The future of reference IV

Librarians must be willing leaders in the use of technology

The Reference and Information Services Committee of the General Libraries, The University of Texas at Austin, presented its annual program, "The Future of Reference IV," on February 28, 1991. The distinguished speaker was Nancy L. Eaton, dean of library services at Iowa State University. Eaton began her library career at UT-Austin, first as a cataloger, then head of the MARC Cataloging Unit, and then as assistant to the director (1968–74).

In keeping with tradition, two UT-Austin staff members—Dennis Dillon, assistant for reference services operations, Reference Services Department; and Nancy Elder, head librarian, Life Science Library—were invited to present a formal response to Eaton's paper. An edited version of the three addresses are presented here.

Document delivery and on-demand publishing: Implications for reference service

By Nancy L. Eaton

The "Future of Reference" presentations of the past two years offered two new paradigms for the library of the future: that of the user-centered library[1] and the electronic library.[2] I would submit that economic forces will shape the future library more than either user needs or evolving information technology. The driving force which will mandate changes in libraries is the economic reality that higher education and society in general can no longer economically support scholarly communication and scholarly publishing in their present configurations. We all must balance our personal checkbooks each month or face the creditors. I submit that we can no longer balance our library checkbooks and that scholarly publishing will be forced to reconfigure itself, albeit over a significant period of time. It is incumbent upon us to try to anticipate that activity and to be part of the solution. While user behavior and needs are of paramount interest as we participate in this new order, they could also become the victims of economic realities.

Need for new pricing models in publishing

Peter Lyman, associate dean for scholarly technology, University of Southern California, made a presentation to the Coalition for Networked Information on November 4, 1990, in which he posed an intriguing new approach to publishing costs.[3] Lyman summarized the current situation as one in which scholarly publishing is subsidized by library subscription rates, copyright is turned over to the publisher by the author or parent institution, and government support of scholarship has decreased. He described a shift since 1940 from noncommercial to commercial scholarly publishing in which only 15% of our scholarly publishing is now noncommercial. He posed a new approach to rebuilding the economic base for scholarly communication. I would like to summarize his approach to a new pricing model and to carry it out further as a concept, both as to how it might be executed in practice and what implications it has for reference services in academic librar-

ies. The essence of Lyman's approach is to change to a distributed economic model which would centralize fixed costs and revenues (authorship, editorial efforts, and composition), but would distribute variable costs and revenues (printing and distribution). He would return publishers to publishing and decentralize the manufacturing aspects:

a) Publishers incur fixed costs which could be recouped via site licenses or subscriptions to franchisees at costs less than current subscription prices.

b) Franchisees would incur variable costs of production and distribution, recovered through a variety of local mechanisms.

c) Publishers would incur the variable costs of production and distribution associated with the electronically disenfranchised—those without access to the electronic distribution mechanisms. Publishers would recover these costs through normal subscription mechanisms, with established ceiling prices. This clientele would be a shrinking portion of the market over time.

Execution of such a model would require a highly automated and networked approach to publishing. While it is expected to evolve eventually, any near-term model has to combine aspects of the current publishing environment with a framework for evolution of the distributed economic model.

Some examples of ways to achieve this might be:

• Traditional print journals: Publishers would concentrate on the usual editorial and jurying processes but would publish the journal off of a centralized database, with multiple output formats, traditional printed journals, CD-ROM versions, or print-on-demand at the article or chapter level. Over time, many users and libraries would print-on-demand at the article level rather than purchase the entire printed journal. For libraries that want to subscribe to the entire electronic version either as a CD-ROM offline product or as online full text, manufacturing and distribution costs would be moved to the local level and presumably be reduced, because actual printing would be reduced to only articles or chapters requested and with reduced library stacks storage requirements.

• New electronic journals: New electronic full-text/image publications, most likely new journals in areas which need speed of access and immediacy in content, are emerging.

• Library collections (paper, microform, etc.): Materials published on paper or microform would still be housed in traditional ways

but could be scanned and transmitted electronically or sent via telefacsimile or, alternatively, sent via campus delivery or traditional interlibrary loan mail delivery.

The key to this decentralized distribution system is that the content may exist in electronic, paper, microform, or other formats. This is a hybrid approach which acknowledges that older print collections will continue to be maintained, that on-demand printing on paper will be preferable in many instances, that in some cases several alternatives for output will be available (probably at different costs and speeds of receipt), and that some information will be available only in electronic format and not available to those without appropriate equipment. This approach moves the manufacturing and distribution to the local level, with options selectable by the user. The have-nots without appropriate hardware can still go to the library or bookstore to have the document printed on demand and distributed by existing mechanisms.

The purpose of this presentation is to concentrate on the implications for such a change in the publishing mechanisms on library reference service. The preceding, hypothetical model presents serious implications for library reference services: the workstation will be an essential tool of the trade, and reference will be increasingly online rather than print-oriented. Because the final distribution options are at the user end, the reference librarian and/or the system options will have to make clear to the user what the output options are and at what prices, an extension of what is already done for database searching and interlibrary loan requests.

Reference implications

The fact that many library users will not have the direct access to equipment or the knowledge levels to use the online environments effectively requires that librarians continue to be sophisticated translators of patron needs. Thus, a patron would still come to the Reference Department or Interlibrary Loan Department for help, but the reference desk is now the "user workstation," and the librarian is the intermediary for the online inquiries. The user will need better online directories and more sophisticated help screens. As the truly expert users will likely be a small subset of the entire population, the need for telephone assistance, electronic mail assistance, and other kinds of reference interventions in a distributed environment will be enhanced.

No matter how much we simplify the access methods through front-end software and gateways, to the user this will appear a complex environment resulting in a need for better online guides, printed handouts, documentation, and instruction programs. The roles of interlibrary loan and document delivery, now often functionally separated, may require some reorganization to support the more cohesive and integrated approach to access services desired in many libraries.

In the decentralized distribution model, the user can easily end up paying for information that is available free or for a lower fee if he/

> *. . . the user can easily end up paying for information that is available free or for a lower fee if he/she is not a sophisticated user of the systems.*

she is not a sophisticated user of the systems. Thus, one role of the reference librarian will be to help the patron become a sophisticated consumer. It also puts an ever growing burden upon the library to determine baseline services from its own budget and to define value-added services that are legitimately the option of the patron and perhaps with charges also passed on.

Conclusions

Economic necessity will be a driving force for the evolution of a publications system that has the features described in this paper. Given the complexity of the networking, hardware, and software that will be required to support a decentralized production and distribution system and the conservatism of publishers and scholars in giving up an equally complex existing system which has many sociological and human interdependencies, this will take quite some time.

Even so, libraries already are experiencing and beginning to utilize pieces of this model. For instance:

• Some libraries are beginning to make numeric databases available as well as bibliographic and textual databases.

• Many libraries now have their online catalogs accessible via the Internet.

• Xerox Corporation has announced a major system for scanning and digitizing text which could be printed on demand from a high-speed, laser-quality printer at 600 dpi. It is working with Cornell University Library in a pilot project using this technology.

• The National Agricultural Library and the land grant library community are now scanning and distributing library collections on CD-ROM discs.

• The Coalition for Networked Information has working groups actively pursuing prototypes in areas of commercial publishing, noncommercial publishing, network infrastructure, standards development, and education and training.

OCLC has several ongoing research projects on electronic full-text applications[4] including experimenting with the conversion of paper documents to structured machine-readable format and providing advanced search and display options for the electronic collections so derived, and exploring retrieval of information in documents stored on electronic media.

It is critical that library staff be involved in these prototypes and issues, as we will live with the results good or bad. This will clearly add additional strain on already overextended staffs. However, the penalty for not participating will be the development of solutions which may in fact not be user-oriented or designed to meet the functional requirements of our user populations and staff. The electronic library currently is a concept without much detail attached. If it is to function in a way compatible with our vision of information services, the major research libraries must work into their agendas direct participation in these kinds of research and demonstration projects.

Notes

[1]Francis Miksa, "The Future of Reference II: A Paradigm of Academic Library Organization," *College & Research Libraries News* 50 (October 1989): 780–90.
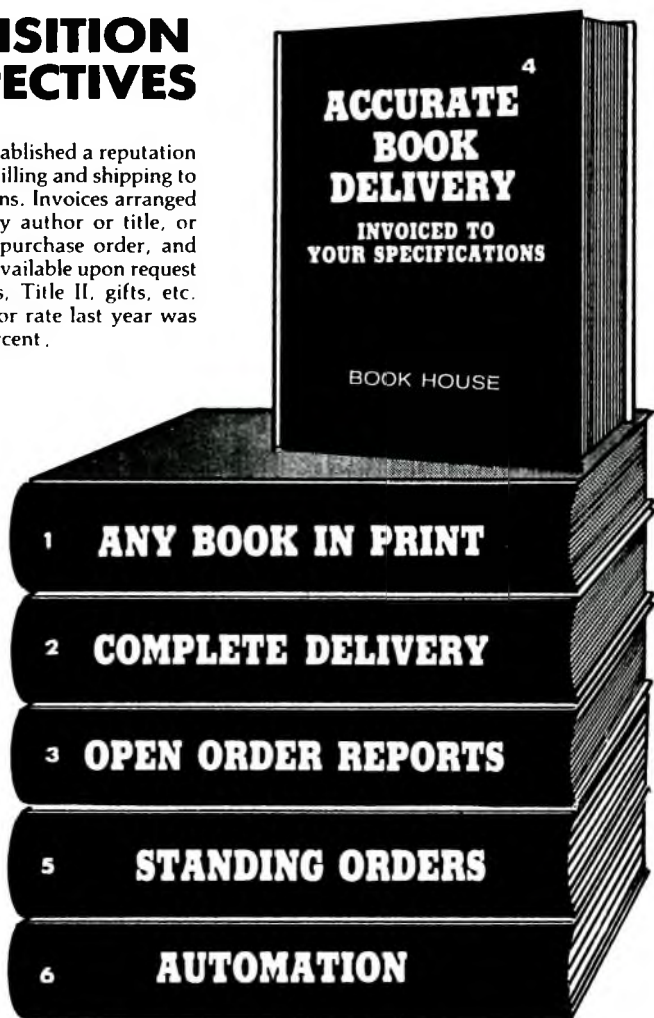
[2]Pat Molholt, "The Future of Reference III: A Paradigm Shift for Information Services," *College & Research Libraries News* 51 (December 1990): 1045–51.

[3]Peter Lyman, "Non-Commercial Publishing," a presentation at the Coalition of Networked Information (Washington, D.C.: November 4, 1990).

[4]OCLC Online Computer Library Center, Inc., *Annual Review of OCLC Research, July 1989–June 1991* (Columbus, Ohio: 1991).