

# Building Virtual—and Spatial—Libraries for Distance Learning

by Richard J. Bazillion and Connie L. Braun

Colleges and universities that once concentrated on campus-based teaching are now seeking wider markets for their services. Distance learning is becoming a growth sector in higher education, one in which course distribution poses one set of issues and academic support services quite another. New library buildings can be designed to bring information technology to off-campus students in ways that enhance their educational experience.

So important is the issue of distance education that new library buildings should be planned with its needs in mind. Since planning for library space rarely occurs at "extended campus locations," librarians "must determine what services and collections are needed and find affordable alternative methods for delivering them."<sup>1</sup> The goal is to create a building capable of serving as a teaching instrument, one that is accessible to students, both on- and off-campus, "unencumbered by the familiar constraints of time and place."<sup>2</sup>

A key principle of modern library design is to emphasize information technology: build around the technology, don't just add it on. Make the investment in technology the first claim against the project budget so that everyone realizes that the new library has a teaching mission to fulfill. No longer simply storehouses for printed materials, academic libraries can become active participants in the institution's teaching activities. Assisting distance learners is one aspect of that evolving mandate. Only within the last decade, spurred on by the advancing digital revolution, has this new purpose come into focus. Service to a geographically dispersed clientele is finding its way onto higher education's agenda and needs to be taken into account when designing new library buildings.

## Virtual libraries won't eliminate buildings

Before discussing the design implications of new technologies that libraries may use in support of distance education, a defense of new buildings themselves may be in order. Librarians have lived to regret the catchword "virtual li-

brary," which some university administrators construe as "no need to invest in a new building." It matters not that the old facility may be a relic of the earlier days, added to haphazardly, burdened with antiquated technologies, and essentially renovation-proof. Whenever new construction is proposed, the same questions arise. If print is about to be vanquished by digitized data flows, why are library buildings needed? Aren't their paper contents going to disintegrate in a few years? Just wire up faculty offices and dormitories, give everyone access to the Internet, and the space problem is solved. The vision is an enticing one, but false. Libraries as institutions—as central places on campus—have a lot of life in them still. Information technology strengthens the library's position rather than weakens it. There are two reasons why this is so.

First, prophecies that paper-based collections will disappear are wrong. Books will survive, even if journals migrate to electronic media. No one, least of all the authors of hypertext documents, has discovered a better, more convenient means of presenting a narrative or a linear argument. Thus books will continue to be published and libraries will go on collecting them. Collections of journals and government publications may demand less space in the future, as their contents are digitized. But the space saved in this manner will have to be devoted to other activities, mainly of a teaching and service nature. Instruction will be offered in the libraries by librarians who know how to use a variety of electronic research tools, notably the Internet.

Second, those who believe that the virtual library represents function without a solid form neglect the library's role as a teaching institution. As information technology pervades college and university campuses, the need for non-classroom learning opportunities grows. Internet navigation and the creation of electronic documents are skills best learned with expert guidance; libraries that offer Netscape courses attract a steady clientele. Librarians familiar with the Internet since its inception are the professionals best qualified to teach electronic research skills, either of a general nature or in the context of specific disci-



**Richard J. Bazillion and Connie L. Braun** are co-authors of *Academic Libraries as High-Tech Gateways* (Chicago: ALA, 1995). Dr. Bazillion (rbazillion@vax2.winona.msus.edu) is Dean of Library and Information Services at Winona State University in Minnesota, where he is responsible for the library, campus telecommunications, and computing services. Ms. Braun (braun\_cl@mercer.edu) is Coordinator of Off-Campus Library Services at Mercer University in Georgia. As a consultant, she specializes in space planning and collection moving.

<sup>1</sup> Susan Swords Steffen and Jerilyn Marshall, "The Schaffner Model of Library Services," in *The Sixth Off-Campus Library Services Conference Proceedings* (Mount Pleasant, Mich.: Central Michigan University, 1993), p. 273.  
(footnotes continued)

plines. These skills are indispensable to college and university students and faculty, and especially to those who study at a distance. Without them, there is little hope of prospering in the modern academic world or in the so-called "information society" now struggling toward maturity. Library buildings planned during the final decade of this millennium must be able to perform a teaching function if they are to be useful for many years into the next.

### **What are the space needs in new library buildings?**

Two kinds of space belong in new library buildings: (1) a large classroom equipped for the teaching of electronic research skills, in addition to Internet navigation; and (2) an information "arcade" or "commons," similar to those found at the Universities of Iowa and Southern California, where students may create new documents from electronic sources.

In the "commons" area there should be at least two dozen multimedia stations capable of accessing a variety of electronic sources on CD-ROM, optical disk, laser disk, or the Internet. This equipment should be selected as late in the building process as possible so as to ensure that everything is state of the art. Space devoted to the commons is between 3,000 and 5,000 square feet, depending on the size of the institution. The total area should include staff offices, a workroom, a service desk, and a large classroom.

A suitably equipped classroom might comprise between 1,200 and 1,600 square feet, with room for twenty-four to thirty student stations.<sup>3</sup> Equipment selected depends on technical specifications current at time of purchase, but each station should offer a networked PC and the classroom should provide an instructor's station with a Power PC-level machine to which is attached a laser disk player, a VCR, a removable storage drive, and a read/write optical storage drive. Other essential equipment in the classroom includes a projection system and an LCD data-display pad with overhead projector. Interactive TV (ITV) capability is indispensable.

### **ITV has applications for teaching and delivering information resources**

Faculty and librarians can use interactive TV to teach electronic research skills simultaneously to classes at several remote sites. Instruction benefits from "the immediacy of video interaction, and from the power of computer simulation."<sup>4</sup> ITV is a technology that is also finding applications outside classroom teaching or conferencing. "The distribution of multimedia through interactive TV," according to one con-

sultant, "will supersede multimedia CD-ROM products, which are the latest technology in many libraries."<sup>5</sup> Information services may be delivered directly to the home, once ITV becomes universally accessible. In the meantime, regional consortia representing every level of education can play a leading role.

States may provide grant support to create ITV nodes in local schools. Colleges and universities then may offer degree programs or individual courses in late afternoons or evening hours for the convenience of adult learners. Broadband communications open the door to quality distance education in which student access to research materials supports each ITV course. Librarians also can develop electronic research skills more effectively by exploiting the flexible audio/video capabilities of ITV.

Visual demonstrations are superior to verbal or written explanations alone; to put it another way, "having a friend teach you to ride a bike is more effective than is watching a videotape on the topic."<sup>6</sup> A video link between a librarian, who is able to "show" the off-campus students how to use a print-based resource or how to search the online catalog or the Internet, is possible by means of ITV. If this technology is available, students receive good reference service and, at the same time, learn electronic research skills. Everything depends on students having easy access to proper equipment at their end, either at home or in an ITV classroom at the remote location. A commitment to providing top-notch equipment will pay dividends, both in the quality of students enrolling in distance education programs and in the quality of the education they receive.

### **Libraries actively support distance learners**

Distance education enjoys a potentially limitless market. The library's role will be to evaluate and broker information sources offered by private vendors and, especially, to educate researchers in their use. That is why new library buildings must provide ITV links through which to offer both products and teaching programs. The two are bound together by the users' constant need to convert "information" into knowledge—an intellectual exercise that involves researcher and librarian together in the process of sifting and selection. Just as one would not buy an expensive or complicated appliance without advice, it would be a mistake to ignore a skilled navigator when searching the ether for electronic sources.

Although such technologies as satellite broadcast (used, for example, by the National Technological University), interactive television, and two-way audio/video conferencing enable

<sup>2</sup> Stephen L. Daigle and Patricia M. Cuocco, "Alternative Educational Delivery: Using Information Technology in a Multicampus Environment," in *Grasping the Momentum of the Information Age: Proceedings of the 1992 CAUSE Annual Conference* (Boulder, Colo.: CAUSE, 1992), pp. 479-491.

<sup>3</sup> Karen Wielhorski, "Teaching Remote Users How To Use Electronic Information Resources," *The Public-Access Computer Systems Review* 5(4) (1994): 16.

<sup>4</sup> Christopher J. Dede, "The Evolution of Distance Learning: Technology-Mediated Interactive Learning," *Journal of Research on Computing in Education* 22 (Spring 1990): 249.

<sup>5</sup> Rob McGee, "Toward the Digital Library World," *InfoStrat Inc.*, 8 May 1994, p. 11.

<sup>6</sup> Barbara Pease, "Reference Services for Off-Campus Students and Faculty," *The Reference Librarian* 43 (1994): 49; Christopher J. Dede, "Emerging Technologies: Impacts on Distance Learning," *The Annals of the American Academy of Political and Social Sciences* 514 (March 1991): 147.

instructors to reach widely-dispersed student audiences, library-resource support to distance learners is often spotty. Either students find it difficult to locate information sources remotely or else they lack reliable means of obtaining the materials they need. Reference assistance from a professional librarian also may be hard to come by. Efficient document delivery often is frustrated by financial constraints that prevent timely receipt of library materials.

Such obstacles tend to deter faculty from assigning substantial research papers. As a result, distance education students may find their experience less satisfying than do their on-campus counterparts, even though they expect the same quality of teaching and library support.<sup>7</sup> Technology, where it is available and utilized, is improving contact between student and professor. Multimedia communications "will transform networks of desktop machines into distributed workplaces ideally suited to collaborative projects," thus drawing distance learners into the campus mainstream.<sup>8</sup> Even then, much work will remain to be done in developing the electronic research skills of all students.

Distance learning, then, imposes certain demands on library service, especially in two main areas: (1) user training, and (2) reference assistance. Although new teaching technologies, such as ITV, can enhance the learning experience, course-related research assignments often pose a serious challenge. Students who must rely on a faraway library to meet their information needs require encouragement and assistance. These students generally are older and bring considerable life experience to their studies, and a commitment to specific academic goals often motivates them to learn. On the other hand, they may have limited knowledge of computers and of libraries. Their cognitive processing styles, shaped by on-the-job experience, demand instructional strategies that are unique and interesting. Curiosity and persistence are mental attributes of successful distance learners, whose receptivity helps them to make effective use of information technology.

### **Intermediated services need to be supported—especially for distance learners**

Users need the ability to contact a professional librarian for advice in locating research materials. Having compiled a bibliography, they then must obtain the items themselves. This may be difficult unless there is an efficient overnight interlibrary courier service, like the one in Minnesota and the Dakotas operated by MINITEX.<sup>9</sup>

From the standpoint of library design, however, the goal is to simplify contact between

librarian and distance learner. This can be done by providing e-mail and computer-conferencing links to the library's information/reference desk. Situated near the main entrance for the convenience of local patrons, this desk will also serve as a communications center for distance learners in search of assistance. Electronic reference service will provide off-campus patrons with the means to confirm a citation, obtain a historical fact, or locate biographical data on a person currently in the news. While quick-reference inquiries are easily handled by e-mail, reference interviews are best conducted by telephone or video conference. The library's reference desk, therefore, will need to be equipped with video-conferencing units, a flatbed scanner, and an ITV camera, in order to transmit images of printed materials such as maps and photographs.

A remote link to the library's catalogs and databases, and other electronic information sources, is essential, but not sufficient. Librarians can reduce the frustration that even dedicated students suffer by guiding them via e-mail messages to essential information sources in their various fields. Many professional journals now feature articles on Internet resources in almost every academic discipline. A compilation of such guides, made available online, will go a long way toward assisting both on- and off-campus library users in locating relevant information.

"For the most part," according to Lange and Farr, "direct electronic access is a replacement for physical access that is not available to the off-campus community. It is the means by which students can learn library and literacy skills at a distance and obtain the needed resources to enhance the educational experience."<sup>10</sup> Reasonable electronic access demands that up-to-date computer and communications technology be available in the off-campus locations. Research in fiber optics is contributing to a convergence of telephone, television, photocopier, printer, and computer. Electronically available information, therefore, is improving in quality and accessibility. A minimal communications equipment array includes 19,200 baud (or higher speed) modems connected to T1 or T3 data lines, communications software, Internet navigation software such as Mosaic or Netscape, a robust laser printer, and a computer-mounted video camera. Desktop video-conferencing adds a new dimension to reference service at a distance.

### **Outreach, accessibility, and openness are key**

If properly introduced, electronic communication systems will allow libraries to reach a much wider clientele and thus more effectively

---

---

*"From the standpoint of library design, ... the goal is to simplify contact between librarian and distance learner."*

---

---

<sup>7</sup> Barbara L. Emmer, "Extending Library Services to Extended Campus Programs," *Rural Libraries* 7 (1987): 64.

<sup>8</sup> R. William Maul, "The Network Classroom," *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, January 1993, p. 6.

<sup>9</sup> M. J. Dustin, "The MINITEX Reference Service: A Publicly Funded Information Broker," *The Reference Librarian* 22 (1988): 133-143.

<sup>10</sup> Karen Lange and Charlotte Farr, "Distance Education and the Virtual Library: Developing and Applying the Model," in *The Sixth Off-Campus Library Services Conference Proceedings* (Mount Pleasant, Mich.: Central Michigan University, 1993), p. 125.

---

---

*"If new buildings are created with the needs of distance education in mind, they will better serve all of the institution's students, not just the group that lives close to the campus."*

---

---

support distance education offered by the home campus. As "the boundaries of place and distance become less important,"<sup>11</sup> libraries will have to make themselves more accessible to a scattered community of learners with their own time constraints. That is why new buildings have to be designed as teaching instruments through which librarians can reach off-campus students wherever they are, whenever library services are needed. If new buildings are created with the needs of distance education in mind, they will better serve all of the institution's students, not just the group that lives close to the campus.

A library's electronic infrastructure opens it to a dialog with its users, in which librarians are guides and intermediaries rather than guardians of paper collections. Academic libraries today play a dual role: as custodians of locally-owned materials and as gateways to an unlimited universe of information waiting to be converted into knowledge. Library design should strive to create a seamless connection between the building itself and its link to the outside world, the Internet.

Library architecture itself can reflect the commitment to outreach embodied in distance

education. Greater use of windows, for example, softens the building's exterior and makes it seem less fortress-like. Modern glass technology features "low-e" coatings (low "emissivity" or radiation) that significantly reduce heat loss, as do the thermal-insulation qualities of the window units themselves. Ultraviolet filtering shields library materials from the damaging effects of natural daylight. As long as collections do not receive direct sunlight, they are in little danger. Generous fenestration contributes to a more congenial working environment within the building. Windows also proclaim an openness and accessibility missing in libraries designed to serve primarily as warehouses.

**T**he library's day as a passive repository for paper-based collections ended when electronic research tools became indispensable. Architecturally, the library building of the future should reflect the new reality: libraries are active participants in the teaching missions of their universities.

C/E

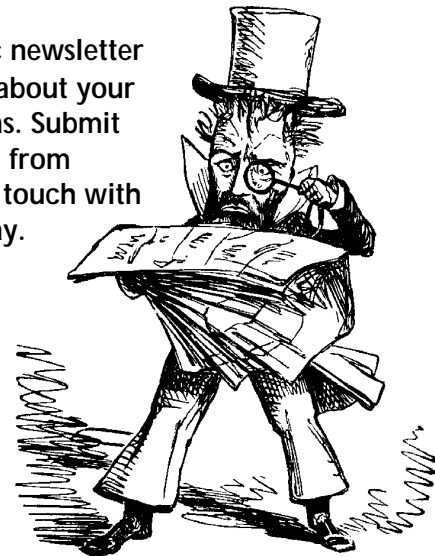
## Do you subscribe to Campus Watch?

☛ *Campus Watch* is a free electronic newsletter covering campus IT innovations. Read about your colleagues' new projects and good ideas. Submit your institution's story, or ask for input from colleagues. It's an easy way to keep in touch with what's happening in IT on campus today.

Subscribe by sending e-mail to:  
[mailserv@cause.colorado.edu](mailto:mailserv@cause.colorado.edu)

with the message:  
**subscribe campuswatch**

To catch up on back issues,  
check the CAUSE servers  
<http://cause-www.colorado.edu/>



*Campus Watch is a service of CAUSE  
the association for managing and using information resources in higher education*

<sup>11</sup> Daigle and Cuocco, p. 479.