eye contact, standing up as someone approaches the reference desk, listening attentively, displaying a positive attitude, and then asking open-ended or neutral questions to clarify needs.²⁹ When users appear to need assistance, reference librarians should be proactive and initiate appropriate behavior, such as asking, "Have you found everything you need?"

Additional interpersonal traits and behaviors which are invaluable when providing reference service are tenacity, courtesy, and communication skills. Tenacity refers to the ability to pursue a question tactfully until an answer is found, even if this requires gentle
probing for more information from the user. As for courtesy, both colleagues and users should be treated with professional respect and patience. Often this involves using common sense, considering others’ needs, and doing one’s fair share of the work. Entry-level librarians also need to learn appropriate communication skills by observing and participating in interactions with senior colleagues, by talking through ideas in different contexts, and by receiving feedback on their ability to listen, explain, articulate, question, and establish rapport with users.

Senior librarians should also discuss professional ethics during the training of newly hired librarians, who must become knowledgeable about ethical concepts and related policies contained in The Library Bill of Rights and the ALA’s Statement on Professional Ethics. Although many junior librarians are already familiar with the doctrine of confidentiality of library records, patron files, and circulation records, the most intractable ethical dilemmas arise when the duty to provide unbiased service conflicts with our personal or institutional biases, values, or priorities. This is thus the most complex area of reference ethics, as our interactions with both clients and the collection present a wide range of opportunities for conscious or unconscious conflicts.

Other issues which require the reference librarian to use discretion and mature judgment include those situations which involve restrictions on access to certain materials, censorship in the selection of materials, equality of service, and free-versus-fee services. Senior librarians can help junior colleagues assimilate a particular library’s values and norms for behavior more rapidly and accurately than would be possible by learning through trial and error. When a newly hired librarian arrives fifteen minutes late at the reference desk, thereby embarrassing a senior colleague who has a very important campus meeting, concise verbal feedback usually suffices to immediately inculcate the norms of prompt arrival for scheduled shifts, respect for colleagues’ needs, and the importance of reliability.

Other academic reference librarian norms which are highly regarded include cooperation, honesty, sharing of information, acceptance of responsibility, accuracy, people-oriented service, and courtesy. Even though formal written rules may not exist, a courteous librarian will display some of the following attributes and behaviors:

- Kind, thoughtful, considerate to all patrons.
- Attentive to patrons’ requests and comments.
- Responsive, takes action immediately.
- Patient with those who need assistance, instruction.
- Tactful in difficult situations.

Other issues which require the reference librarian to use discretion and mature judgment include those situations which involve restrictions on access to certain materials, censorship in the selection of materials, equality of service, and free-versus-fee services.

Organizational Values and Norms. Newly hired librarians can usually assimilate written guidelines and rules, but they frequently have difficulty grasping the intangible (unwritten) nuances of a particular library’s values and norms.

Values... are subjective, preferred states that guide action choices and become observable or identifiable through behavior. These beliefs... clarify what individuals are supposed to do and reward them for doing it well... Norms are the unwritten rules of group behavior (the informal structure) that are initiated and maintained by collective human behavior. These are influenced initially by the expectations, attitudes, and assumptions that members bring to a group.
• Friendly, cheerful disposition that is . . . natural, not forced or fake, concerned about patrons' needs and complaints, sympathetic with patrons' difficulties in finding information.23

After successfully assimilating organizational values and norms, entry-level librarians will then be able to function in more appropriate ways and will be more productive in their work. They will also have a clearer sense of direction and can focus their energies toward types of performance which will be rewarded. Newly hired librarians who clearly understand their library's values and norms will also be better able to explain public service policies and procedures to library users.

The Librarian's Role in the Institutional Culture. In a wider context, newly hired librarians must become familiar with the social, economic, and political context in which an academic library operates. Professor Edward G. Holey writes:

An understanding of the broader picture of higher education would help us [librarians] formulate strategies for achieving our goals. . . . Anyone who believes that multi-million-dollar operations [academic libraries] can function without involvement in the political process or an understanding of fairly well-defined structures that reflect basic academic values is surely living in a dream world.24

Senior librarians must assist junior colleagues to better understand the context in which an academic library functions. They can stress that, in addition to performing primary responsibilities within the library, the role of librarians includes supporting the university, its mission, and its institutional goals and values. Experienced colleagues can introduce newly hired librarians to faculty in relevant campus departments and share effective techniques for developing strong working relationships with teaching and research faculty.

In summary, newly hired librarians go through an academic library socialization process as they adapt to their organization's unique culture with its norms for acceptable and unacceptable behavior patterns. Throughout this socialization process, senior librarians should be alert for opportunities to help junior colleagues understand both the organizational and institutional cultures. Furthermore, more experienced colleagues must serve as guides for entry-level librarians learning how to successfully function as members of the broader academic community.

The Interpersonal Role Model

Whether they like it or not, senior librarians involuntarily serve as interpersonal role models because of the old adage, "Actions speak louder than words." Frequently junior librarians instinctively choose a senior colleague as a
role model because they recognize the value of depth of knowledge and extensive experience. In order to integrate newcomers easily and quickly into the reference department, an informal "buddy system" should be encouraged. When this happens, a senior librarian volunteers to be available during work hours for a junior colleague to contact for counsel and assistance. If their personalities and interests are compatible, then the buddy system is successful. If they are incompatible, then the newcomer eventually turns to another senior librarian as a role model.

Working at a reference desk can be stressful, especially for entry-level librarians who may lack experience dealing with demanding patrons, the hectic pace of business, the reference interview, and their own incomplete knowledge of reference sources. Another valuable function fulfilled by senior librarians is that of role model for cooperation among professional colleagues. As mentioned earlier, reference departments have unique values and norms, and collegiality and cooperation are usually highly valued traits:

The cooperation and collegiality that can be part of reference service brings joy to reference librarians fortunate enough to work in such an environment. ... Collegiality contributes to building a positive daily environment, sharing responsibility for completion of special projects, and fostering professional and personal growth.

Since interpersonal relationships within a department are not always congenial, a senior colleague can also provide sage advice and a mature perspective when needed. Newcomers may also observe how experienced colleagues balance individual needs for independence while working closely with the reference team.

More experienced colleagues are also crucially important for modeling good interpersonal skills in one-on-one interactions with library users. Working at a reference desk can be stressful, especially for entry-level librarians who may lack experience dealing with demanding patrons, the hectic pace of business, the reference interview, and their own incomplete knowledge of reference sources. The ability to work well under pressure can be facilitated through teamwork:

Strong and supportive colleague relationships among a reference team may be the most effective defense against dysfunctional coping strategies. ... Reference librarians need to exchange viewpoints with their peers, and to discuss with them their frustrations, disappointments, and feelings of resentment toward patrons.

In addition, senior colleagues often model how they cope with physical tiredness, mental exhaustion, multiple or conflicting demands, and other routine byproducts of reference work. Thus, it is also essential that senior librarians occasionally take time to give both themselves and their junior colleagues a well-deserved pat on the back.

The Mentor Role in Professional Development

As in any profession, growth and development in librarianship should be part of a continual, lifelong learning process. Entry-level librarians often find that library administrators are highly supportive of professional growth activities in principle, but they sometimes lack sufficient financial resources or adequately trained personnel necessary to establish extensive faculty development programs. Despite these and other constraints, library administrators often provide support for professional development activities through personnel policies or practices such as released time for research, dual job assignments, workshops, job sharing, sabbaticals, management internships, special project leaves, retraining, staff exchanges, and similar developmental activities. In addition, numerous senior librarians usually support the philosophy that professional growth and development activities:

strengthen a librarian's knowledge and abilities; contribute to the effectiveness
of an individual’s performance and to the achievement of personal and professional goals; are vital to...a quality academic environment which depends on intellectually active librarians; are essential to the provision of quality library service; are supportive of the library’s role on campus; are a shared responsibility between an individual...and the university providing appropriate time and resources; stimulate librarians to challenge themselves.29

Within the library, mentors can assist newcomers in choosing among committee and task force activities wisely.

Given the compelling reasons listed above for supporting professional growth activities, how can senior librarians effectively assist entry-level librarians in getting involved in meaningful ways? In addition to sharing accumulated knowledge with colleagues as mentioned earlier, senior librarians frequently assume the role of mentor for newly hired librarians:

Mentoring is a relationship between a person enjoying perceived power and a person aspiring to a position of power. This relationship exists within the political environment of the workplace.... The success of the mentoring relationship is fundamentally rooted in the concept of empowerment: the nurturing of competence (attitudes, knowledge and skills) in others.30

Why would entry-level librarians seek a mentoring relationship? Newcomers to librarianship may be intimidated by the bureaucracy of the library and the academic institution where they are struggling to develop competence and confidence in their first professional position. Also, entry-level librarians may be grappling with the concept of holding a job versus developing a career and struggling with pitfalls that ensnare librarians on the path toward tenure and promotion.

Many mentoring relationships are casual and informal. Senior librarians al-ready involved in library associations might provide advice on which memberships are most rewarding professionally, recommend newly hired librarians for committee service or conference activities, and introduce them to prominent people at professional meetings. Within the library, mentors can assist newcomers in choosing among committee and task force activities wisely. Mentors frequently discuss criteria and guidelines for tenure and promotion, and share information with new colleagues regarding annual review expectations and procedures. Mentors also make suggestions about research directions, grant applications, poster session topics, or mention possible service opportunities. Mentors can also work with colleagues in the research and publication process, thereby facilitating their scholarly development. In addition:

A mentor can...provide guidance and assistance in the development of professional or managerial skills. A climate of creativity can be created by a developer of talent. The opener of doors [a mentor] can boost a protégé’s introduction to organizational activities through use of the mentor’s existing network. A mentor can provide the opportunity for involvement in challenging tasks.... A protector can rescue a protégé from mistakes and provide support when taking risks leads to failure.31

Other mentoring relationships are more structured and formal. At the University of Georgia, an experimental mentoring program was successfully tested in 1985, revealing that the opportunity to observe and interact with successful managers was very beneficial for entry-level librarians.32 At the University of New Mexico, a Faculty Sponsor Program allows...the selection of a senior librarian who serves as a mentor for each newly hired librarian. The mentor’s responsibilities include serving as a counselor, assisting the newcomer in adjusting to the new environment, making introductions, arranging for orientation, guiding professional development, helping prepare for faculty reviews, and participating in a six-month review process for the
junior colleague. These mentoring activities appear to offer many benefits.

CONCLUSION

Throughout this paper, the authors have noted how much senior librarians contribute to the learning process of junior librarians. In doing so, the authors have emphasized that more experienced librarians must become more aware that they play vital roles which assist entry-level librarians in making an effective and timely transition to an academic profession. When junior colleagues receive assistance from experienced librarians, they learn valuable skills, knowledge, attitudes, and behaviors which improve the quality of reference service provided to users. In addition, tenure and publication track activities appear less fearsome, working relationships appear more positive, and professional development and personal growth are enhanced. Senior librarians also experience satisfaction and pleasure in seeing entry-level librarians make further contributions to librarianship. Eventually, both the library organization and the profession benefit from successful collegial training relationships which assist and promote tomorrow’s leaders.

REFERENCES AND NOTES


This article provides an introduction to sampling, determination of sample size, and selection of the actual sample. Given the complexity of the topic and the impossibility of covering all aspects of sampling in a brief article, the author focuses on concepts, general sources, and sampling software. These concepts are central to the computation of sample size for a random sample. The article identifies sources that provide formulae and procedures for determining sample size. By reading the literature referenced and exploring different software products, librarians conducting research and evaluation studies will better understand probability sampling and the decisions underlying the use of a particular sample size.

Three questions that librarians planning a quantitative-based research project and graduate students taking a research methods course or completing a master's thesis/paper or dissertation often ask are:
- How big a sample do I need?
- How do I calculate the sample size?
- How do I draw that sample—select the actual subjects from the population?

The answer to the first question is complex and depends on a variety of factors, including the type of sampling method used, sampling error, the confidence level, precision, standard deviation, and the way in which the data will be analyzed. The answer to this question impacts how the second question is approached and answered. Addressing the second question may directly involve the negotiation of a mathematical formula, one that, at first glance, may appear incomprehensible. The third question often focuses on procedures and methods for selecting the actual subjects.

The purpose of this article is threefold: (1) to provide a brief introduction to concepts central to the computation of sample size; (2) to identify some basic articles and books that discuss these concepts, that provide readers with easily understandable presentations and with examples, and that many academic libraries are likely to have; and (3) to iden-
tify microcomputer software that determines sample size. For illustrative purposes, the concepts are applied to one formula commonly found in the literature, and the appropriate sample size is determined. There is also a brief discussion of the selection of a sample size for a hypothetical problem.

**SAMPLING**

As the U.S. General Accounting Office (GAO) observes,

Sampling is nothing new or unusual. For thousands of years, people have been basing judgments about a large group of objects on their observations of a few of them. Prehistoric humans probably decided whether the berries on a bush were edible by tasting a few of them (with possibly fatal results). At harvest time, farmers judged the quality and expected yield of a wheat field by rubbing the husks off a few ears of grain pulled from various parts of the field. People have used sampling techniques such as spot checking for many years. The great improvement in the last hundred years or so has been the development of statistical sampling. We now have ways of drawing and analyzing samples to produce more objective information of better quality and of being explicit about its limitations. 1

Social science research, including that in library and information science, commonly uses statistical sampling, especially when resource constraints make it inefficient (in terms of cost, time, and effort) to examine a population. By engaging in statistical sampling, researchers determine "the sample size necessary to provide sample results having a certain measure of the risk of being wrong required for the population being examined and the evaluation question being examined [or the hypothesis being tested]."2

**SAMPLING METHOD**

Sampling method refers to the type of sampling procedure used. The purpose of probability sampling is to make a statistical inference or to select a sample, or portion of a universe, that is representative of that universe or population.

Probability sampling includes, for instance, simple random sampling and stratified random sampling, as well as systematic sampling and cluster sampling. Nonprobability sampling does not support generalization; rather the focus is on the sample itself. Nonprobability sampling, on the other hand, is discretionary and covers quota sampling, purposive or judgmental sampling, convenience sampling, and other methods. Ronald R. Powell provides an excellent introduction to both probability and nonprobability sampling, and the GAO offers detailed coverage of probability sampling. 3

The GAO, in another important publication, discusses the selection of case study sites for anyone engaged in either qualitative or quantitative research. 4 Site or instance selection may be based on convenience, purpose (requires knowledge of the characteristics of the population), or probability. As shown in table 1, each addresses a specific question. "Only rarely will convenience be a sound basis for instance selection; only rarely will probability sampling be feasible. Thus, instance selection on the basis of the purpose of the study is the most appropriate method in many designs." 5

This article focuses on probability sampling, primarily the use of simple random sampling, which involves the selection of cases or subjects so that each one has an equal and known chance of inclusion and the selection of one case or subject does not influence the selection of another. Before basing the study procedure on random sampling, however, it is useful to consider other methods of sample selection. 6 After all, there are times when nonprobability sampling, as well as other methods of probability sampling, might be needed and appropriate.

**SAMPLING ERROR**

According to Hubert M. Blalock, Jr., researchers who are planning or are in the process of conducting a study, or who are analyzing and interpreting data, must consider total error, which consists of two independent types of error: sampling and nonsampling error. 7
TABLE 1
INSTANCE SELECTION IN CASE STUDIES*

<table>
<thead>
<tr>
<th>Selection Basis</th>
<th>When to Use and What Questions It Can Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>Is this site selected because it was expedient for data collection purposes? What is happening here and why?</td>
</tr>
<tr>
<td>Purpose</td>
<td></td>
</tr>
<tr>
<td>Bracketing</td>
<td>What is happening at the extremes? What explains such differences?</td>
</tr>
<tr>
<td>Best cases</td>
<td>What accounts for an effective program?</td>
</tr>
<tr>
<td>Worst cases</td>
<td>Why is the program not working?</td>
</tr>
<tr>
<td>Cluster</td>
<td>How do different types of programs compare with each other?</td>
</tr>
<tr>
<td>Representative</td>
<td>In instances chosen to represent important variations, what is the program like and why?</td>
</tr>
<tr>
<td>Typical</td>
<td>In a typical site, what is happening and why?</td>
</tr>
<tr>
<td>Special interest</td>
<td>In this particular circumstance, what is happening and why?</td>
</tr>
<tr>
<td>Probability</td>
<td>What is happening in the program as a whole and why?</td>
</tr>
</tbody>
</table>


Sampling error is the extent to which the means of repeatedly drawn samples deviate from each other and presumably the population mean. "The general rule of thumb for the size of the sample is . . . the larger the better"; the larger the sample the smaller is the sampling error. By examining the population, researchers seek to minimize sampling error; there still may be a problem, for instance, due to a faulty listing or identification of the population. However, they still risk nonsampling error; errors, for instance, in data processing; errors in the responses, the observations made, and the instrument itself; and errors due to nonresponse or misrepresentation (e.g., falsified or misleading records). There is no point in utilizing a sample that is larger than necessary; doing so unnecessarily increases the time and money needed for a study. At the same time, "samples that are quite small place significant limitations on the types of statistical analyses that can be employed." Researchers trying to minimize sampling error for impact assessments, which examine whether or not interventions have their intended effects, will profit from reading Evaluation: A Systematic Approach, which discusses such assessments in the context of the "net effects" of an intervention, or an estimate of the impact of the intervention uncontaminated by the influence of other processes and events that also may affect the behavior or conditions at which the social program being evaluated is directed.

Some research methods textbooks refer to precision, which is the amount of sampling error that can be tolerated but that will still permit the results to be useful, as tolerance, tolerable error, or the bound on error. To calculate precision, it is necessary to compute the standard deviation, which is a numerical measure of the dispersion of scores around the mean; standard deviation is the square root of variance, which is also an indicator of dispersion.

The purpose of probability sampling is to make a statistical inference or to select a sample, or portion of a universe, that is representative of that universe or population.

Because it is not always possible to know the standard deviation, formulae for determining sample sizes that require the calculation and inclusion of that statistic may not always be practical to use. Fortunately, Gary T. Henry offers various suggestions for estimating
variance and the standard deviation. He then illustrates how to determine sample size using a formula involving standard deviation. Therefore, anyone needing to include the standard deviation should review Henry's thoughtful suggestions.

CONFIDENCE LEVEL

In library and information science, the confidence level, or an acceptable level of probability, is usually set at 95 percent (the .05 level), which means that there is a 95 percent chance that the sample is distributed in the same way as the population. The confidence level might be set at 99 percent (the .01 level) or 90 percent (the .10 level). The 90 percent level requires the smallest sample but increases the chance of making a profound sampling error.

DETERMINATION OF SAMPLE SIZE

A number of sources provide a formula for calculating appropriate sample sizes. For example, Powell reproduces a formula requiring knowledge of the population's standard deviation. Bruce W. Tuckman reports a very useful formula, one addressing "a single dichotomous stratification parameter" (e.g., "private-public, urban-rural, large-small) and with random sampling within each category." His formula introduces $z$ or the standard score that corresponds to a given confidence level; "for a 90 percent confidence level, $z = 1.65$; for a 95 percent confidence level, $z = 1.96$; for a 99 percent confidence level, $z = 2.58$." Peter Hernon and Charles R. McClure modify Tuckman's formula and example. Examples of other formulae include ones by Hubert M. Blalock, Jr., Robert Swisher and Charles R. McClure, Charles H. Busha and Stephen P. Harter, Margaret Slater, and I. S. Simpson.

M. Carl Drott presents a table for determining sample size and discusses three examples for the selection of a sample: (1) one for examining library records, (2) one for studying the perceptions of library patrons about library services, and (3) one for investigating the condition of books in the collection. Cheryl Metoyer-Duran, in an appendix, guides readers conducting readability studies in the selection of paragraphs from published and unpublished works. Powell, Hernon, Slonim, Isaac and Michael, and Cohen, among others, reprint tables of sample sizes for a given population. However, such tables "may represent a rather simplistic, and quite possibly conservative, method for ascertaining a sample size." Some microcomputer software packages permit the determination of sample size (see, e.g., appendix A). Before using such a package, however, review its scope, authority, accuracy, audience, uses, easy of learning and use, documentation, and hardware and installation specification. Appendix IV of the GAO's Using Statistical Sampling identifies some other computer software packages that perform sampling computations. StatPac Gold, a statistical analysis package that is not covered in either the appendix of this paper or the appendix of the GAO manual, has an easy-to-follow routine in its "utility" program for determining a sample size. Dr. Drott's Random Sampler, a newly released software package, guides its users in the selection of a sample size based on a simple random sample. There is also an opportunity to adjust the sample size to accommodate the size of a known population, and a handy feature enables researchers to determine the size of a sample for more than one numeric or nonnumeric stratum or category, e.g., a month, days of the week, or hours of the day.

DRAWING A SAMPLE

To assist those attempting to answer the third question posed at the beginning of the article—"How do I draw that sample?" once I know the sample size—Powell reprints a table of random numbers from A Million Random Digits with 100,000 Normal Deviates and illustrates the application of the table to selection of the actual sample. Appendix II of GAO's manual to guide agency evaluators provides a much more detailed discussion of using a random number table and selecting the sample. Using StatPac Gold, it is possible to: (1) generate a random number table that randomly selects
Formula:

\[ N = \frac{Z^2}{E} \times (P) (1 - P) \]

- **N** = sample size
- **Z** = desired confidence level (see note 15)
- **E** = acceptable degree of sampling error
- **P** = estimated proportion or incidence of cases in the population
  (range is from .01 to .99)

Example:

Private colleges account for 50% of the baccalaureate colleges in the geographical region.

* Proportion of cases of private baccalaureate colleges in the population is .25 (P = .50)
* Desired confidence level is 95% (z = 1.96)
* Acceptable degree of error is .10 (± plus or minus 10%)

\[ N = \frac{(1.96)^2}{.10} = (.50) (.50) = 10 \]

---

**FIGURE 1**

Application of One Formula

Numbers until the sample size is achieved, and (2) select a specified number of random records from a data file and write them to a new file. Dr. Drott's Random Sampler also assists in the selection of specific subjects from the population and in sorting random numbers in ascending or descending order.

**SUMMARY**

Figure 1, which identifies one formula for calculating sample size, shows the application of different concepts discussed in this article. To produce a .10 sampling error and a 95 percent confidence level, the sample requires ten private baccalaureate institutions. If researchers use either StatPac Gold or Dr. Drott's Random Sampler, they would set the precision, confidence, and variability. It is possible to adjust the sample size to reflect population size. Statistical Sample Planner is an example of a more complex, but inexpensive, package. It affords greater opportunity to adjust sample size according to other factors, e.g., the cost of the study.

Returning to the ten institutions, researchers might also use statistical sampling again. Depending on the research problem and the target population within those institutions (e.g., all or certain library staff, faculty, or students), they might select a random sample of that population. As an alternative, they might stratify the population (e.g., students according to class level or faculty according to the social sciences, humanities, and sciences) and then draw a random sample. Dr. Drott's Random Sampler and Statistical Sample Planner are examples of software useful in drawing a stratified random sample.

---

Some microcomputer software packages permit the determination of sample size.

---

Taking a hypothetical example, let us suppose that the staff of a college library wants to survey the student body about its use and nonuse of library services and resources. They would find that a sample size of 384 has 95 percent confidence, plus or minus 5. Using StatPac Gold, as one example, they could adjust
the sample size to accommodate the actual size of the student body. Presuming that there were 3,000 students, the adjusted sample size is 340.

Now, let’s assume that the staff want to examine student use of the Internet or remote use of the online catalog. For that study, they might lack specific information about which students do and do not use either the Internet or the online catalog. In such instances, they might adopt a nonprobability sample and engage in focus group interviewing of actual users and nonusers.

As this section indicates, researchers have choices. An examination of the literature referenced in this article as well as published studies will enable them to identify the choices and make appropriate decisions.

CONCLUSION

In designing a research study, it is important to decide whether to study the population or a sample. If the decision is to examine a sample representative of the population, the appropriate type of sampling method and sample size must be identified and used; in such an instance, the researcher expects to generalize from the sample to the population. At the same time, sound decisions regarding the reflective inquiry (problem statement, literature review, theoretical framework, logical structure, and, if appropriate, objectives, research questions, and hypotheses), methodology, and data analysis and interpretation must be made. David R. Krathwohl reminds researchers that a weak link at any one of these stages may weaken or invalidate study findings, recommendations, and conclusions. Fortunately, “the body of literature on LIS research methods is growing and has more advice than ever to offer readers planning to conduct research, or read research findings, about library and information related problems.”

REFERENCES AND NOTES

2. Ibid., 38–39. By examining research methods textbooks, as well as the research literature, novice researchers can identify instances in which sampling was used. Nonetheless, it would be helpful to have a database of the research literature in library and information science that identifies, for instance, the sampling method, statistical tests, confidence levels, and methodologies used. Such a database might make it easier for these researchers to obtain the necessary guidance in setting up and implementing a study.
5. Ibid., 22.
62–67 (attribute sampling), 44–46 (stratified sampling), and 46 (cluster sampling). The GAO manual also discusses estimation, discovery sampling, and acceptance sampling.


14. Gary T. Henry, Practical Sampling (Newbury Park, Calif.: Sage, 1990), 119–20. He also discusses the use of weights “when the sample has not been selected with equal probability. Unequal probability of selection can produce sampling bias” (129).


17. Ibid., 232.


23. Powell, Basic Research Methods for Librarians, 75.


Because it is easy and convenient to determine the sample size using some software, novice researchers should first read the sources referenced in this article so as to ensure a proper understanding of the concepts involved and to review the full range of sampling methods that might be used. For some projects, they should seek assistance from a statistician, other researchers, or a technical assistance group.

25. U.S. General Accounting Office, Using Statistical Sampling, 214–20. As the GAO correctly warns, "all statistical software packages can easily be misapplied and their results easily misinterpreted. Sometimes, this is the result of the user's failure to completely understand the assumptions the package makes in performing the analysis" (215).

27. M. Carl Drott, *Dr. Drott's Random Sampler: Using the Computer as a Tool for Library Management* (Englewood, Colo.: Libraries Unlimited, 1993). This software is available for either an IBM PC, or compatible, or Macintosh microcomputer. The accompanying 77-page manual highlights concepts and use of the software. It also offers examples.


---

**APPENDIX A**

**EXAMPLES OF MICROCOMPUTER SOFTWARE**

**BUSINESS STATISTICS** (Lionheart Press, P.O. Box 20756, Mesa, AZ 85277-0756). Compatible Hardware: Apple Macintosh, Amiga-DOS, MS-DOS.

Memory Required: 512k.

Description: Stratified sampling, cluster sampling, sequential sampling, binomial and hypergeometric sampling schemes. Also provides statistical procedures.

**CUSTOM QC** (Stochos, Inc., 14 N. College St., Schenectady, NY 12305; 518-372-5426). Compatible Hardware: IBM PC, PC XT, PC AT, PS/2 & compatibles. Operating System(s): PC-DOS, MS-DOS, UNIX.

Memory Required: 640k.

Description: Provides statistical procedures as well as variable and attribute plan determination (sampling plan).

**EXPERIMENTAL STATISTICS** (Lionheart Press, P.O. Box 20756, Mesa, AZ 85277-0756). Compatible Hardware: Apple Macintosh, Amiga-DOS, MS-DOS.

Memory Required: 512k.

Description: Stratified sampling, cluster sampling, sequential sampling, binomial and hypergeometric sampling schemes. Also provides statistical procedures.


Memory Required: 512k.

Description: Power analysis and traditional methods for estimating minimal sample size for surveys and other types of studies. Offers a detailed written justification of sample size recommendations and adjusts achieved sample size for multiple groups, response rates, and contamination. Has on-screen tutorial.

**QCPAC STATISTICAL QUALITY CONTROL ON THE IBM PC** (Marcel Dekker, 270 Madison Ave., New York, NY 10016; 212-696-9000).

Compatible Hardware: IBM PC.

Memory Required: 64k.

STATGRAPHICS (Statistical Graphics Corp., 5 Independence Way, Princeton, NJ 08540; 609-924-9374).

Compatible Hardware: IBM PC and compatibles
Operating System(s): DOS 2.0 or higher
Memory Required: 640k
Description: Determines sample size, has random number generation of 40,000 data points, and provides graphical and statistical procedures.

STATISTICAL SAMPLE PLANNER (Dynacom, The Dynacom Office Bldg., 178 Phillips Rd., Webster, NY 14580; 716-265-4040).
Compatible Hardware: Apple II with Applesoft, IBM PC.
Operating System(s): Apple, DOS 3.2 or 3.3, MS-DOS.
Memory Required: Apple 48k, IBM 128k.
Description: Covers a stratified random sampling plan. The software enables researchers to address factors such as cost of the study. A 28-page manual includes theory, formulae, and examples.

TRUE EPISTAT 4.0 (EPISTAT Services, 2011 Cap Rock Circle, Richardson, TX 75080-3417; 214-680-1376).
Compatible Hardware: IBM PC, XT, AT and System II microcomputers and most compatibles. Requires hard disk and a Hercules monochrome or any color CGA, EGA, or VGA.
Operating System(s): MS-DOS 3.1 or later.
Memory Required: 512k.
Description: Draws power curves and can provide random numbers and random allocations of cases and controls. Calculates sample sizes for six common kinds of studies, including surveys, paired case-control studies, and unpaired case-control studies. Also provides statistical procedures.

CALL FOR PAPERS and PROPOSALS

Association of College and Research Libraries
March 29-April 1, 1995, Pittsburgh, Pennsylvania
THEME: Continuity and Transformation:
The Promise of Confluence

Theme tracks: 1) Knowledge workers and their organizations, 2) Technology and the service-centered library, 3) Multiculturalism and internationalism, and 4) Society, economics, and politics.

You are invited to submit proposals for panel discussions, contributed papers, debate sessions, poster sessions, and other presentations. Letters of intent to present are due to the Program Committee by May 1, 1994. Review of proposals begin on July 15, 1994.

For guidelines send E-mail to U22733 @ uicvm.uic.edu, or fax to 312/280-2520, or phone Althea Jenkins, 312/280-3248.
TECHNOLOGY FOR THE 90’s AND FOR THE LIBRARIES OF TOMORROW

BLACKWELL’S PROUDLY INTRODUCES...

FOR COLLECTION DEVELOPMENT

BLACKWELL’S TOC ONLINE

Blackwell’s New Titles Online database now includes Tables of Contents and Descriptive Summaries for new and forthcoming scholarly monographs.

- Browse the contents pages before placing the order
- View the publisher’s title description
- Order the title electronically
- Insure a title is included on approval
- Access through the INTERNET

FOR PUBLIC ACCESS CATALOGS

BLACKWELL’S TOC 505

Blackwell’s MARC With Books® service now offers LC-MARC records enriched with Tables of Contents.

- Enhance subject access
- Improved chapter-level author access
- View contents & summaries in your PAC before searching the shelves
- Increase interlibrary loan efficiency

FIND OUT HOW EASY AND COST EFFECTIVE IT CAN BE TO GET CONTENTS INFORMATION TO BOTH YOUR STAFF AND PATRONS TODAY!

BLACKWELL NORTH AMERICA, INC.
TECHNICAL SERVICES DIVISION

6024 SW Jean Road, Building G, Lake Oswego, Oregon 97035. Telephone: 503-684-1140 Fax: 503-639-2481
Letters
To the Editor:

At first glance I was delighted to see the article by Laurel G. Bowen and Peter J. Roberts, “Exhibits: Illegitimate Children of Academic Libraries” (College & Research Libraries, 54 [Sept. 1993]: 407–15) because it appeared to be a fresh approach to an important subject generally neglected in our literature. I agree with the authors that the requirements for mounting a good library exhibit can be the equivalent of those needed to prepare a major article—indeed, some recent exhibits I’ve seen clearly reflect a greater intellectual effort than many of the articles we’ve had inflicted on us. A preliminary scan confirmed that the authors had made themselves familiar with much of the broad range of challenges that effective exhibits must overcome.

But it was with deepening disappointment that I read on, discovering that the authors were apparently unfamiliar with what is actually being done by academic and research libraries in the way of exhibits, and were relying almost entirely on discussions of activities by archivists, art museums, and specialized national institutions such as the Smithsonian to make their point. And their point really had nothing to do with the fundamental question of why academic libraries do not often undertake ambitious exhibits and rarely seem to aspire to the level of sophistication of, say, the exhibits routinely mounted by the New York Public Library.

Instead Bowen and Roberts emit a defensive whimper about uninformed attitudes and unfair prejudices against exhibits that some (unnamed) libraries are presumed to have reflected in assessing the contributions of library faculty: “But exhibit preparators do so appeal to the intellect!” they protest. “Exhibit designers do so stimulate new thinking! Doing exhibits really is intellectually respectable!”

But do we need to be assured that exhibits have “many values”? The essential reality is that good exhibits are relatively expensive in terms of time, talents, and other resources. Academic libraries rarely allocate sufficient funds for such undertakings; very few of them are prepared to make the investment needed to refurbish space for exhibits, to acquire new exhibit cases, to install appropriate lighting, and to undergo other conservation expenses. As those of us know who are active exhibitors, changing exhibitions frequently requires substantial cost for architectural and graphic designers as well as the costs of catalog design and publication—not to mention the production and installation costs of those multimedia features Bowen and Roberts want to see. Surely it is lack of funds, not a lack of respect, that sustains the tradition of unambitious and amateurish exhibits in many academic libraries.

Even so, a substantial number of libraries have long ago escaped from that tradition, as anyone would suspect who is familiar with the ACRL/RBMS awards program for outstanding exhibition catalogs sponsored by Katharine Keyes and Daniel J. Leab and American Book Prices Current. If Bowen and Roberts really think librarians who design effective exhibits are treated as if their work “is not a fully legitimate scholarly enterprise,” perhaps they should have interviewed recent award winners to see if that had been their experience at Harvard, Columbia, Toronto, Alberta, Maryland, Oberlin, Bucknell, Tulsa, Toledo, Northwestern, Indiana, Stanford, Yale, Southern Methodist, Carnegie Mellon, Brigham Young, Brown, Virginia, and elsewhere.

Unfortunately, in the process of trying “to demonstrate that exhibits are a fully legitimate scholarly enterprise,” Bowen and Roberts failed to do some fundamental
research of their own. As a result we still lack a comprehensive study of exhibits in academic and research libraries, one that is based on firsthand evidence rather than on other people’s articles in the museum and archival fields.

WILLIAM A. MOFFETT
Director
The Huntington Library
San Marino, California

To the Editor:

After reading Jean A. Major’s “Mature Librarians and the University Faculty: Factors Contributing to Librarians’ Acceptance as Colleagues” (College & Research Libraries 54 [Nov. 1993]), I felt my story of acceptance might prove of interest to your readers.

I am the Head of Collection Development at the College of Mount St. Joseph in Cincinnati, a liberal arts institution with an enrollment of 2,500. In 1991, less than three years after being hired fresh from “library school,” I was nominated for and elected to the Executive Committee of Faculty Council and subsequently chosen as that five-member group’s chairperson for the coming academic year. In this capacity I led the monthly faculty meetings, represented various faculty concerns to the administration, served on a Board of Trustees committee, and even got to carry the ceremonial mace during Commencement.

To what factors do I owe this acceptance? Many echo those mentioned in the article’s Recommendations for Further Study. First, I grew up a faculty child. Thus I had a leg up in meeting an academic librarian’s greatest challenge: understanding the faculty psyche. Second, I became involved in campus committee work as quickly as I could. Third, I did my best to contact faculty members to learn their specific research interests. This enabled me to conduct a vigorous SDI campaign and win their trust and friendship. Fourth, I spent some time with faculty members outside of the library. Informal meetings in the mailroom and lunches in the cafeteria went a long way toward my gaining acceptance.

I consider myself a college employee first, and a librarian second. Perhaps it’s this outlook which best defines my particular story of acceptance.

PAUL O. JENKINS
College of Mount St. Joseph
Cincinnati, Ohio

This new edition (the first two were called ALA World Encyclopedia . . . ) follows the general principles of the earlier versions. Almost 500 articles, many with illustrations and tables, cover three areas: library services in the countries of the world and international organizations, biographies of eminent librarians, and broadly conceived articles on libraries, librarianship, and their relation to society. Most of the biographies and many of the articles on individual countries occupy only a page, but the general articles on librarianship run from two to well over twenty pages.

As in the earlier editions, the overall quality of the contributions is very high, and most are also very readable. The articles on countries typically follow a standard format, but there is much more variety in the general discussions of librarianship. That leaves authors free to choose a method appropriate to the topic, but the inconsistency results in uneven coverage: some articles offer a historical viewpoint, others do not; some include many examples, others are purely theoretical; some refer in detail to the literature, others have only a few references at the end. Good copyediting means that there are remarkably few errors for such a large book, but the list of contributors and the captions to the plates, both probably done at the end of the project, unfortunately received less attention.

Given the original decision to focus on a relatively small number of large topics, it is hard to fault the editor’s choices. Future editions will probably discuss technology more explicitly, but every aspect of the library profession finds some mention here. There is regrettably little discussion of commercial information services, which are increasingly both a facet of library service and an alternative to it. On a more detailed level, the many articles on international organizations do not include the European Community. It has been slow to organize and fund a library policy, but has had a major impact on international information policy.

The most obvious new feature of this edition is the inclusion of articles and sixteen pages of color pictures on five great libraries. The reproductions are excellent and many of the pictures are both attractive and interesting, but it is difficult to see what these few images of three U.S. East Coast and two Western European research libraries add other than a few dollars to an already high price. Like the biographies, the five articles are often interesting examples of library practice, but future editions might sample libraries with more diverse missions and cultural backgrounds.

Pagination is virtually unchanged from the second edition, and there are few other new articles, but a close examination of the text bears out the editor’s claim of 70 percent revision. Some articles have new authors and have been completely recast; others show the same organization, but have been updated. “Bibliographic Networking,” for example, has small changes in almost every paragraph. The articles on individual countries suggest that updating was done over several years. Most of them seem to have been prepared no later than 1990; some have no references later than the mid-eighties. The editors made a notable effort to deal with recent
political changes, so that "Germany" includes articles on the two separate states and an appendix on events since unification. Affairs in eastern Europe sometimes moved too fast for the editors. The 1986 articles on Yugoslavia and the USSR are reprinted without change, although articles on two Baltic republics and Ukraine did arrive in time to be added.

Indexing has been a concern in all editions of this complex work. The brief descriptions of indexed terms have been dropped in this edition to allow a reduction in index pages together with a slight increase in index terms. Access to the contents of the articles is improved, but still inadequate for many purposes. For example, the index entry "Periodicals" now refers to the article on "Indexing," but still not to the article on "Serials"; NOTIS and OCLC are there, but not the innovative PICA system in "Netherlands"; Enoch Pratt Free Library is missing, although half the article on Joseph Wheeler discusses his work there. Entries that simply duplicate titles of encyclopedia entries might be cut, and replacing the six long lists of countries with a standard reference to those articles would free three to four pages for more index terms.

Despite the title change in this edition, the tension between the ALA and the world as defining elements of the Encyclopedia continues. A sampling suggests that the United States and the rest of the world each account for about half the biographical entries. Of the general articles, a very few take an integrated, international approach; others describe the situation in the United States and then briefly survey other countries; still others make no reference to developments outside North America. When other countries are mentioned, they are most often wealthy, English-speaking nations. A major reason for this bias is the choice of authors. With few exceptions (notably "School Libraries," a model for writing about international librarianship), authors from outside North America write only about foreign countries, foreign people, or international organizations, and only one contributor to a general article is not from an English-speaking country. Difficulties identifying contributors and translation costs undoubtedly played a role in this decision, but a return to the international advisory board of the second edition and some use of volunteer translators (Could ACRL's international sections help?) might make this more truly a world reference work.

The original editions had a thematic as well as an alphabetic approach. A table of contents provided access to articles on each of five broad areas, making it possible to use the work as an introductory reader as well as a reference book. The table of contents is gone in this edition, but many of the articles still seem more appropriate to an introductory anthology. They coexist strangely with the more factually oriented surveys of countries and the biographies. Perhaps ALA should consider dividing The World Encyclopedia into three volumes, the country articles, the surveys of libraries and librarianship, and the biographies. That would allow libraries to acquire those volumes that are most important to their mission and would allow a more flexible update schedule. A paperback edition of the thematic articles would be a wonderful addition to the available textbooks for survey courses in library schools.

The World Encyclopedia has been my leisure reading on and off for several months, and it's met Horace's requirement for literature by being both delightful and instructive. As it is, those with a strong interest in international librarianship and information policy or in staff development or support of library school students will find the updated articles useful, but someone looking for a ready-reference work with many articles on individual topics will be disappointed.—James McLean Campbell, University of Virginia, Charlottesville, Virginia.


This special issue of the journal Representations, titled "Future Libraries," con-
sists of nine articles, preceded by a summary introduction written by the editors, R. Howard Bloch and Carla Hesse, both of whom are faculty members at the University of California, Berkeley. The impetus for this special issue was the recent conference held at Berkeley on the implications of—and controversies surrounding—the planning for the new French national library, the Bibliothèque de France, and most of the essays in this collection were, in fact, delivered as papers at the conference. Supplemented by two others, they will appear as a separate monograph, to be published in 1994 by the University of California Press.

The quality and content of the nine articles vary widely. The lead article, "The Places of Books in the Age of Electronic Reproduction" by Geoffrey Nunberg, a researcher at Xerox and a consulting professor of linguistics at Stanford, is perhaps the most challenging and intriguing piece in the collection; it alone makes the issue worth tracking down. Nunberg's thesis is that "it is precisely because... [information] technologies transcend the material limitations of the book that they will have trouble assuming its role." Online sources, in other words, will not soon replace the book, but will rather supplement it as a new form of access. Especially useful is his discussion of what he calls the "modularity" of documentation—the need to divide information into discrete, bounded units, and the effects of different units on each other by virtue of their relative physical location. Nunberg is sensitive to the implications of an information environment that can be personally customized, and he suggests we are returning to an online form of the medieval scriptorium, in which everyone "copies" the documents he or she intends to use, and where each copy is potentially different from any other. My only disagreement with this very insightful essay is its occasional reference to the "immateriality" (pp. 15 and 21) of online information. Information can only be transferred, of course, by some material means, and it is precisely that means of transfer which has been and will remain the primary focus and responsibility of the library. Online information is as material as print information—but the matter of which it is composed is indeed of a very different order, and the challenge to libraries is to learn and to understand how that matter can be managed. To imply, as Nunberg occasionally seems to do, that online information is somehow "immaterial" distracts us from that fundamental task.

Roger Chartier's "Libraries without Walls" (translated by Lydia Cochrane) is an excerpt from his L'Ordre des livres, in which he traces and compares some of the milestones of sixteenth- and seventeenth-century enumerative bibliography. Chartier considers the relationships between libraries, collections, catalogs, and bibliographies, all of which were referred to in the seventeenth century by the single term bibliothèque.

The essay "Copyright without Walls? Speculations on Literary Property in the Library of the Future" by Jane C. Ginsburg, a copyright specialist at the Columbia Law School, is certainly one of the best explanations yet published on the thorny issue of the ownership of online publications. Ginsburg anticipates, as do many other legal scholars, that copyright will likely be replaced in an online environment by contractual agreements between publishers and libraries or users, and she adds her voice to those that are warning us that the provisions of "fair use," so important to access in the print environment, will be jeopardized.

Ginsburg also suggests that, in order to counteract the overcharging by publishers that could well result from such a shift from copyright to contracts, we might consider the possibility of a return to some of the provisions of the original protocopyright law, the 1710 English Statute of Queen Anne, according to which anyone who thought that prices charged by publishers were too high had the right to appeal those prices to a central authority, which had in turn the power to question and presumably to require publishers to make price adjustments.—Dream on.
Dominique Jamet and Helene Wey­sbord provide a short piece—one assumes, the "official" statement—on the background and aspirations of the Bibliothèque de France. This is followed by a much more detailed essay by Gerald Grunberg, the head librarian of the Bibliothèque de France, and Alain Gifford, the head of information services, on the projected service and collection policies of the new library. In a short piece entitled "My Everydays," Emmanuel Le Roy Ladurie, the chief administrator of the Bibliothèque Nationale talks about how he spends his time. The scene shifts from France to Eastern Europe in the next essay, in which Prosser Gifford of the Library of Congress describes the efforts and plans to assist Eastern European countries in developing parliamentary libraries. Networking among Eastern European libraries, and between those libraries and the libraries in Western countries, is seen, of course, as a primary means of establishing open and effective information services.

The final two articles are on library architecture. The first is a straightforward description by architect Cathy Simon of the design of the San Francisco Public Library, and the final article is a highly energetic discussion by Anthony Vidler, a professor of architecture at Princeton, of the controversies surrounding the selection of Dominique Perrault's design for the Bibliothèque de France. Vidler concludes that "rarely has architecture been so fundamentally reduced to the status of an ideological sign." Anyone at all interested in library architecture will find Vidler's essay well worth perusing.

Few librarians will want to read through this collection from beginning to end, but most will find one or two of the essays relevant and refreshing. These are voices we seldom hear: European librarians as well as American scholars who have taken the trouble to familiarize themselves with some key library issues. The stated purpose of the collection is to place the debate over the future of scholarly communication and libraries "within some significant historical and social perspective, to burrow beneath its terms in order to identify and to contextualize its stakes and motivations"—and it is in a way the very disjointedness of these essays, the range of knowledge and authority they exhibit, that contribute most to the fulfillment of that purpose. Many vocal stakeholders and many conflicting motivations will influence and drive the transformation of the research library, and those of us responsible for managing that transition do well to heed as many opinions, theories, and gripes about the future evolution of the library as we can find—especially those emanating from the professional users of our services. This special issue of Representations provides an appropriately diverse sample of such visions and values.—Ross Atkinson, Cornell University, Ithaca, New York.


"This is a book about books: why they were made the way they were and how they were used, in England, during an important period in their history," begins David Carlson, a member of the Department of English at the University of Ottawa.

The developing professionalization of humanistic scholarship during the reign of Henry VII and the early years of Henry VIII emerges clearly from Carlson's seven case studies of the private, semiprivate, and public appearances of particular works. He analyzes lavish presentation manuscripts that either succeeded or failed to elicit patronage; deliberate fashioning of the authorial image through choice of material; reuse of the same material in different formats and for differing audiences; the issue of both impressing and benefiting from one's peers; the role of the printer in establishing reputations and in reaching markets; the uses and impact of single and multiple copies, manuscript and print distribution; and the meanings of manuscripts' nonverbal elements and their graphic presentations.
During this period in Britain it became possible for the first time for scholars to earn a living by writing, and, concomitantly, English printers recognized the existence of a humanist market. Four of the authors discussed are foreign-born, including Erasmus; the other three are native Englishmen, including Sir Thomas More. Carlson presents their works from the broad and fresh economic and cultural perspectives offered by the history of the book as a discipline. Book historians will find his chapter on printers’ economic needs and marketing strategies of particular interest.

In the past few years Carlson has written a dozen articles on similar or related topics. His seventeen-page bibliography here offers a useful compilation for anyone researching the book’s composition, production, and reception in early Tudor England. Thirty-two full-page illustrations, drawn from the manuscripts and books discussed, help bring the publications to life.

For academic librarians the interest of Carlson’s careful research into motives and meanings lies in his explorations of the complex relationships among scholars, patrons, publishers, reputations, and markets that remain with us today. The possible nuances of publication—which in early sixteenth-century England still was not synonymous with print—are seen once more as twentieth-century scholars’ distribution patterns shift into an electronic mode.—Elizabeth Swaim, Wesleyan University, Middletown, Connecticut.


This issue of *Daedalus* assembles a distinguished company of academics to define the historic moment that American research universities now face and to consider the future. The essayists are four senior faculty, three university presidents (one of them emeritus), a provost, and two foundation and learned society officers. The essays are uniformly thoughtful and, with few exceptions, deeply engage the reader. One of them, by statistician Stephen M. Stigler, conveys serious purpose with some wit. His tone is the more welcome because the condition of research universities is fundamentally so troubling and the grounds for optimism so uncertain.

Libraries are mentioned in passing perhaps ten times in this volume, so librarians will have little direct reason for reading it. Librarians at research universities who wish to understand their own institutions are, however, well advised to read these essays. The same advice applies to any academic librarian who is sensitive to the issues of diversity, the epistemological crisis in higher education, the ability of academe to make hard choices, the international dimensions of education, and the future of academic health centers.

Most of the issues under discussion have a long history in higher education, but they come together in the 1990s in particularly troubling ways. But perhaps the most troubling of these issues may actually be unprecedented: the re-focusing and retrenchment of federal support for scientific, medical, and engineering research (treated most fully in the essays by Jonathan R. Cole, Rodney W. Nichols, and William C. Richardson). This shift is unprecedented only because the federal commitment to such research has itself been so much a product of a particular (and one can hope unique) definition of national security set in place by World War II and dominating national policy until quite recently.

As if fundamental shifts in the financial base of research universities were not enough, higher education is also beset with an epistemological crisis and with deeply conflicting promptings on diversity. Cole and John R. Searle both address the crisis in knowing. Searle’s essay is at once both philosophical and political. He describes the ways in which the Western rationalistic tradition has shaped knowing at the university and the ways in which some contemporary linguistic and philosophical currents in thought challenge this tradition, leaving us—possibly!—with nothing but opposing political powers to guide academic
policy. Neil J. Smelser’s essay on diversity resonates in some ways with Searle’s essay. He notes that much of the call for diversity is a challenge to entrenched interests, with the most likely outcome being that “all involved parties [struggle] for but never finally [gain] new and satisfactory definitions of the situation, institutional advantages, or political domination.” To these observations on the public conduct of institutional life Smelser adds a discussion of the cultural and psychological dimensions of diversity, describing the omnipresence of personal ambivalence in the diversifying process.

So formidable a set of financial, philosophical, and communal challenges requires a robust capability within higher education to reshape its future. Perhaps the most interesting reading in this volume describes this capacity and leaves this reader, at least, doubtful that it exists in necessary measure. Cole identifies the dilemma of governance in his lead essay, and governance problems reappear virtually as a leitmotiv throughout the volume, most notably in the essays by Donald Kennedy and Stigler. Kennedy writes compellingly about increasing costs in higher education, severely constrained resources, the necessity for making institutional choices, and all the factors that weigh against success in making hard choices. Stigler argues that such choices set the terms for competition and for success in higher education, but much of his essay suggests it is “far easier to recognize egregious error than to suggest a wise course” in making the choices that matter.

If neither Kennedy nor Stigler offers clear prescriptions for success, they nonetheless write with optimism about the future. Kennedy, president emeritus of Stanford, draws his optimism from the extreme pressure on higher education to change; from the likelihood that research universities will return to their first principles and “care well for students, . . . provide the kind of education that will produce leaders and not followers, and . . . be a shelter for new ideas and a force for social improvement”; and from the fact that the problems before us “are as intellectually exciting and fascinating as any we have ever seen” and provide “an opportunity to deal imaginatively and constructively with a world that is also being reshaped.” One suspects that a professional optimist speaks here, and speaks sincerely. Stigler ends his essay by asking “how negative a tone is justified” by the problems facing research universities. In answering, he refers to the competitive world of natural selection and observes that “universities’ future strength, like their present strength, like the fitness of biological species, will be the product of the competition that organizes their activities.” Here speaks, perhaps, the statistician making predictions about a life form rather than about individual lives.

Each reader will judge how powerful these essays are as sources of optimism for the future. Whatever the answer, each reader will surely wrestle with the issues presented here, just as each reader will have some responsibility for shaping the future of research libraries and the larger academic enterprise they serve. Each of us will have to find our optimism somewhere!—Scott Bennett, The Johns Hopkins University, Baltimore, Maryland.
The Wilson Abstracts Advantage

Wilson Abstracts give you the advantage of meeting all of your patrons' periodical research needs at a fraction of the price of full-text resources. The five new databases—covering the areas of science, technology, art, the humanities, and social sciences—are modeled after Wilson's popular Readers' Guide Abstracts and Wilson Business Abstracts, and enhance access to information for all researchers.

Wilson Abstracts Are BETTER Abstracts

Written by professional abstractors, Wilson Abstracts are models of their kind. Each abstract averages 110 words in length and often contains all the needed information—including facts, figures, names of corporations, individuals, and key government agencies—making it unnecessary to locate the original article. The detailed abstracts help preserve your periodical collection and speed research. Even when a given article is not available in your library, you can count on Wilson Abstracts to accurately convey the content, tone, and scope of the original text—every time!

Wilson Abstracts Feature:
◆ Comprehensive indexing and abstracting
◆ Full, informative abstracts that speed research and often substitute for the original article
◆ Straightforward subject terms for one-stop searching
◆ Approximately ten years of coverage in each database.

WILSONDISC Features:
◆ Monthly disc updates for most databases
◆ Unlimited online access to the corresponding WILSONLINE database
◆ Generous networking policies for single and multiple institutions
◆ The privilege of keeping all discs
◆ Three WILSONDISC search modes that accommodate all users.

Take Advantage of this Special Offer

Call 800-367-6770 today for your 90-day Wilson Abstracts trial on WILSONDISC. Wilson Abstracts are also available online and on tape.

Wilson Applied Science & Technology Abstracts
Abstracting and indexing of 400 key science, trade, and technology periodicals. Coverage includes everything from aeronautics and space science to transportation. Monthly disc updates. Updated twice weekly online. Available May 1994.

Wilson General Science Abstracts

Wilson Art Abstracts

Wilson Humanities Abstracts

Wilson Social Sciences Abstracts
Abstracting and indexing of more than 400 English-language periodicals in all areas of the social sciences, from anthropology to urban studies. Monthly disc updates. Updated twice weekly online. Available March 1995.

Also Available...
Readers' Guide Abstracts
Wilson Business Abstracts

Branching Out to Meet Your Growing Research Needs with Five NEW Wilson Abstract Databases
CD-ROMs

- security keylocks for public access areas
- expandable towers with the capacity to daisy chain
- networking solutions with Lotus CD/Networker software
- massive optical servers up to 64 CD-ROM drives
- single desktop CD-ROMs
- space-saving combined computer and CD-ROM unit
- multimedia CD-ROM units
- accessories
- CD-ROM discs
- reference libraries

Todd products use an Hitachi mechanism with the fastest access time available—under 300 msec.

When you buy a Todd product, it is with technical support. Our 800 number is available whenever you need assistance. Todd products are remarkably reliable and are warranted. Whether you are an expert in computer systems needing detailed specifications, or someone needing basic orientation to CD-ROMs... WE CAN HELP.

TODD ENTERPRISES INC.

For additional information, call... 800 445-TODD

224-49 67th Ave., Bayside, NY 11364 • 718 343-1040 • FAX 718 343-9180