

7

Serving the User

THE LIBRARY USER'S WORK ENVIRONMENT
FROM SERVICE TO SELF-SERVICE
COPING WITH COMPLEXITY
ASSISTANCE
Reference service
Library instruction
Referral

THE LIBRARY USER'S WORK ENVIRONMENT

The people whom libraries are to serve are making increasing use of the new information technology of computers and electronic storage, in addition to the old information technology of pen, paper, and photocopier. The new tools provide powerful options for working with data, text, sound, and images. As examples, consider the reduction in labor now required for sending an (electronic) message or text to distant collaborators, for the compilation of concordances, for complex simulations and calculations, for image enhancement, and for the analysis of large sets of numeric data. There is, predictably, an increasing departure in information handling from the simple pattern of read, think, then write. Computers are used for so much more than the traditional notion of "computing."

Since library services are provided for people to use, two relationships become important: How will changes in the provision of library services affect library users and what they do, and how should changes in the tasks and work habits of library users affect the provision of library services?

The change from the Paper Library to the Automated Library has been primarily a matter of computerizing the library's internal procedures. There has been little impact on library users and little reason for there to be much, until the on-line catalog began to replace the card catalog. Before that time, users may have noticed improved circulation procedures and, perhaps, better-produced lists of various kinds, but the impact of the move to the Automated Library was mainly internal to the library and independent of changes among library users' working habits.

The on-line catalog has two quite kinds of impact. For all who visit the library it is a different sort of catalog, with a keyboard, screen, and a new way of searching to be learned in the place of passive trays of cards.

A different impact has been on the growing proportion of library users whose work habits and working environment have changed to include routine use of computers. For these people the option of remote access to the library's catalog has constituted an important new extension of

library service. Not since library catalogs were printed and distributed in book form in the nineteenth century has this kind of catalog access been possible. The fact is that this enhancement of service through the automation of the catalog is of benefit only to those who had the technology to use it.

This second, selective impact—an enhancement of service primarily for those whose work habits and equipment enable them to benefit—is a major characteristic of the shift from the Automated Library to the Electronic Library. The ability of the library to provide access from *within* the library to materials stored electronically and to generate copies on paper is clearly a useful extension of service. It can be symbolized by the provision of printouts of the results of bibliographic searches performed by librarians for library users. However, the ability of the library to arrange for access from *outside* the library to materials stored electronically, such that users with suitable equipment and skills can use these resources by themselves, constitutes a much more substantial extension of library service.

Extensive use of the Electronic Library depends on a change in the work habits and working environment of library users. In many work environments, especially in universities and corporations, and among professionals, administrative employees, and writers generally, it is common to find widespread and increasing use of computers and telecommunications. People who have moved to a personal computing environment for their work they *need* the provision of an Electronic Library because the effective conduct of their work is based on access to electronic records.

For these reasons the shift from the Automated Library to the Electronic Library should be associated with and paced by the parallel shift in the "task environment" of the people that the library is to serve. Once library users work electronically they are held back by the lack of remote access to an on-line catalog and by lack of access to materials in electronic form. The Electronic Library will be useful but the benefits are not fully achieved until the library users work electronically. The old information technology of pen, paper, and, latterly, photocopier did not encourage much departure from library use as "read, think, write." In contrast, the new information technology is transforming the use of library materials, with computer-based techniques for identifying, locating, accessing, transferring, analyzing, manipulating, comparing, and revising texts, images, sounds, and data.

This close coupling of library development with changes in users' work-styles requires a new perspective among those responsible for library services. It is sad to have observed that "dial-in" access to on-line catalogs has often been slow in coming, limited in extent, or losing transmission the internal structure (fields) of the catalog record.

Technical infrastructure

It now seems foolish not to assume for library planning purposes that a significant and increasing proportion of those to be served use a computer and that telecommunications are in place to support extensive connectivity between computers, the library, and databases. It is not difficult to outline what needs to be done: The starting point would be the principle that the kinds of services provided in the Paper Library should be made available for use by those who now use the

new information technology. Hence from a computer anywhere a library user should be able:

1. To search the library catalog, including all cataloged holdings, without need to refer to additional catalogs on card or on microfiche. The library "catalog" is best seen as a series of concentric circles that include the holdings of the local library, of nearby, and of distant libraries. Within each catalog category, the searcher should have the option of expanding a search to associated files: circulation records, incompletely cataloged materials, and files of materials that are on order.
2. To search in bibliographies and also to be able to find the items listed, whether on paper, on microform, or on-line.
3. To search in directories and reference works.
4. To search for numeric data in social, technical, economic, and scientific databases--and to retrieve conveniently whichever datasets are needed.
5. To search for images and moving images--pictures currently on slides, movies, photos, videotapes--and to retrieve copies for use.
6. To search for texts, whether texts that were already known or those discovered in a catalog or bibliography.

These resources (catalogs, bibliographies, directories, numerical data, images, and texts) should be available for library users at their place of work using the tools with which they normally work, which implies copying in electronic form into personal storage, printing, or ordering a copy of printed material. These resources should suit the user's convenience by being available when needed, requiring minimal effort or formality, blend smoothly with personal computing practices. They should allow for convenient movement from one file or function to another and for integration of computerized with nonautomated procedures. The Electronic Library will involve a heterogeneous hardware and software environment that requires a heavy emphasis on compatibility, linking, and interoperability through standardized protocols. The technical complexities of providing such service should be invisible to the library user.

FROM SERVICE TO SELF-SERVICE

The potential use of library service greatly exceeds the actual use, which is known to be sensitive to convenience. On the one hand, use of the Electronic Library depends on a technical infrastructure that is increasingly in place, at least as far as the users of university and corporate library services are concerned. On the other hand, the Electronic Library appears to remove many of the constraints of the Paper Library, such as the effective limitation to local collections, the tendency for desired books to be unavailable, limited opening hours, and, especially, the need to go to the library in order to use it. With these constraints removed or moderated there is the prospect of a dramatic increase in library use.

With so much more service possible in the Electronic Library, expanded use of library service seems likely to depend more and more on facilitating self-service than on ever more one-on-one service by library staff, even though the latter will remain necessary and desirable and even

though the tasks facing the library users are becoming more complex. Funding for a corresponding increase in library staffing seems unlikely and, even if it were provided, with the Automated Library and, even more with the Electronic Library, an ever increasing proportion of the use of library services will be from outside the library. A strategic shift from the direct provision of service one-on-one to the design and provision of library services intended for self-service seems inevitable, even though library services are becoming more powerful and more complex.

COPING WITH COMPLEXITY

Where there is increasing complexity, problems arise when the user's expertise is inadequate for the task. Different sorts of response are possible:

1. *User education.* Expertise can be increased.
2. *Advice.* The system could possibly be designed to offer helpful guidance or prompts.
3. *Simplification.* If the complexity facing the user could be reduced, then the user's expertise would become more adequate *relative to* the task;
4. *Mediation.* Providing an expert human intermediary to provide assistance—a reference librarian, for example—is an obvious course of action.
5. *Delegation.* It may be possible to shift some of the task complexity inside the system: Make the system itself smarter, more capable of determining what should be done next.

These different sorts of responses are not mutually exclusive. Which, or which combination, would be most cost-effective in any given case may vary greatly.

ASSISTANCE

Difficulties arise both because library users' needs are so extensive and so varied and because the sources of information are too complex, too imperfect, and too incomplete for self-service to be adequate. It is inherently unreasonable to assume that the provision of unaided library "self-service" will be satisfactory. Assistance is needed of three overlapping kinds: reference service, library instruction, and referral.

Reference service

In addition to answering questions on almost every conceivable topic, reference librarians provide assistance on research projects, explain the use of complex bibliographic tools, arrange computerized searches of many different data bases, conduct on-line information searches, and (as noted below in this chapter) offer both formal and informal instruction in the use of library services. Some requests can be answered with simple, factual information, but others may take hours or even days of investigation.

The library's first significant task, from the standpoint of the user, is to help with the identification and location of needed material. For many types of materials, the bibliographic tools available for this task are complex or incomplete, and the user is unlikely to be successful in finding the material needed without help. Librarians are therefore needed to assist users in interpreting such tools, and to insure that all suitable possible sources of information are made known to the reader.

The advent of computerized services for searching machine-readable data bases has also added a new dimension to reference and information services. Many of the major abstracting and indexing services, such as *Chemical Abstracts* and the *Readers' Guide*, are now searched on-line as well as on paper. Increasingly bibliographies are available not only from on-line search services but also as optical digital disks (CD-ROMs) that can be searched inside the library and as files mounted on on-line library catalogs. The commands to use these systems differ and the on-line version may not be the same as the paper version where both exist.

Library instruction

There are various ways in which instruction in using libraries can be given. At the simplest level, there is the familiar "orientation" technique, or guided tour, the main purpose of which is to familiarize students with the layout of the library building and the location of various resources and services. At a more specific level, there are also "point-of-use" instructions, including printed guides on basic techniques in using the resources of the library; brochures on how to use bibliographic tools, such as indexing and abstracting services; video-tape, audio tape and slide-tape presentations; and personal guidance by reference librarians in methods of pursuing research in particular fields.

A third type of instruction has also gained increasing support in academic libraries: the formal course in bibliographic and research methods, offered for academic credit, and particularly designed for undergraduate students. The major objective of such classes is to impart skills for continuing self-education on the part of the student.

Library instruction can be expensive and labor-intensive, but the prospect of a major increase in self-service makes it an important and a more plausible investment. Library service can be characterized by reaching out to teach. It is unsatisfactory for all parties for there to be frustrated, unsuccessful users.

Referral

A third form of assistance is referral to other sources. This might be a difficult question being referred to another, more specialized library, librarian, or other expert ("reference referral") or referring a library user to another more appropriate source. In both cases it is necessary to know to whom or to where a referral can be made with a reasonable chance of success. The development of detailed knowledge of resources is necessary for referral to work effectively.

Library use and bibliographic research are complex and becoming more so. A greater investment in user education will be needed to ensure that effective use is made of library

resources, all the more so as any library's resources comes to include the resources of all cooperating libraries. Such an investment is needed if library users are to achieve a return on the greater investment in the creation of Paper, Automated, and Electronic Libraries.

Notes on Chapter 7: Serving the User.

1. Michael K. Buckland, and Doris Florian, "Expertise, Task Complexity, and Artificial Intelligence: A Conceptual Framework." *Journal of the American Society for Information Science* 42 (1991):635-643.