# Introduction

The twenty-ninth annual Clinic on Library Applications of Data Processing was held April 5-7, 1992, at the University of Illinois at Urbana-Champaign. The clinic theme, "Designing Information: New Roles for Librarians," reflects the availability of increasingly sophisticated hardware and software that provide librarians with new tools for designing information. Tools include software for electronic publishing, database development, and interface design, as well as hardware and software for hypermedia/multimedia. These developments present an opportunity for librarians in all types of libraries to assume new roles and to collaborate with others to produce new products and services.

## INFORMATION DESIGN

Simon (1981, p. 129) has observed that "design . . . is the core of all professional training; it is the principal mark that distinguishes the professions from the sciences." Increasingly there is recognition that librarians in the future will have opportunities to serve not only as "information navigators," but also as architects or designers of information products (Borah, 1992). Orna (1992, p. 305) suggests that to be successful as designers, librarians need to

> Know about users and what they do
> Understand the nature of the information they need
> Have understanding and skills in
>   1. Conceptually organizing information
>   2. Visually organizing it

The work of Edward R. Tufte (1983, 1990), keynote speaker for the clinic, provides a rich source of ideas and principles for information design. His *The Visual Display of Quantitative Information* and *Envisioning Information* offer numerous illustrations of effective means of communicating complex information. Attention to visual design "with care given to color, typography, layout, icons, graphics and coherency" can contribute to the quality and usability of information delivered through computer screens as well as on paper (Tufte, 1992, p. 15). Ronnie Peters's paper on "Designing for the Computer Screen," included in this volume, offers additional guidance for the task of organizing a large amount of information in the small area offered by current computer screens.

## NEW ROLES FOR LIBRARIANS

As M. E. L. Jacob observes in her paper summarizing the clinic, the authors represented in this volume are among the leaders, pioneers, and early adapters of new technology. Their descriptions of projects in which they have been involved provide insights into roles that librarians can fill.

Richard E. Lucier and Carolyn M. Gray explore roles for librarians in knowledge management. Lucier proposes a new role for librarians in collaboration with scholars as creators and maintainers of scholarly and research databases and presents the Genome Data Base at Johns Hopkins University as a working prototype. Gray describes the Gesher Project, a joint effort of Digital Equipment Corporation's Cambridge Research Laboratory and the Brandeis University Libraries to understand the changing nature of scholarly research and to develop computer-based tools to assist in these activities.

Two specific design projects to enhance library users' access to information are described by Virginia Tiefel of Ohio State University and by a group of librarians from the University of Illinois at Urbana-Champaign (Timothy W. Cole, Leslie Troutman, William H. Mischo, and Winnie Chan). Ohio State University's Gateway to Information provides guidance and instruction for students on how to proceed through an information search that integrates the use of print and computerized information. The Illinois Library Information Workstation project gives integrated and largely transparent access from a single terminal to a wide range of library resources. Its user-friendly interface facilitates patron searching of bibliographic databases, with flexibility to allow terminal-specific customization of the interface to accommodate localized patron needs and library resources. Both projects seek to provide "one-stop shopping" for the user and to address problems

that users have in selecting information resources and formulating questions.

In the area of instructional design, Ruth V. Small reviews principles and strategies for designing effective computer-mediated instruction, recognizing that librarians are increasingly asked to design or adapt instructional programs. Joe C. Rader describes the development of computer-based materials for staff training at the University of Tennessee Libraries. Rader's case study explains each step in the development process, including choice of librarians to serve on the development team, topic selection, selection of hardware and software (HyperCard), development of instructional materials, evaluation, implementation, and replication at another site.

Jean Armour Polly and David V. Loertscher address applications in diverse environments. Polly demonstrates that the Internet has a number of resources of potential value to public library patrons. While eventually users may be able to access such material from home, Polly sees a place for librarians as long as the Internet remains difficult to use. To encourage librarians to get connected to the Internet, she identifies resources for getting onto the Internet and learning more about it through user guides. Loertscher describes the various ways in which school librarians have applied technology, identifying certain trends such as the use of microcomputers in managing school libraries and the possibilities for involving students in online searching, creating local databases, data gathering and analysis, and creation of multimedia productions. Those students who gain experience with storage, retrieval, and production of text, sound, and pictures will come to expect access to such technology in public and academic libraries as well.

Librarians have an important role to play in making information available via networks. Peter Scott explains the use of hypertext tools in the development of HYTELNET, a tool providing instructions for and access to information resources available on the Internet. The challenge is to organize the information necessary to access these diverse sites in as simple and straightforward a fashion as possible, and Scott demonstrates that hypertext is well suited for this purpose. Katharina Klemperer describes the different categories of information resources that libraries handle (indexes, structured full text, full text, numeric, and multimedia) and the different needs of each with regard to access and delivery. The challenge is to develop the tools that will accomplish this. Arlene Moore Sievers provides an overview of the Free-Net concept and its operation in Cleveland through Case Western Reserve University. Sievers notes that major libraries in Cleveland have been actively involved in Free-Net from the beginning and that public libraries have been active in Free-Nets in other cities. Librarians can both contribute to the development of information resources made available through

Free-Nets and use such databases as community resource files to enhance their services to library users.

## OTHER COMPONENTS OF THE CLINIC

In addition to the papers assembled in this volume, the clinic included a keynote speech by Edward R. Tufte on "Envisioning Information" and an illustrated talk by Richard Greenfield entitled "Tying It All Together: Designing Graphical User Interfaces to Integrate and Evaluate Information Resources." The clinic began with three preconference workshops covering desktop publishing (presented by Nan Goggin and Kathleen Chmelewski), database design (presented by Carol Tenopir and Gerald W. Lundeen), and expert systems (presented by Lloyd A. Davidson, Judy E. Myers, and Craig A. Robertson), made possible with support provided by the Council on Library Resources. A poster session gave several clinic participants an opportunity to make presentations on topics related to the clinic theme. Presenters included James E. Agenbroad on "Browsing Classification Data: Feasible? Useful?," Mark Crook and Craig Henderson on "OCLC's Batch Services," James S. Foster, Javed Mostafa, and Beatriz Calixto on "CAI Packages for Microcomputer Competency," Gregory B. Newby on "WAIS: A New Model for Information Retrieval," and Eric Rumsey on "Use of HyperCard to Teach Medline CD-ROM." The editors gratefully acknowledge the contributions of all these individuals to the success of the clinic.

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