The Human Implications of Technology's Impact on the Content of Library Science Journals

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ABSTRACT

TECHNOLOGY IS CHANGING THE WORK LIFE of librarians and support staff; they increasingly depend on it to add value to the services and products they provide. Pressures to keep up with new practices and to remain effective in present job responsibilities mean that they must read more about technology and its applications. Consequently, the content of library science journals includes more about technology year by year. This journal content in turn, by sharing information about change, may affect the *organizational structure* in which librarians and staff work, their *expectations* for using technology, and their need for libraries to become, to a greater degree, *learning organizations*. The article deals with print journals, still the major source of information about libraries, and does not cover electronic journals.

INTRODUCTION

The application of technology has had a profound impact on the content of library science journals. In addition to the substantial increase in the number of articles on technology appearing in existing journals, several new journals with a focus on technology have been created. Among the new titles appearing in the 1980s were *The Electronic Library* (1983); *Library Hi Tech* (1983); and *Computers in Libraries* (1989). Other new technology-driven journals were created in the 1990s.

Significant changes have occurred in both librarianship and library

service as a result of the application of technology. Most of these changes have been documented in the library literature. One of the most remarkable features is the rate of change. Perhaps change is occurring faster now than ever before in library history. This rapid change has created a greater dependence on having available the most recent information on the "best practices" in order for librarians to do their jobs in the most efficient and effective way. It also means that librarians can no longer expect to work in a peaceful and passive environment, if they ever did. Greater tolerance for ambiguity is now expected; in spite of discomfort, anxiety, and stress from change, librarians are expected to continue refining and improving their job performance.

Library science journals play an important role in helping with these difficulties—they keep librarians informed by carrying articles on new features/practices in libraries. Most librarians are hungry for such information because they face transitions from the familiar to the unknown almost daily.

APPLICATION OF TECHNOLOGY IN LIBRARIES

The growth of library technology stimulates attempts to predict the future of libraries by looking at the past and present. Managers and administrators believe using technology will result in significant savings or cost avoidance. State and federal legislators oversimplify the use of library technology and boast about it in terms that reflect little or no interest in accountability. Extravagant forecasts have been made; some observers have predicted that technology will make both libraries and librarians redundant. Undoubtedly, these unthinking overstatements about the perceived "benefits" of library technology will continue to surface. However, it has been abundantly clear since the 1930s, when punched-card equipment was first used in library circulation and acquisitions, that technology can improve the quality of service for the library user. The value added to libraries by technology could not be summarily dismissed during its infancy, nor should it be under-emphasized today.

Many reasons are given in the literature on why libraries use technology. Some reasons are geared to local needs, and some provide justification in the context of a networked environment. Lancaster and Sandore (1997) give one of the better and more succinct summaries of reasons:

1. to cope with increasing demands;
2. to reduce staff or prevent staff increases;
3. to allow more jobs to be performed by clerical and paraprofessional staff;
4. to improve existing services;
5. to provide new services; and
6. to collect better data to aid overall management of the library (p. 1).

Obviously, this list should not be considered complete. In each of the above reasons, change is implied. What is the nature of the change? As is often stated in the literature, technology is a tool. It should not be a library goal; it is an enhancer—a means to an end. Technology has not necessarily changed the basic library mission to provide the right information for the right user at the right time, but it has dramatically changed the way that mission is achieved.

TRANSFORMATION OF JOURNAL CONTENT

In addition to the new library journals dedicated to technology that have begun in the past few decades, general library science journals such as *Library Journal* and *American Libraries* have increased in the number of pages devoted to technology. If one were to examine issues of a few general publications for 1988, 1993, and 1998 (ten years, five years, and one year ago), it would be obvious that there has been an increase of technological presence in columns, editorials, articles, and advertisements. Nearly all library science journals, regardless of their area of focus, now carry some articles on the application of technology in libraries. To gain information as to the actual number of technology articles which have appeared in specific journals in past years, three titles were examined for this study: *College & Research Libraries (C&RL)*, *Library Administration & Management*, and *Library Resources & Technical Services*.

C&RL is a refereed research journal focusing on college and research libraries. It is published by the American Library Association six times a year, has an editorial board, and uses the peer review process. It is also worthy of note that the January 1998 issue of *C&RL* was a technology theme issue, "Technology's Influence on Improving Users' Effectiveness." This was the first theme issue in *C&RL*'s sixty year history.

Library Administration & Management is a refereed quarterly magazine published by the American Library Association. Its purpose is to assist library managers and executives in analyzing and reacting appropriately to recent developments. The summer 1997 issue (volume 11, no. 3), in which three articles form a special section on managing change, provides an example of the "cluster concept" of articles on technology.

Library Resources & Technical Services is a quarterly journal, also published by the American Library Association, that examines the philosophy and practice of collection management and technical services operations.

In examining these three publications for technology publishing patterns, article titles were scanned for such keywords as "systems," "computer" and its variants, "Internet," "automated," "online," and so forth. The somewhat elusive "change" was included, since quite probably the major source of change in the years under consideration has been technological in nature. While the increases in technology-related articles do not progress steadily from issue to issue or year to year, a comparison of

the two most recent three-year periods, 1992-94 and 1995-97, shows over-all increases of impressive size. The figures which follow are approximate, taken from titles only, since it was not possible to examine article contents in detail to ensure that technology was the dominant factor in each.

College & Research Libraries published twenty technology articles in the period 1992-94 and thirty-two such articles in 1995-97—an increase of twelve articles or 60 percent. Library Resources & Technical Services published eleven technology articles in 1992-94 and twenty in 1995-97—an increase of nine articles or almost 82 percent. Library Administration & Management had the highest rate of increase; it published fifteen technology articles in 1992-94 and twenty-eight articles in 1995-97—an increase of thirteen articles or 87 percent.

Various applications of technology in individual libraries and the networked environment provide opportunities for librarians and others to conduct research and share their findings by writing thoughtful journal articles. We see that editors are clearly accepting, and in some cases requesting, such articles in growing numbers. What response does this increase in the availability of data on technology receive from libraries, and how is the increase affecting the lives of librarians and support staff? The following sections consider possible effects in three areas—organizational structure, staff expectations, and movement toward libraries as learning organizations.

ORGANIZATIONAL STRUCTURE

Journal articles on such subjects as integrated library systems, digital library initiatives, the networked environment, vendor-library partnerships, the Internet/World Wide Web, and other technology endeavors have made a significant impact on the organizational development and structure of libraries. Libraries have found it necessary to create new positions (e.g., digital initiatives librarian), reallocate resources, including personnel, from existing functions to new technology-related functions, invest more time and money in staff development, and change the organization of the library.

Technology has resulted in the abolition of some departments and the downsizing of others as well as the emergence of new entities (Lancaster & Sandore, 1997). Boundaries between departments or divisions are collapsing in order to achieve more with a staff already too small. A librarian may be assigned to two or more departments instead of working exclusively in a single department. More funds are being invested in improving the staff's capacity to work with the new technology; the practice of investing more in staff development will probably increase dramatically in the next few years.

In management, technology enables library administrators to have a larger range of control (i.e., allowing more people to report directly to an administrator), and hierarchy is being replaced with a flatter organization. Allen (1995) delineates the need for greater flexibility in the organization of the library in order to gain greater creativity and innovation from everyone involved. In addition, Lee (1993) points out that "today's managers must develop an understanding of the assumptions, premises, philosophical postulates, intuitive insights, and logic of organizational development" (p. 130).

Because journal articles on aspects of organizational development and structure in libraries are abundant, and because librarians tend to replicate in their libraries what has proven successful in other libraries, the role of the growing literature on library technology may be seen as significant.

EXPECTATIONS OF STAFF

Concurrently with the dramatic rate of change occurring in libraries, staff expectations grow. (The term "staff" here refers to both professionals and paraprofessionals; for further information on support staff opinions, see Dorothy Jones's article in this issue of *Library Trends*.) Staff expect to have the latest computer workstations and printers and funds to attend conferences and workshops to improve their skills. They also expect to have ready access to online information and place a high priority on electronic connections such as bulletin boards, listservs, and home pages which enable them to contact colleagues doing work similar to their own.

Knowledge of increased capacities and opportunities to communicate with others, and the uses for such communication, are spread among library personnel through journal articles which often include recommendations from the writers' personal experience. These are assimilated and may then become part of the recipients' expectations. Reliance on the advice of others to solve problems or perform job-related functions is more common today due to the availability of electronic connections. Such advice includes suggestions for reading material—librarians may learn electronically about useful new journal articles or issues to read. One may first read about a listserv in a journal article, join it, and then receive from listserv contributors word of a new journal to which the library should subscribe. Thus, the circle closes.

Faster exchange of information among librarians enables them to discuss and subsequently refine products and services for users. While it creates an expectation of instantaneous communication that does not already exist, online interchange with colleagues pays many dividends, including the benefit of developing and maintaining an important camara-

derie (for an example, see Karin Borei's article on listservs in this issue of *Library Trends*).

LIBRARIES AS LEARNING ORGANIZATIONS

For libraries to remain effective during this period of constant change, they must be learning organizations and must promote, not only the learning of individuals but, more importantly, the collective learning of all members of the entire organization. Garvin (1993) believes that continuous improvement requires a commitment to learning:

> A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights. First an environment must be fostered that is conducive to learning. This requires time to think. Another powerful lever is to open up boundaries and stimulate the exchange of ideas. Boundaries inhibit the flow of information; they keep individuals and groups isolated and reinforce preconceptions. (p. 78)

Due to increased workloads, it is not uncommon to hear librarians say that they do not have time to think or reflect on what they are doing. They believe they are running faster and faster just to keep up with user demands. If a library is to become a true learning organization, then a commitment and responsibility to the principles of a learning organization must be demonstrated. The concept of the library as a learning organization is not new; staff members have depended on one another and the library learning environment for many years. What is different today is the enlarged emphasis given to the idea; moreover, the unusual acceleration of change makes it necessary for libraries to perceive themselves as places for continuous learning. Organizational learning is best when library staff act as learning agents—responding to changes in the external and internal environments of the library. In short, much of the responsibility for making the library truly a learning organization depends on the library staff.

To ensure the cooperation of those involved, several steps should be followed. First, the change itself should be evaluated for its necessity (are we already doing very well in that area?), for its power to improve access to good sources (the core of library service), for its expense compared to other uses for limited funds, and for the amount of resistance it will likely generate from the staff. Red lights in several of these areas should be enough to require further consideration—change merely for the sake of change is the hallmark of unthinking management. If all the signs are positive, the next step is to study methods and tools of implementation, which will probably include relevant readings in journal literature.

A further step is to recognize that a certain amount of resistance is normal and to plan how to handle it. "Attempts to overcome resistance

usually make it worse, so that opposition to the change is actually strength-
ened. . . . Resistance is a natural part of change and the only effective way
to deal with it is to give voice to those who resist. This can reduce resistance,
as well as improve the quality of the future state" (Buch, 1997, p. 150).
Another step is to examine the reward structure for those involved. If
they succeed, what benefits will they receive? These may include various
forms of recognition, including the possibility of creating journal articles
of their own after completion of their experience with change. Librarians
will witness greater dependence on library and information science jour-
nals and other resources as the emphasis on continuous learning grows.
Organizational learning should prime and drive innovation rather than
the reverse.

Planners must recognize that a learning organization depends on
sharing. In Lloyd's (1996) words:

> Much of being a responsibility-driven leader involves building a learn-
> ing environment—passing on what you know and empowering oth-
> ers rather than being possessive about knowledge on the grounds
> that "knowledge is power." Many organizations that strive to be "learn-
> ing" environments fail for this reason—they remain driven by power
> (hoarding knowledge) rather than responsibility (sharing knowl-
> edge). (p. 60)

CONCLUSION

For the foreseeable future, we will be working with three types of
libraries: the library of the past with primarily paper collections, the li-
brary of the present with both paper and electronic resources, and the
library of the future that will depend more and more on electronic re-
sources. Advancing technologies will eventually enable us to participate
in a "global library"; international networks are already in place between
and among continents. However, the future also has negative possibilities
for libraries.

Technology is the engine driving the "doing more with less" environ-
ment in all types of libraries. The more that technology offers to users,
the more they want and, while user expectations expand, the library staff
remains the same in size or is being reduced. This has an impact on the
intellectual aspects of librarianship as staff members have less time for
critical thinking, analyzing, and synthesizing. Technology is generally
blamed as a major factor pulling librarians into less cerebral work. It has
made the nature of their work much different than it was just a few years
ago. Some journal editors give preference to "how to do" articles rather
than to articles on theoretical thoughtful topics because such articles are
in high demand. With changing responsibilities leaving less time to think,
librarians seek this type of practical article for assistance in their daily
work.

While technology offers the capacity to improve both the efficiency and effectiveness of library work, it may be pushing us away from the all-important theoretical base of our profession. Hisle (1998), in a guest editorial for *College & Research Libraries*, explains that: "Without a clear understanding of our core values and the unity of mission it brings, many aspects of the profession will suffer [including] our attempts to use technology to accomplish our goals" (p. 6). These core values he identifies as: an altruistic sense of service, dedication to intellectual freedom, recognizing reading as a way of understanding and investigating the world, and valuing research, extended study, and analysis for personal and professional growth. Notwithstanding the many positive practical attributes of technology as a tool, the widespread increase of technological presence in both the library professional literature and in libraries, and the interdependence of the two as this article has demonstrated, the future direction of the library profession will remain dependent on human commitment to the values cited by Hisle, particularly the basic commitment to service. When technology and journal literature about technology are dedicated to helping the people who serve in libraries to better help the people who use libraries—from children to the elderly, from elementary school students to college professors—the future success of the profession is assured.

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