The Challenges of Automation and the Library Instruction Program: Content, Management, Budget

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The proliferation of computers that has affected all aspects of academic library operations has begun to make fundamental changes in patterns of information seeking and provision. We have seen only the beginning. Take a few moments to ponder the library of the near and distant future. Some aspects to consider:

- **Decentralized Access** will mean that those in need of information will be less and less tied to a particular building. Modems, electronic mail, telefacsimile and full-text document delivery will minimize the need to enter a library building.
- **Cheaper Memory** will mean that more and different kinds of information will be available. In addition to bibliographic, directory, and numerical databases, expect more and more full-text and non-print data: diagrams, photographs, audio records, holographic and animated images, all widely available in digitized form.
- **Information with Greater Currency** will be available. Many more databases will be updated daily and some continually.
- **More Sophisticated Means of Access** such as front-loaded expert systems will be available. They will interact with mainframes to design and execute complex searches of a number of different databases to pull a statistic here, a fact there, and illustrations and a pungent quote to tie it all together.

These are not futuristic or unrealistic notions. The capability is here today, although the technology is still a bit expensive to be exploited fully by non-profit institutions. Yet in a few years the real price will be much lower and the *perceived* price in the eyes of today's undergraduate (tomorrow's physician, attorney, or grant-supported researcher) will be trivial. In a few years, today's undergraduate will expect to find sophisticated automated resources at the public library when she is shopping for pension plans or researching designs for a new deck. When she is helping her children with their science homework, she will expect to have holographic images of the human brain available as part of the family's (online) encyclopedia.

What is an instructional librarian to do? We are faced with using twentieth-century research tools to prepare our students for these and other, as yet unimagined, developments of the next century. Yet our students are here in the twentieth century with us. More specifically, they are in English 1, and they need to write a five-to-ten-page paper comparing the short stories of Eudora Welty and William Faulkner. How do we face the seemingly conflicting missions of identifying and teaching skills that will be transferable to the informational realities of the twenty-first century and, at the same time, of helping the students through this semester?

Automation also creates both promises and challenges in other aspects of library instruction program design. Ballooning budgets, new options for modes of presentation, better ways to manage records and statistics related to the program, the need for retraining of staff—all are aspects of the impact of automation. Let us first consider the issue of content.

Content of Library Instruction Classes

As libraries make the transition into the universe of remote access and document delivery, it is essential that we librarians examine with a critical eye our goals for library instruction. There is an underlying assumption that we are striving t educate students towards greater bibliographic self-sufficiency while, at the same time, we encourage them to turn to reference librarians for assistance as often as it is needed. These are somewhat contradictory goals. Do we want students to work on their own or to look to a librar-

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ian for guidance? Which is better for the future? I would argue that the latter should receive greater emphasis. So many new reference sources appear in both print and electronic formats that it is unfair and unrealistic to expect a user to keep track of even a few. This is the job of the librarian. As Christine Borgman has pointed out, our users are "permanent novices."[1] They may need to use a particular source several times, but those uses are often separated by weeks or months, making it unlikely that much carryover of learning will occur.

An additional complicating factor is that the level of students' understanding of and comfort with automated sources is likely to be far more variable than with print sources. Thus, one student may learn quickly while another, because of inexperience or anxiety, requires more time and assistance. Borgman points out that it is unclear whether the use of multiple searching systems leads to an understanding of the general principles of file organization or simply to confusion. Thus, learning the local online catalog; CD-ROM products produced by SilverPlatter, Information Access Company and Wilson; and trying a little end-user searching on BRS-After Dark may not lead to a sophisticated user, but rather to a baffled one who is very dependent upon good point-of-use guides and personalized instruction to keep the various protocols and the appropriate applications of each source straight. In any case, training in the use of automated sources is more effective when the lecture setting gives way to one-on-one instruction with a great deal of hands-on work and some explicit point-of-use aids.

If all this is true, what is the role of library instruction in this brave new information world? During the past decade, an enormous amount has been written about the necessity of building library instruction on intellectual underpinnings. A conceptual foundation has seemed essential to accomplishing more than introducing a few sources and demonstrating that librarians are good folks. In order to transfer knowledge about the library from one research task or discipline to another, students must understand the principles of information generation, organization, and access.

The evolution in the forms of data and means of retrieval makes such an understanding increasingly important. As research libraries make a wider variety of bibliographic databases available on CD-ROM or through end-user searching systems and, eventually, provide document delivery, a greater proportion of students' work will involve winnowing through quantities of material and using it intelligently and creatively. Far less time will be spent in tedious manual searching. Hence, perhaps library instruction should focus more on the winnowing skills: selecting the best from among many references, investigating the authors' credentials, and evaluating sources critically. An important aspect of this ability is the understanding of the ways in which information is generated, manipulated, and packaged.

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One logical approach to introducing winnowing skills is to use the sources that exist, both print and electronic, to demonstrate the common threads that are likely to carry over from source to source and from the present into the future. The concept of controlled vocabulary is relevant to most reference sources. Other significant issues one might cover include the importance of the critical evaluation of any information: how it was gathered, its currency, the principles by which it was selected, its intended audience, its implicit or explicit biases. Students can be encouraged to work in an orderly way, first considering the various aspects of a topic, then honing in on a single one for research, and next identifying key issues, terms, and tools for accomplishing their research.[2]

The more accessible bibliographic references become, the more crucial these winnowing skills will be. In some sense unwieldy paper indexes may protect students from having to think too much. Having put in forty-five minutes figuring out how to use the *MLA International Bibliography* and scanning through three or four volumes, the student feels satisfied that he has done the requisite work and has come up with two or three acceptable references. When presented with a printout of forty references on the same topic, the product of an online search performed by a librarian, the student feels a mixture of gratitude and dismay at the embarrassment of riches, which means more work of the winnowing sort and more locating of back issues of journals.

No matter what approach we take in library instruction, it is important that we not be timid about incorporating automated sources into rou-

tine reference work and that we make certain that CD-ROM sources are as visible, clearly marked and accessible to our patrons as any other source. We should not look upon the use of automated sources as "cheating." There is nothing edifying about looking year by year through three decades of *Psychological Abstracts*. All this teaches students is that research is hopelessly tedious and that they should reconsider the idea of graduate school. Emphasize that the students' real work is to focus on a topic, read the relevant literature critically, and consider what they read as a springboard for their own interpretation and creativity.

The content of library instruction lectures is not the only facet of a program that will be affected by increasing automation. As remote access of library sources becomes more extensive, "point-of-use" may take on a radically different meaning. Good help screens and command-line instructions are essential features of the remote-access online catalog. An electronic mail consultation service to connect users to a reference librarian and a combined electronic mail and ele-facsimile service for document delivery will become more desirable to many users than in-person reference help.

Automation also makes alternative forms of instruction possible. CAI (computer-assisted-instruction) programs can be geared to a particular area of research or level of library sophistication. They can include tutorial segments for self-examination and for the reinforcement of certain key concepts. Information systems with menus which are designed to operate much like a reference interview can provide the user with suggestions for reference sources to consult.

Management

Automation has still other implications for the academic library instruction program. The new sources and new skills that must be incorporated into library instruction place new demands on instructional librarians. Old approaches to teaching, the "canned" lecture that seemed acceptable five years ago, and even the points emphasized during that lecture must be rethought and revised. Staff must learn each new automated source very thoroughly in order to be able to teach it to others. Just as library users are equipped with widely varying levels of expertise in the use of automated sources, so librarians come to new sources with different levels of understanding and acceptance. The coordinator of an instruction program may face the added challenges of retraining, cajoling and comforting certain staff members. It is far more daunting for the less confident to demonstrate online searching to a class than to execute a search for one user. As new CD-ROM sources are obtained and end-user searching programs implemented, the program may be faced with an enormous expansion in responsibilities for user training while the staff available remains constant. Point-of-use assistance, whether in the form of printed materials, online tutorials, or a readily-available reference librarian is also more important than ever. A very positive achievement of automated sources is that they have elicited more faculty interest in and support of the library than any other recent development. This is a boon for outreach, providing opportunities to review sources with the faculty and to arrange for instruction of his or her students, but it may also mean that demand for library instruction further outstrips the supply of instructors.

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CAI programs may seem to offer an opportunity to save staff time, but they are not appropriate in all situations and demand an enormous commitment of staff time up front and trouble-shooting and updating as long as they are in use. It has been estimated that a good CAI program requires one hundred hours of design and programming time for each one hour of finished product.[3]

The good news is that computers may go a long way towards making instructional librarians more productive. A useful outreach mechanism is to send a regular reminder to each faculty member who has requested library instruction in the past. A simple relational database can facilitate the organization of a list of faculty members, sortable by name, department, date of the most recent library class, the librarian who taught that class, or other information. Computer-generated reminders can then be produced prior to each academic term. A personal computer can also be used to record statistics related to the program: who teaches which classes and how many of the various types, responses to surveys measuring the effectiveness of the program, etc. Administrators love to see visible proof of a program's success, and what could be more impressive than some beautiful graphs showing just how much students have learned from their library instruction. For those who produce handouts tailored to each class, a "template" program is a time-saver. This template would include information that is relevant to all classes (a description of the *Library of Congress Subject Headings* or instructions about locating journals in your library). Items pertaining to a specific class (sample subject headings, list of subject bibliographies and journal indexes) can be incorporated as needed. A more ambitious project would be to create an online, annotated list of all the journal indexes (or other type of source) held by your library. This could then be selectively downloaded into the handout template and/or incorporated into a larger reference expert system. Computers also offer wondrous desk-top publishing capabilities, enabling librarians to produce extremely professional-looking flyers, point-of-use instructional aids, bibliographies, overhead transparencies or slides, and questionnaires.

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One of the areas in which automation has its greatest impact is in the pocketbook. Ten years ago the instructional librarian needed a place to teach, some chalk, an overhead projector, a supply of blank transparency sheets, a typewriter, and access to a photocopier. Now we need all of these tools plus enough personal computers for database management, word processing, online searching, CAI presentations, and desk-top publishing; special software to enhance graphics capabilities and create tutorials; and a liquid crystal display screen, or an even more sophisticated and expensive alternative, to permit demonstration of online searching. None of these items comes cheaply, making it encumbent upon the library instruction coordinator who is not blessed with a supportive and generous administration to cultivate highly developed skills of persuasion and creative approaches to funding purchases.

These, then, are some of the benefits and challenges of automation for the instructional librarian. It is vital that we maintain and expand our interest and expertise in the world of automation. On many campuses, libraries are losing out as computer centers take over the management of machine-readable data files, offer programs to assist faculty and graduate students with file management, and provide other services to teach members of the academic community how to deal more efficiently with their overload of information.[4] Power and credibility are tied to an institution's ability to respond to users' needs. The appropriate and effective use of automation in the design and management of library instruction is an excellent place to start.

Notes

1. Christine Borgman, "Why Information Systems are Hard to Use—And How BI Can Help." Keynote Address, ACRL-BIS Preconference, "The Future of BI: Approaches in the Electronic Age," New Orleans, Louisiana, July 8, 1988.
2. Threasa Wesley described the library instruction program she coordinates at Steely Library, Northern Kentucky University, in her talk, "Emphasizing Evaluative Research Skills in Library Instruction Sessions," presented at the 16th Annual Workshop on Instruction in Library Use, May 13-15, 1987, at McMaster University in Hamilton, Ontario.
3. Jack A. Chambers and Jerry W. Sprecher. "Computer Assisted Instruction: Current Trends and Critical Issues." *Communications of the ACM*, 23 (June 1980), p. 337. It should be noted, however, that the advent of HyperCard, CourseBuilder, and other software designed for form the shell for tutorials will considerably reduce the time required for creating such CAI systems.
4. Sharon Hogan discussed this issue with great eloquence in her talk, "Calling Mother Earth. Calling Mother Earth. Spaceman Needs Help with Research." Keynote Address, ACRL-BIS Preconference, "The Future of BI: Approaches in the Electronic Age," New Orleans, Louisiana, July 8, 1988.