

Supporting Distance Learners

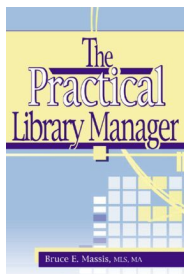
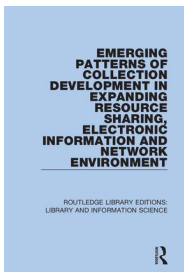
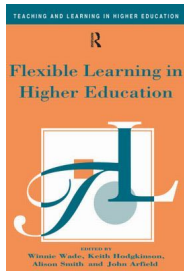
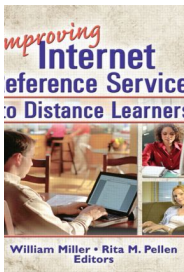
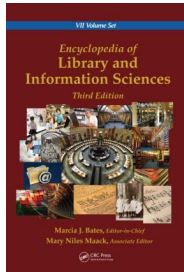
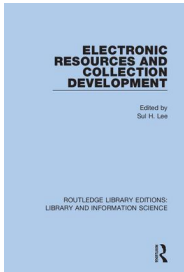
*Establishing Virtual Libraries Supportive
of Online Distance Delivered Programs*



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Collection Development for Distance Learning

Anne Marie Casey

SUMMARY. Discusses collection development for distance learning in both the print and electronic era. Focuses on several advances in electronic access that have impacted collection development in recent years. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <getinfo@haworthpressinc.com> Website: <<http://www.HaworthPress.com>> © 2002 by The Haworth Press, Inc. All rights reserved.]

KEYWORDS. Collection development, distance learning, CD-ROMs, World Wide Web

The *ACRL Guidelines for Distance Learning Library Services* (ACRL 2000) defines distance learning library services as, "... those . . . in support of college, university, or other post-secondary courses and programs offered away from a main campus, or in the absence of a traditional campus, and regardless of where credit is given. These courses may be taught in traditional or non-traditional formats or media, may or may not require physical facilities, and may or may not involve live interaction of teachers and students. The phrase is inclusive of courses in all post-secondary programs designated as extension, extended, off-campus, extended campus, distance, distributed, open, flexible, franchising, virtual, synchronous, or asynchronous."

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[Haworth co-indexing entry note]: "Collection Development for Distance Learning." Casey, Anne Marie. Co-published simultaneously in *Journal of Library Administration* (The Haworth Information Press, an imprint of The Haworth Press, Inc.) Vol. 36, No. 3, 2002, pp. 59-72; and: *Electronic Resources and Collection Development* (ed: Sul H. Lee) The Haworth Information Press, an imprint of The Haworth Press, Inc., 2002, pp. 59-72. Single or multiple copies of this article are available for a fee from The Haworth Document Delivery Service [1-800-HAWORTH, 9:00 a.m. - 5:00 p.m. (EST). E-mail address: getinfo@haworthpressinc.com].

This is a very broad definition and necessarily so because distance learning programs in higher education are provided in a multitude of ways. Some of these lend themselves to the provision of library services much more easily than others. For example, at a branch campus where a physical library exists, it is far simpler to extend basic library services to students who live in close proximity to that branch than it is to a sole student taking a correspondence course in a remote area. One of the great challenges in defining ideal library services to the remote learner has been that conditions vary greatly in the type of programs libraries must serve and in the funding available to do so.

In the last decade, with the advances in technology and the widespread accessibility to it, distance learning library services have become more standardized and grown closer to traditional library services as they too offer more materials electronically. The most efficient way to provide information to remote students today is through the World Wide Web. This is as true for on-campus "distance" students and faculty researching from dorm rooms, offices, and homes as it is for the true distance learner who is at a significant geographic distance from the campus library. There are some differences in the collection development patterns for electronic resources for distance learners but these are not as significant as the patterns were before their proliferation.

To understand the collection development of electronic resources in today's libraries that serve distance students, it would be helpful to see them in the context of collection development for distance learning programs in print-based libraries.

COLLECTION DEVELOPMENT FOR DISTANCE LEARNING IN THE "PRINT ERA"

In a review of the literature, the amount of material written on collection development for distance learning library services is small and consists to a large degree of case studies. The small body of literature concerned with collection development and distance learning is logical in light of the fact that the most prominent concerns of distance learning librarians have been the dissemination of information to remote students and faculty rather than the collection of it. The literature traditionally has focused on instruction, reference, and document delivery. Especially in academic institutions where distance learning courses are the same as those taught on-campus, although often in different formats, the prime objective has been to get the material that already existed in the library collection out to the distant students.

Traditionally, distance learning library services have not had the resources to focus on much other than the immediate needs of filling remote students' requests as quickly as possible. It is often the case that staffing devoted to distance learning students in libraries is minimal. Many libraries have small numbers of staff devoted to distance learners or staff who split their responsibilities between on-campus and distance learning needs. Distance learning librarians have historically left collection development to their on-campus colleagues because they needed to focus their limited resources on the delivery of library materials. At Central Michigan University (CMU), Off-Campus Library Services (OCLS) is a separate department that provides library services and materials exclusively to students and faculty in off-campus or distance learning programs. OCLS librarians have relied on the libraries' subject bibliographers to maintain the collections and have added to them primarily in the areas only taught off-campus, such as vehicle design administration.

In spite of the small body of literature on collection development for distance learning library services, those that are available give a good picture of the collection development practices in the print era. Despite differences in approaches, some trends evolve in the ways that libraries all over the world handled collections for distance learners. The library services described in these articles vary in some ways, but appear to have had a common approach to collection development in the pre-electronic days. This approach can be summed up in three phrases—multiple copies, deposit collections, and referrals. The most consistent trends in early distance learning library services were to collect multiple copies of books that were requested by distance learning students, to deposit core collections of materials in places that were close to clusters of distance students, and to refer students to other libraries in their areas.

Collecting multiple copies of books that appeared on the reading lists of faculty in the distance programs was often determined to be the best way to deal with the competing needs of students on-campus with easy access to the library and students off-campus who needed longer borrowing times to compensate for mailing. Some libraries, such as Deakin University and the University of New England in Australia as well as the University of South Africa, devised formulae for the number of copies that the library should purchase based on the number of students registered in distance learning courses (McKnight 1998; Schmude and Luxton 1986; Willemse 1986). From 1955-1970, when the University of New England Collection for distance students was housed at the State Library in Sydney, it was not unheard of for up to 50 copies of the same book to be purchased (Schmude and Luxton 1986). At the Univer-

sity of Manitoba, to support courses taken off-campus, copies were added quickly to the library's collection by purchasing the books at the university bookstore so they would be on the shelves as fast as possible (Angel and Budnick 1986). National University in California, where the author was employed from 1987-1991 and functioned as head of serials, purchased multiple subscriptions to periodicals to be placed at each of the branch campus libraries. The University of British Columbia maintained a separate, uncatalogued Extension Collection, which consisted of duplicates of books in the library's collection (Whitehead 1987). At CMU, OCLS maintains a small uncatalogued collection of multiple copies of titles that are frequently requested and, in the past, also maintained a separate collection of textbooks for faculty to review while preparing for courses (Garrett 1988).

The establishment of smaller library collections in areas where distance learning classes were offered has been another common way to ensure that students would have ready access to the most important materials needed for their studies. There are numerous avenues for establishing local site collections. Park University in Missouri established local collections of books, periodicals, and audio-visual materials at the base libraries of the military installations on which its courses were taught (Peterman and Schultis 1993). Old Dominion University in Virginia set up core collections in the community college libraries where it had partnerships (Pettingill 1998). Laurentian University in Ontario moved core collections around by sending them to the areas in which a course was being taught and moving them when the course was over. It also established some permanent core collections in local libraries that were given honoraria for their assistance (Kelly 1987). The Open University of Sri Lanka and Sukhothai Thammathirat Open University in Thailand both set up small core collections in designated public libraries throughout their countries (Wijesinghe 1988; Cusripituck and Puttapithakporn 1988). Small remote center libraries were established at Deakin University, the University of the South Pacific, the University of Queensland in Australia, and Indira Ghandi National Open University in India (Day and Angus 1986; Campbell 1988; Williams 1986; Kanjilal and Tripathi 1995). The University of Wyoming set up a major branch library in Casper and also purchased materials to be housed in a community college library where one distance learning program was offered (Johnson 1987). CMU donated subscriptions to appropriate indexes to military libraries and other local libraries in areas where classes were held.

The third approach to collections that distance learning libraries have taken was referral to other libraries. This could be done in a variety of

ways. In the days of primarily print-based libraries, it was common practice to informally refer students to libraries in their home areas that might have collections that would be useful to them. Until the late 1990s, CMU librarians visited the major libraries in each of the areas where classes were taught whenever they traveled to those areas for instruction. Normally the visits took place annually. They maintained library guides that described the collections available at all of the local libraries and handed them out to students at instruction classes. Although many distance learning library services have ceased to informally refer students to other libraries, it is not uncommon today to click on a distance learning library services link on a major academic library's Web page and find a list of libraries open to the public in the areas where that institution offers courses. The *Guidelines for Distance Learning Library Services* (ACRL 2000) states that it is the responsibility of the sponsoring institution to provide library services and materials to its students, so most libraries provide informal referrals only as an adjunct to their main services.

Many distance learning library services also contract with other organizations to provide materials to their students. Of the 169 respondents to the questionnaire for the *Off-Campus Library Services Directory*, 3rd ed., 73 referred their students to commercial document providers and 85 arranged library privileges at local libraries for distance learning students at their institutions (Casey and Cachero 1998). Contracting with other organizations may become more of a trend in the future as companies such as Jones e-Global Library are created to provide library services, for a fee, to institutions that are not able to set up appropriate distance learning library services of their own (Heilig 2001).

COLLECTION DEVELOPMENT FOR DISTANCE LEARNING IN THE "ELECTRONIC ERA"

Some of the earliest electronic materials to appear in distance learning library services were subscriptions to electronic databases for the librarians who provided support. Library services subscribed to collections of online databases, such as DIALOG and BRS, so that the librarians could perform mediated database searches for the students. In the 1980s, libraries began to subscribe to individual indexes on CD-ROMs. The yearly subscription rates for the indexes on CD-ROM were generally more cost-effective than the online connect charges for database collections.

In 1987, Cardinal Stritch College in Wisconsin subscribed to Infotrac and Business Collection, a set of full text articles, on CD-ROM. The li-

brarians began sending mediated searches to distance students from these databases rather than from the more costly DIALOG. In 1988, students surveyed were very satisfied with the search results. The librarians were able to do more extensive searching on the CD-ROMs because they did not have to worry about online charges. They also were able to fill a substantial number of requests for articles from the Business Collection rather than turning to ILL to fill them (Ruddy 1988).

At CMU, the OCLS librarians in each of the regional library offices had subscriptions to at least two bibliographic databases on CD-ROM and added new subscriptions as needed to cover new disciplines or geographic areas. They used the CD-ROM databases for mediated searches and only turned to the online services for the odd topic that was not found on the CD-ROMs. As in the case of Cardinal Stritch College, the OCLS librarians were able to do far more extensive searches when they did not have to worry about connect charges.

As well as providing mediated searches for distance learning students, some library services also placed CD-ROMs at remote sites. Park University purchased CD-ROMs to place in base libraries on installations where its courses were being taught. In FY 1992-1993, 36% of the Park University distance learning acquisitions budget was dedicated to this (Peterman and Schultis 1993). In a survey conducted in 1989 of distance learning librarians who had CD-ROMs in their libraries, 36% reported that they used the CD-ROMs for distance learning students. Of these, 73% used them from the main campus library while 27% had placed them at remote sites (Power 1992).

As more and more print materials, especially reference materials and indexes and abstracts, began to become available electronically, libraries devoted collection development money to them. Students in libraries found that the electronic indexes were easier to use than their print-based counterparts. Certainly a more complicated and sophisticated level of searching is possible in most electronic databases. Since distance learning students did not have easy access to library materials, the idea of making the electronic materials available to remote students was seemingly the answer to the perennial dilemma of providing students with timely and appropriate library materials.

In a paper presented at the 1998 International Conference on New Missions of Academic Libraries in the 21st Century, Uma Kanjilal sums up neatly the appeal of electronic or virtual libraries for the distance learner when she wrote, "The advantages of digital libraries from the point of view of distance learners are manifold. The basic advantages that one can see of such systems are that:

- They provide access to knowledge bases in a wide variety of media.
- They are accessible from the students' workplaces or homes, at their own convenient time, therefore cutting down the trip to different libraries.
- They help in avoiding the unnecessary duplication of material in different regional or study centers and making it a cost-effective mean (sic) of providing library services.
- They provide broader, faster and better delivery of sources and information.
- They can avoid loss of material in transit" (Kanjilal 1998, 3).

In order to make their electronic databases available to remote students, some libraries purchased systems that would make bibliographic databases available through their online public access catalogues (OPAC), which could be accessed remotely through a dial-up connection. In the mid 1990s, CMU launched its Infoshare system, which was part of the NOTIS OPAC. In addition to the libraries' catalogue, access to four databases, ERIC, IAC Expanded Academic Index, IAC Business Index, and PsychLIT, was made available via Infoshare. Remote students within the state of Michigan could dial into a statewide network for free to access the OPAC and databases. OCLS also paid for a free local access number that dialed into the Michigan system in the greater Washington, DC area, which had a significant concentration of CMU's distance learning student population in the early 1990s. Although access was available long-distance to CMU distance learning students in many other areas, it was not well used outside of Michigan and Washington, DC because of the cost and some complications with the dial-up process.

Difficulty in connecting to the libraries' online resources was a frustration a decade ago that slowed down accessibility on the part of distance learning students and active collection building of electronic resources on the part of distance learning librarians. In 1993, the University of St. Thomas in St. Paul, Minnesota embarked on a project to establish access for its distance learning students to the library's electronic system (Zietlow and Kragness 1993). One of the major obstacles to students' ability to set up an account to access the online library resources was that each student needed to apply at the Computing Center on campus during normal business hours. The extension librarian arranged for the distance learning students to apply through the remote site libraries and the librarians took on the responsibility of verifying that the students were eligible for accounts, a function normally done by

the Computing Center. Despite the efforts of the librarians, only a small number of distance learning students had set up accounts at the time of the report. Those who did have accounts were still responsible for any long distance charges they incurred dialing into the system.

In the mid 1990s, the Internet emerged as the means to provide electronic resources to remote students in an easy way. Bibliographic databases, reference tools, periodicals and books became available on the World Wide Web. In some cases, the information on the World Wide Web was available free of charge to anyone. Most libraries started to construct Web pages that linked to freely available reference tools, books, journals, and other Web sites for their students. Subscription databases were also available and could generally be viewed by any student at a workstation in the library.

However, library site licenses for subscription materials generally restrict their use to members of an institution's community, such as students, faculty and staff. In general, the vendors set up access to any users on computers with an IP address registered with the vendor as valid for that institution. The IP addresses used are normally those of the computers in the library. Most libraries have set up systems to authenticate their remote users to enable them to access restricted databases. A common way to do this at the turn of the century has been to set up a proxy server that authenticates valid users and "fools" the vendor's computer into thinking that the user is at a computer with an IP address in the valid range. The ability to provide access to a substantial body of library material through the World Wide Web has revolutionized the collection development practices of distance learning library services.

In 1995, the CMU Libraries formed a cross departmental committee, the Automated Information Sources Access Committee (AISAC), to recommend a vendor for subscription databases that would be made available through the Libraries' Web site, which was under construction at the time. AISAC members solicited suggestions from library staff and faculty and arranged for vendors to demonstrate products at public meetings in the library. Select members of AISAC were charged with gathering additional information on particular vendors. After all of the information had been presented, AISAC was charged with delivering a recommendation of the best subscription service for CMU to the Dean of Libraries. This was a significant recommendation because of the amount of acquisitions dollars that would be pledged to one electronic system. At the final AISAC meeting where the decision was made about which vendor to recommend, the majority of committee members argued in favor of one product that had a sophisticated search

engine and offered the subject matter in its databases that was the most important to CMU. However, the OCLS committee member argued in favor of recommending OCLC's new FirstSearch product, which at the time was the only one that was set up for easy accessibility by remote users. She pleaded her case to the committee that access outside the library was far more important to the distance learning population than to anyone else at the time, and it would be unwise to choose a vendor which would not be able to accommodate distance learning students. The committee agreed to recommend FirstSearch and the Dean followed through on this recommendation.

This illustrates an important change in the collection development practices in academic libraries in the last decade. Because of the enormous cost of major online resource subscriptions, the decisions in many libraries to acquire them have been made by cross-departmental committees. The needs of the distance learning users have been considered in a much more prominent way than they had in the past. Indeed, Ann Pettingill (1998) describes the process of selection decision-making at Old Dominion University by the electronic resources committee there as one in which the needs of the distance education population drove the process.

CMU regularly adds subscriptions to electronic resources to its collections. As the Head of Collection Development receives licenses for these to review, she examines them to be sure that they allow access to remote users. If they do not, CMU asks for a new license that does and will not subscribe to publications that will not change a license to allow access for remote users.

Another significant change brought on by the World Wide Web and the ability to set up remote authentication systems that can validate different groups of users into different subscription databases is that distance learning library services can now subscribe to resources that only the distance learning populations need and can set up their systems to validate only those users. This has enabled distance learning library services to have more independence in collection building.

Another area in which distance learning library services have used electronic methods to build their collections has been through the method of tracking requests. It has long been common in distance learning library services to perform mediated searches and send library materials directly to the students. Requests for reference support and document delivery traditionally have been captured in databases so that a very clear picture of the students' needs has emerged.

At CMU, the OCLS librarians historically practiced traditional collection development methods by reading reviews of new publications, participating in narrowly defined approval plans, and accepting requests from faculty members to a small degree. They also compiled bibliographies of books in the CMU collections that corresponded to classes being taught off-campus and so were able to recognize gaps in the book collections in particular areas and select new materials in those areas. However, a substantial amount of the OCLS acquisitions budget has traditionally been spent to maintain subscriptions to periodicals heavily used by distance learning students. Since all of the document delivery requests are captured in a database, yearly lists of requests of items not owned and requests that are filled are generated. Every year at subscription renewal time, the Director of OCLS, who is the libraries' subject bibliographer for distance learning collections, makes decisions about dropping expensive titles that are no longer requested heavily and about adding new titles that have had significant requests over a period of three to five years. The OCLS librarians also track reference requests and as patterns emerge for assignments that require particular sources of information, they attempt to locate electronic resources that will answer the students' needs. CMU is not unique in this approach to collection development. When San Jose State University in California established its Monterey County Campus, it set up a branch library with some collections that duplicated those at the main library. In the first year of operation, the staff studied student requests and ILL patterns to determine gaps in the branch campus library collection. They used this data to assist them in building the branch collection (Silveria and Leonard 1996).

This means of determining new materials to select is being advocated in libraries in general (Murphy and Rupp-Serrano 1999). Newer interlibrary loan software makes it easier to collect and analyze requests for items not owned in the library so that heavily requested items can be added to the collections. One author describes collection development based on patron demand as the "just in time solution" (Holleman 1998). In this case, traditional library services are beginning to adopt some of the collection development practices of their distance learning counterparts.

Another advance in electronic access that has impacted the collection development practices of the OCLS librarians is an increased dependence on ILL to supply materials not owned in the CMU collections. Over 90% of ILL article requests are received in two weeks or less because so many are now sent electronically. Since the off-campus

courses at CMU are taught in compressed formats varying from five to eight weeks in length, traditional ILL turnaround times were not quick enough for OCLS to turn to ILL very often to supplement materials not held at the CMU Libraries. Beginning in November 1999, if a student has a minimum time of two weeks to wait for a document to be supplied and the material is not held at CMU, OCLS automatically turns the request over to ILL. This has resulted in an increase of 14% to the document delivery fill rate from November 1999 to June 2001. This process allows OCLS to shift acquisitions commitments from individual subscriptions to new electronic resources with wider full text availability.

With the advent and growth of easily accessible virtual libraries for all patrons, collection development practices among distance learning and traditional librarians are becoming more similar. However, differences in some collection philosophies between the two groups are still evident. Pamela Grudzien, Head of Collection Development at CMU, in an interview on February 6, 2002, spoke at length on some significant differences she has noted in the selection behaviors of the libraries' subject bibliographers and the OCLS librarians who funnel all requests for electronic purchases through her. Grudzien stated that a significant difference between the two groups of librarians is in how they respond in their discussions about new electronic products on the libraries' collection development electronic list. The OCLS librarians are much more like public librarians in that they look at a new electronic product in terms of how the distance learning clientele will be able to use it whereas the subject bibliographers think more in terms of how they will instruct students to use the product. OCLS librarians often advocate for a new online resource because it will answer the needs of assignments in particular courses while the subject bibliographers think more in terms of the database being useful for a discipline and being desired by faculty in that discipline or needed for accreditation of an academic program.

Grudzien also stated that OCLS librarians become frustrated quickly at the slow speed of the process. They chafe at the amount of time it takes to set up and run trials and the time it can take to make decisions to start a new subscription. The distance learning students, who are working adults whose average age is 37, have more time-sensitive demands and the librarians feel a strong urgency to answer their needs. Most of the faculty who teach in the distance learning programs at CMU are adjunct and rarely take the role in collection development that their full-time campus counterparts do. Part of the role of the subject bibliographers at CMU is to maintain contact with the departments for whom they make selections, so collection development in the libraries is deter-

mined to a degree by the teaching faculty. OCLS is often able to make much quicker decisions to add a new online resource or to discontinue one because the librarians do not rely on anyone outside the department for guidance in these decisions.

In 2001, the OCLS librarians made two significant decisions in regard to electronic databases. In one case, they decided to drop the full text subscription to a business database. Although the journal coverage was substantial and a large percentage of the periodicals were not owned by CMU, it was a very expensive product that was not getting high use among the students despite a continued effort of marketing on the part of the OCLS librarians. When the new subscription price revealed an increase of over \$10,000 per year for the full text version, the OCLS librarians decided to drop it with little discussion and no outside consultation.

At about the same time, the OCLS librarians decided to subscribe to the E*Subscribe full text database of ERIC documents. OCLS had been looking at this product from its inception to answer the growing problem of students who could not locate microfiche reader/printers in local libraries to read the ERIC documents that were reproduced on microfiche and sent to them. The problem was a particular issue for education students outside the U.S., who had to wait a substantial period of time to receive the microfiche through the mail and then could not find machines to print out the reports. The challenges for some of these students had become so daunting that they had begun a campaign of complaints against OCLS in general that were being sent to the administrators of the distance learning programs on a regular basis. As soon as this database was priced in a way that OCLS could afford it, a subscription was set up and education students were advised of its availability immediately. The education subject bibliographer had also been looking very closely at this product for the main library, but as of the current time, had not made a decision to subscribe because there was no apparent support for it from the education faculty at the university.

CONCLUSION

In the era of primarily print-based materials in libraries, collection development was not a large part of the work of distance learning librarians. Their main impetus was to get the material already in the institutions' collections out to remote students. The most prominent impact they had on libraries' collections was in adding multiple copies to mail to remote stu-

dents or to be housed in sites near where the remote classes were being taught. As library materials became available electronically, distance learning library services worked to find ways to make these available to the distance learning students. Early efforts were difficult because of the challenges of setting students up with accounts to dial into online systems or the costs of dialing in long distance for many students. The introduction of the World Wide Web as a widespread tool for the dissemination of information in our society has revolutionized the ability to bring library collections to the remote user in a place of his or her convenience 24 hours a day and seven days a week. It has also changed the role that distance learning librarians play in collection development in their libraries. As advocates for the distance learners, the distance learning librarians often shape the priorities in libraries of where to spend the money for electronic resources. In addition, with their own web sites, which are their own avenues of dissemination, distance learning library services can create virtual libraries tailored to their students without having to depend entirely on institutional purchases.

REFERENCES

- Angel, M. R., and C. Budnick. 1986. Collection development and acquisitions for service to off-campus students. *Library Acquisitions: Practice and Theory* 10: 13-24.
- Association of College and Research Libraries (ACRL). 2000. *Guidelines for distance learning library services*, [<http://www.ala.org/acrl/guides/distlrng.html>], accessed on 2/7/02.
- Campbell, J. O. 1988. Collection development for the library service to external students at the University of Queensland. *Library Acquisitions: Practice and Theory* 12: 269-279.
- Casey, A. M., and M. Cachero. 1998. *Off-campus library services director*. 3rd ed. Mount Pleasant: Central Michigan University.
- Cusripituck, S., and S. Puttapithakporn. 1988. Collection development and acquisitions for library services to students of Sukhothai Thammathirat Open University. *Library Acquisitions: Practice and Theory* 12: 303-311.
- Day, R. and J. Angus. 1986. Off-campus acquisitions at Deakin University Library. *Library Acquisitions: Practice and Theory* 10: 33-42.
- Garrett, M. (1988). Going to the head of the class: The development and implementation of an instructional materials support collection. In *The Off-Campus Library Services Conference Proceedings*, edited by B. Lessin. Mount Pleasant: Central Michigan University.
- Heilig, J. 2001. E-global library: The academic campus library meets the Internet. *Searcher* 9 (6): 34-43.
- Holleman, C. 1998. From Field of Dreams to the Godfather: Collection Development Today. *Against the Grain* 10 (2): 1.

- Johnson, J. S. 1987. Collection development for off-campus library services. *Library Acquisitions: Practice and Theory* 11: 75-84.
- Kanjilal, U. 1998. *Digital libraries for distance learners: Prospects for India*. Paper presented at the International Conference on New Missions of Academic Libraries in the 21st Century, [<http://www.lib.pku.edu.cn/98conf/proceedings.htm>], accessed February 7, 2002.
- Kanjilal, U., and S. M. Tripathi. 1995. Collection development: Planning for IGNOU library system. *Library Acquisitions: Practice and Theory* 19: 83-95.
- Kelly, G. 1987. The development of acquisitions and collection services for off-campus students in northeastern Ontario: An important library collection development issue or merely an issue of a more efficient materials handling and delivery system? *Library Acquisitions: Practice and Theory* 11: 47-66.
- McKnight, S. 1998. Library services to off-campus students—an Australian perspective. In *Libraries without walls 2: The delivery of library services to distant users* edited by P. Brophy, S. Fisher, and Z. Clarke, [<http://www.deakin.edu.au/library/lww6.html>], accessed February 7, 2002.
- Murphy, M., and K. Rupp-Serrano. 1999. Interlibrary loan and document delivery: Lessons to be learned. *Journal of Library Administration* 28: 15-24.
- Peterman, T. W., and G. A. Schultis. 1993. Providing library support for distance learning: Acquisitions issues. In *The Sixth Off-Campus Library Services Conference Proceedings*, edited by C. J. Jacob. Mount Pleasant: Central Michigan University.
- Pettingill, A. H. 1998. Off-campus library resources: Collection development for distance education and its impact on overall library collection goals. In *The Eighth Off-Campus Library Services Conference Proceedings*, edited by S. Thomas and M. Jones. Mount Pleasant: Central Michigan University.
- Power, C. J. 1992. The selection and funding of CD-ROMs for the extended-campus. *Collection Development* 16 (3): 1-12.
- Ruddy, M. 1988. Infotrac and the Business Collection: A dynamic duo for off-campus programs. In *The Off-Campus Library Services Conference Proceedings*, edited by B. Lessin. Mount Pleasant: Central Michigan University.
- Schmude, K. G., and R. B. Luxton. 1986. Acquisitions for distance education: An Australian experience. *Library Acquisitions: Practice and Theory* 10: 25-31.
- Silveria, J. B., and Leonard, B. G. 1996. The balancing act: Collection development in support of remote users in an extended campus setting. *Collection Management* 21 (3/4): 139-151.
- Whitehead, M. 1987. Collection development for distance education at the University of British Columbia Library. *Library Acquisitions: Practice and Theory* 11:67-74.
- Wijesinghe, M. N. 1988. Provision of library resources for Open University students in Sri Lanka. *Library Acquisitions: Practice and Theory* 12:297-302.
- Willemsse, J. 1986. An acquisitions policy to promote distance teaching at the University of South Africa. *Library Acquisitions: Practice and Theory* 10:43-53.
- Williams, E. W. 1986. Distant libraries for distance education in the South Pacific. *Library Acquisitions: Practice and Theory* 10:55-66.
- Zietlow, R., and J. Kragness. 1993. Implementing a virtual library for off-campus students. In *The Sixth Off-Campus Library Services Conference Proceedings*, edited by C. J. Jacob. Mount Pleasant: Central Michigan University.

Distance Learning and Virtual Libraries

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Abstract

The phenomenal growth of distance learning programs in higher education worldwide offers immense implications for the provision of networked library services to students learning at a distance. This entry defines the virtual library within its emergent online instructional context and references the several components of generally accepted good practice in the establishment of virtual libraries supportive of online distance delivered programs. Additionally some typical regulatory expectations for such libraries are noted. As educational globalization continues with the dramatic growth in technologically-based instructional delivery systems, globalization of library services also will expand to address students working in these new educational environments.

INTRODUCTION

The proliferation of distance learning opportunities has had considerable implications for the provision of library services to distance students. Major trends such as telecommuting and the changing profile of traditional college students have fueled the demand for distance education. More adults, especially, are working full-time, balancing family responsibilities, and seeking to return to study at the postsecondary level on a part-time basis. Distance learning has become an attractive alternative especially for working adults, military servicepersons, and rural residents. Distance learning without access to electronic information resources and services may be impossible. Concurrent with the emergence of the virtual university has been the rise of the virtual library. This entry defines the virtual library and situates it within the context of contemporary electronic learning.

DEFINITION OF THE VIRTUAL LIBRARY

In the broader historical sense, the term *virtual library* became trendy in the mid-1990s but never captured professional use in a formal sense to connote an operational definition as did the phrase *digital library*. Then, the terms digital library, electronic library, and virtual library often were used interchangeably. Critically, the term *digital library* arose and evolved within the broad library community beginning in the late 1980s. During that period, many physically based academic libraries initiated innovative long-term projects to facilitate access to their continually expanding hardcopy collections.^[1] These programs integrated emerging information technologies with traditional printed materials, thus making libraries among the first integrated users of

alternative media such as microforms, audiotapes and other sound recordings, and electronic files—all predecessors of today's online commercial database systems and aggregated digitalized collections. Today, by most measures, the term digital library when used in this broader sense has won the day in terms of common use; perhaps, in part, because of the belief on the part of many information professionals that the word *virtual* was so vague. *Virtual library*, however, is increasingly the term of popular choice when one refers to the aggregated digital learning resources and librarian-assisted services that support the curricula offered by totally online or *virtual universities*. Increasingly, librarians who may support distance learning as found in more traditional and residential universities will also employ the term virtual library when referring to the amalgamation of resources and services which they provide their students at a distance. While there are no limits on the size, content, or relative value of data afforded students by a virtual library, its definition is always shaped by the pedagogical needs and expectations of its parent learning community. Today, the term virtual library is nearly always associated with those library support services offered to students and faculty in the distance delivery and online learning environment.

THE VIRTUAL LIBRARY: CRITICAL ELEMENT IN TODAY'S DISTANCE LEARNING

The term distance learning as employed here follows the scope and definition as found in the Association of College and Research Libraries' *Guidelines for Distance Learning Library Services*.^[2] Distance learning refers to any program of instruction in which students and instructor are not simultaneously present in a single on-ground classroom on the campus of a college or university. It also applies even

when students and the instructor are present together in a classroom, if that classroom is located at a learning center or on a branch campus or at any other facility which is geographically removed from the main campus, and which exists expressly to bring higher education to students away from the main campus. The *Guidelines for Distance Learning Library Services* make clear that students engaged with distance learning communities are fundamentally entitled to library services and resources equivalent to those provided to students and faculty at traditional campuses. Increasingly, the availability of wireless access to the Internet has engendered expectations in nearly all students, whether campus-based or not, to rely on computer access to library resources and services.

Prominent and rapidly growing virtual universities today include such market leaders as Walden University, Capella University, Park University, Jones International University, Northcentral University, Kaplan Higher Education, DeVry University, The American Public University System, and University of Phoenix Online. Some virtual universities are privately held, whereas others are publicly traded on the market. Most are for-profit and highly entrepreneurial, continually carving out new markets to meet growing demand for workplace-related credentialing. While offering some programs at the associates and bachelors degree levels, these institutions are much more characterized by and known for their often extensive graduate programs at the masters and doctoral levels. Others are increasingly well regarded for their online workplace certification and licensure programs. All of the leading virtual universities today have gained the critical recognition within the broader higher learning community through the attainment of regional accreditation. Online graduate education increasingly has become mainstream and is subject to less of the criticism earlier voiced by more traditional universities.

Students and faculty associated with these relatively new higher learning providers expect that most learning resources they require will be provided online and in full-text format. Prior to the development of the fully articulated virtual library, most students studying in remote locations simply accepted the reality that they would likely need to travel to a nearby academic or public library to fulfill their course-related information needs.^[3] Today, most such students and the faculty who teach them believe that graduate online course assignments, even those requiring more in-depth research, can be met more efficiently via full-text databases and document delivery services offered by virtual universities or traditional universities having major distance learning programs. Most librarians have resolved themselves to the new realities of online learning, an environment in which there clearly appears to be a fundamental shift in the minds of many graduate students (particularly professional working adults) relative to the importance of the library in their academic and workplace credentialing.^[4] Indeed, it is critical to note that most librarians now have eagerly

embraced the importance of a well-conceived and robust virtual library to quality distance learning, but at the same time are mindful of the changing conception students hold relative to what a library should be and how it should serve them in the online learning environment.

Good practice for the establishment of a virtual library today always assumes that virtually extended information services will

- Provide content and impose a structure to present that content to patrons.
- Offer search capabilities of databases and catalogs.
- Grant access to full-text documents.
- Provide tutorials for database use and information literacy.
- Provide links to course-specific Web sites reviewed and annotated by subject librarians.
- Link to general and content-specific reference tools.
- Encourage interaction through e-reference options and discussion forums.
- Provide interlibrary loan and document delivery.
- Offer 24-h accessibility and reference service 7 days a week.
- Survey user needs and seek input from all constituencies.^[5]

Information competency means an individual can recognize when information is needed and has the ability to locate, evaluate, and use effectively the needed information. People who use computers in their work and educational endeavors want to work independently. They feel that their computer skills are excellent and if the process of doing research does not go smoothly, the fault lies with the software, database, or search tool. Preparing these confident people with the search strategies needed for doing academic research means building on current skills and encouraging self-directed learning.

Virtual reference services have emerged as essential and thus must be considered best practice in the virtual library. An established and growing part of library service, future trends will likely include greater integration with other university online services such as portals, courseware, databases, and document delivery. Student researchers may not even be aware of their lack of research skills.^[6] Students, particularly NET Generation learners, believe that their online skills are sufficient. They know how to collect news, order online, and use their favorite search engine. They ask, "What more do I need to know?" Unaware of the academic world of scholarly journals, research methods, educational repositories, deep-Web resources, or electronic databases, the uninitiated need assistance in learning about peer-reviewed articles, literature reviews, and Boolean logic.

Weaning Internet users, who often believe that everything is on the World Wide Web, takes patience. Leading a student through a search on a major database, and

selecting scholarly articles and full text, often opens his/her eyes to the possibilities. In a study by Lombardo and Miree,^[7] [student] “perceptions of the Web as a convenient, easy-to-use, comprehensive research tool were not so ingrained and inflexible as to blind them to the benefits of using other resource types to complete their research projects” (p. 19).

The challenge for instructors who wish to promote information literacy in distance education courses is to develop a comparable range of experiences in learning about information resources as are offered on the traditional residential campus. Yet, the interactivity of tutorials and database guides can provide access to help 24/7. Tutorials including interactivity provide practice for searching specific databases. By adding voice, auditory learners comprehend more easily. Students can replay the tutorials as often as needed. The student is freed from embarrassing requests for help with anonymous access that promotes the self-directed learning.

Virtual reference services have move beyond the desktop chat environment and include mobile devices and videoconferencing. Virtual reference services have become just another facet of the services that reference librarians provide within the virtual library environment.^[8] The library blog provides a learning platform by discussing search strategies, access issues, database updates, writing tips, and resources. An interactive blog allows comments and is monitored by staff members. Input from comments leads to improvements in the virtual library and often indicates the need for additional resources. Blogs “push” library content to students who access self-selected RSS feeds with an aggregator that automatically updates. Blogs can act as an evaluation tool for libraries to assess whether services and resources are meeting needs.

Most virtual libraries depend on e-mail or Web site generated forms to complete reference transactions. “Digital reference interactions may be less encumbered by biases and stereotypes based on speech patterns (accents) and physical appearances.”^[10] In a global environment, whereby a university provides educational opportunities to many cultures, reference opportunities through e-mail may lower anxiety levels.

Among those users who may be anxious about face-to-face reference, there is a subgroup comprised of users with physical or developmental challenges as well as those for which English is a second language. Having the time to formulate questions or even possessing a better command of written, as opposed to spoken, English, these users find it advantageous to communicate via the written word using digital reference. For those users with physical and developmental challenges, their challenges are not apparent, thus they are assured impartial service through digital reference.^[9]

Scripted answers to frequently asked questions (FAQs), stand-alone FAQs (searchable database of previously

answered questions available on a library Web site), provide quick response. Carter and Janes suggest that librarians should consider not only what they will need to answer questions, but also what sort of automatic data analysis they may wish to do in the future. “Armed with such knowledge, we can now dive into other avenues of exploration such as content analysis of the questions, a patron satisfaction survey, librarian attitudes, and so on—with a much better background than can be accomplished in evaluating ‘traditional’ reference services.”^[10]

Information professionals who evolve leading edge virtual libraries today demonstrate a willingness to provide their institutions’ students subject-specific licensed databases through relatively sophisticated Web interfaces. Librarians engaged in the best asynchronous learning environments actively invite students to mine the range of library resources made available through the virtual library, bringing these resources to online conversation and discussion groups. With working adults, especially, one can expect a high level of appropriate natural peer-critiquing of the relative value of the quality of learning resources provided.^[11] As they have evolved, the best virtual libraries demonstrate evidence of strong librarian–faculty member interaction that results in the integration of library resources with course objectives. Integration may mean, at a minimum, that instructional designers provide for the creation of templates to insert recommended information sources into course modules or provide for hot links to Web sites. While few virtual universities are affiliated with regional or state library consortia (such as, for example, OhioLINK), they have tended to better position themselves to gain more control over the licensing costs of electronic products.

A TYPICAL VIRTUAL LIBRARY

Commonly, only one model of the virtual library is found in practice, although many variants of this model exist peculiar to niche higher learning providers. The virtual library found in the completely online or virtual university often may be referred to as something other than *library*; for example, it may be referred to as an Online Research Center or an Electronic Learning Resource Center or some other descriptive phrase that a virtual university’s leadership believes might be more inviting than the traditional term *library*. The institutional homepage most always has a hot link to the main Web page of the virtual library and this link may, initially, employ the more recognizable terms *library* or *online library*. Learner or faculty password access is required beyond the virtual library homepage because of database license restrictions. Virtual universities such as Northcentral, Capella, Jones International, and the American Public University System will have physical library offices, but these are typically simply offices and workplaces for one or two librarians

and a few support staff plus space for commonly used reference works. Often a small, carefully selected physical book collection is available at the corporate location of the virtual university with titles lent to students when requested. Sometimes these book collections comprise an archival collection of textbook and other supplementary books that accompany courses offered via the Internet while other collections may be more expansive and comprise a carefully selected book collection to support very focused subject areas taught by the virtual university. Commonly, these physical collections are small, but carefully cultivated in support of institutional curricula. With documentary VHS films becoming available on DVD, some libraries are acquiring collections of curriculum-related titles. Virtual library staff are available by phone, fax, e-mail, and videoconferencing or directly from the institutional Web site to respond to student and faculty requests. Virtual library staff members coordinate the use of research facilities for each student, assisting them to find libraries and locate books, journal articles, and Web sites. Staff members assist in selecting search engines and identifying keywords. Such institutions typically have contracts with regional library bibliographic networks, e.g., Amigos, Solinet, Ohionet, etc., through which they obtain interlibrary loans and photocopies of articles. The most dramatic impact on the range of serial and electronic journal literature available to students engaged with online learning contexts has come from universal acceptance by virtual university librarians of full-text electronic journal databases such as those offered by EBSCO, Lexis-Nexis, Proquest, H. W. Wilson, Gale, and through such initiatives as Project MUSE. Like their traditional counterparts, most virtual universities are adding e-books to their canon of information products available through their virtual libraries. In addition, many institutions provide a student ID card and subsidize library card access to local college or private libraries. Information literacy tutorials are increasingly provided as links from the virtual library's Web site. Commonly, a stated institutional learning goal is to encourage and assist students learning at a distance to gain information skills and to effectively use all library resources.

Increasingly, regional and professional accreditation bodies, as well as governmental oversight agencies, have been instrumental in raising expectations, setting standards, and offering guidelines for virtual libraries. In short, today, online universities must provide access to both curriculum-appropriate and high-quality learning resources and must demonstrate that these resources are closely linked to measurable student learning outcomes. All of the six regional accreditation bodies in the United States as well as many of the disciplinary and professional accreditation agencies provide clear expectations and standards for practice in virtual library support. Typical of such expectations are coming from The Higher Learning Commission of the North Central Association which, in part, read:

- Good practice holds that a basic collection of reserve and course-related readings and texts are conveniently available to all of an institution's students (whether on a physical campus or learning from a remote location).
- Trained professional librarians who help the institution acquire, store, and retrieve appropriate learning resources; to assist students in using these resources; and to help students locate and obtain needed resources that the institution does not itself possess.
- Institutions should assure that their students learning at a distance and in the virtual environment have access to adequate learning resources. Access can be provided by placing resources on an institution's Web site (the virtual library) in addition to helping students identify selected and dependable Web addresses where other useful course-relevant resources may be found.
- Institutions should make formal arrangements with other learning resource centers they wish their students to use.^[12]

Likely, students learning in online academic programs will continue to use physical libraries in their communities, there is increasing evidence that remotely accessible electronic resources as provided by the virtual library are the preferred medium for both students and faculty. Students will likely continue to use physical libraries in their communities, but increasingly, research shows that students and faculty prefer remotely accessible electronic resources. Learners today are approaching their online educational experiences from the perspective that the library is found in a more nebulous and distributed space. In the end, today the virtual library has gained broad-based acceptance among students alongside of other essential student support services critical for learner success.

CONCLUSION

The rapid expansion in recent years of virtual academic programs and providers is a direct result of the increased demand for postsecondary education and workplace credentializing as well as the broadened access afforded by the new technologies. Diverse actors and innovative partnerships characterize the competitive online higher education environment today resulting in expanded choice. Influenced by the quality movement, today's student studying in the online environment demands a high level of accountability and services including virtual access to library services.^[13] Importantly, a new genre of higher education institution has emerged over the last decade: the totally online or highly online college and university. Many of these institutions operate in transnational environments. Such academic programs and the virtual libraries that have been created to support these programs vary widely in structure and sophistication.

While some critics continue to argue that many Web-based academic programs would appear, at first glance, to mandate little substantial research and supplemental reading beyond their often highly modularized and tightly packaged designs, progress by virtual institutional leaders has been made to correct such earlier-held assumptions. Critics aside, today library resources made available to students within the virtual learning framework are nearly always carefully selected, continuously assessed with respect to utility and value, and increasingly integrated into online courseware. Librarians evolving virtual library support are increasingly engaged as equal partners with faculty and instructional designers. While there remain many questions surrounding the commercialization of online education, there is clear evidence of an honest and enthusiastic desire on the part of information professionals working in traditional libraries to accommodate and partner with this rapidly growing learning mode. Virtual libraries will continue to develop and mature. As educational globalization continues in the economic sector, globalization of library services will continue to expand to address student needs and underscore the merits and advantages of the new technological tools in delivering distance services.

Virtual libraries will continue to develop and grow as both traditional and nontraditional institutions of higher learning seize opportunities to serve new clientele and to provide the rich learning resources that both good practice and accreditation agencies mandate. The advantages of the new technological tools in delivering distance service are increasingly more obvious. Academic librarians are positioned to become more active members of the educational team within virtual universities. They assist faculty to effectively integrate library assignments into online courses and are able to offer their distance learners far more options and avenues through which they support active learning. These actions provide convenience, eliminate barriers of distance and isolation, save the learner time, streamline procedures and document delivery, and make communication with the learner easier.^[14] The establishment and enhancement of virtual libraries will continue to be critical to the success of distance learning; however, the emphasis in the near future will be focused on more effective integration of virtual library resources and services with online programs as well as a bottom-line concern that the virtual library directly link e-learning objectives to measurable outcomes, metrics, and student learning outcomes improvements. Finally, with a growing number of more traditional universities rapidly expanding into distance education, the future of the virtual library for those institutions will continue to see a balanced and responsive combination of a physical print-based library that has established consortium agreements and/or student use privileges at universities in distance learning sites; a Web-based virtual library that aggregates a wealth of carefully chosen, licensed, full-text and citation resources; a responsive document delivery service provided directly

to the learner; and a librarian who will provide the human interface with students.^[15]

REFERENCES

1. Faulhaber, C.B. Distance learning and digital libraries: Two sides of a single coin. *J. Am. Soc. Inform. Sci.* **1996**, 47 (11), 854–856.
2. *ACRL Guidelines for Distance Learning Library Services*; Association of College and Research Libraries of the American Library Association: Chicago, IL, 2000; 3. <http://www/ala.org/acrl/guides/distlrng.html> (accessed January 2004).
3. Barnard, J. Web accessible library resources for emerging virtual universities. *J. Libr. Serv. Distant Educ.* **1999**, 2 (2). <http://www.westga.edu/~library/jlsde/vol2/JBarnard.html>.
4. Garten, E.D. Online and for-profit graduate education: A challenge of understanding and accommodation for academic librarianship. *Tech. Serv. Q.* **2001**, 19 (3), 1–20.
5. Meyer, D.K. Learner-centered library service at a distance. In *Advances in Library Administration and Organization*; Garten, E.D., Williams, D.E., Eds.; JAI Press: Oxford, 2003; Vol. 20, 67–81.
6. Neely, T.Y. *Sociological and Psychological Aspects of Information Literacy in Higher Education*; Scarecrow Press: Lanham, MD, 2002.
7. Lombardo, S.V.; Miree, C.E. Caught in the Web: The impact of library instruction on business students' perceptions and use of print and online resources. *College Res. Libr.* **2003**, 64 (1), 6–19.
8. Kimmel, S.; Heise, J., Eds. *Virtual Reference Services: Issues and Trends*; Haworth: New York, 2003.
9. Ellis, L.A. Approaches to teaching through digital reference. *Ref. Serv. Rev.* **2004**, 32 (2), 103–120.
10. Carter, D.S.; James, J. Unobstrusive data analysis of digital reference questions and service at the Internet Public Library: An exploratory study. *Libr. Trends* **2000**, Fall, 49 (2), 251–265.
11. Garten, E.D.; Hedegaard, T. The rise of computer conferencing courses and online education: challenges for accreditation and assessment. In *A Collection of Papers on Self-Study and Institutional Improvement*; North Central Association of Colleges and Schools: Chicago, IL, 1993; 48–49.
12. Commission, Higher Learning and Association, North Central. *Handbook of Accreditation*, 3rd Ed.; North Central Association: Chicago, IL, 1998.
13. Lane-Maher, M.; Ashar, H. Students.edu: Shifting to a learner-centered model affects all of higher education starting with online programs. *EDUCAUSE* **2001**, 1 (2), 26–27.
14. Black, N.E. Emerging technologies: Tools for distance education and library services. In *Ninth Off-Campus Library Services Conference Proceedings*; Thomas, P.S., Ed.; Central Michigan University: Mt. Pleasant, MI, 2000; 29–35.
15. Garten, E.D. Providing intellectual resources through technology to transnational virtual universities: Good practice and lessons learned from world-class examples. *Higher Educ. Eur.* **2000**, 25 (3), 369.

Embedding Library Reference Services in Online Courses

Jamie P. Kearley
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SUMMARY. The University of Wyoming has a long tradition of providing library services to distance education students. As technology changed and enhanced the delivery mode of distance education courses, the library altered the ways in which it offered services to distance learners. The institution was an early adopter of Web courses, so offering library support in this new environment was a natural expansion of our services. This expansion supports the goals of the ACRL Guidelines for Distance Learning Library Services and the goals of the University. This article will describe the integration of library reference services into online courses. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2004 by The Haworth Press, Inc. All rights reserved.]*

KEYWORDS. Distance education, online courses, reference services, bibliographic instruction, Internet, college and university libraries

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[Haworth co-indexing entry note]: "Embedding Library Reference Services in Online Courses." Kearley, Jamie P., and Lori Phillips. Co-published simultaneously in *Internet Reference Services Quarterly* (The Haworth Information Press, an imprint of The Haworth Press, Inc.) Vol. 9, No. 1/2, 2004, pp. 65-76; and: *Improving Internet Reference Services to Distance Learners* (ed: William Miller, and Rita M. Pellen) The Haworth Information Press, an imprint of The Haworth Press, Inc., 2004, pp. 65-76. Single or multiple copies of this article are available for a fee from The Haworth Document Delivery Service [1-800-HAWORTH, 9:00 a.m. - 5:00 p.m. (EST). E-mail address: docdelivery@haworthpress.com].

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Digital Object Identifier: 10.1300/J136v09n01_06

INTRODUCTION

The popularity of distance education in recent years has resulted in a dramatic increase in the number of courses and degrees offered by universities and colleges and the number of students taking these courses (Hansen, 2001; U.S. Department of Education, 2002). Traditionally, these courses were taught in a variety of ways, such as correspondence, instructor at a remote site, audio conference, or through video (live interactive or prerecorded).

The advent of the Web lent itself well to a new method for course delivery: online courses. Prior to the emergence of Web courses, constraints of time, distance, and technology restricted the expansion of distance education. In contrast, online courses offer the opportunity for asynchronous instruction and learning, thereby globally expanding the boundaries of the university. Online courses have become quite popular because students appreciate the convenience that enables them to take a course at any time from any location (Tabs, 2003). This national trend of offering online courses and degrees is prospering at the University of Wyoming.

Librarians at the University of Wyoming realize that demand for online instruction is driven by the personal circumstances and preferences of our students. We believe that library services are integral to the academic success of these students. Furthermore, we believe providing instruction and reference services to all students regardless of location will assist them in developing information literacy skills that will enrich them for a lifetime. Consequently, we are continually extending and adopting new services to support academic endeavors. This article discusses recent efforts to serve the needs of online students.

HISTORY OF DISTANCE EDUCATION AT UNIVERSITY OF WYOMING

The University of Wyoming has a longstanding commitment to distance education, having offered extension courses to the citizens of Wyoming since 1891 (Johnson, 1987). It is the only four-year university in a state of 97,914 square miles and a population under 500,000. The University's land grant mission has combined with factors such as the geographical dispersion of students, sparse population, and a harsh climate to advance the University's commitment to distance education. The first formal extension courses offered by the University were short courses

in agriculture conducted in various communities around the state and it was not long before demand for courses in other subject areas arose. Teacher training was a second prominent focus of early outreach education. Efforts to deliver education to Wyoming citizens coalesced in 1983, when the University established the Office of Teleconferencing and began using technology to deliver courses and degree programs in a number of disciplines. The name has changed several times since then and today it is known as the Outreach School; classes are referred to as outreach courses.

The University of Wyoming was an early adopter of Web courses with the introduction of Online UW in the spring of 1999. In just five years, course offerings have expanded from 10 courses with enrollment of 153, to 65 courses with enrollment of 1,466. Currently three bachelor's degrees, three master's degrees and two certificates can be completed through Online UW courses. The most impressive enrollment increases at the University of Wyoming have occurred in the online classes offered through the Outreach School, our distance education unit. While UW's on-campus enrollments have long hovered around 10,000 students, outreach headcounts now contribute almost 3,000 additional students, a growing number of whom are enrolling in online courses. This trend is obvious in the percentage of total enrollments in online courses. In 1999, 10% of UW distance enrollment was in online courses. By fall 2003 the percentage had risen to 41%.

Although the distance education program originally functioned apart from campus programs, in recent years the two have merged. The Outreach School does not have a separate faculty to deliver degree programs. Rather, it depends upon university faculty to deliver instruction. Courses are cross-listed and faculty teaching distance courses are all affiliated with a campus department. This close integration with academic units is a real strength of the outreach effort. Our philosophy is best summarized by University President Philip Dubois' statement, "we are one university with one student body."

LIBRARY OUTREACH SERVICES FOR DISTANCE LEARNERS

The Libraries support the University's outreach mission by providing library services to distance education students. This service practice is founded on two assumptions that have guided University of Wyoming library outreach services for twenty years.

- Library priorities should be founded on institutional priorities, and
- Distance learners and faculty are entitled to the same resources and services as the campus population.

This practice reflects the major premise of the ACRL Guidelines for Distance Learning, 2003 that “Access to adequate library services and resources is essential for the attainment of superior academic skills in post-secondary education, regardless of where students, faculty, and programs are located. Members of the distance learning community are entitled to library services and resources equivalent to those provided for students and faculty in traditional campus settings.”

Current library services for distance students at the University of Wyoming include:

- Reference assistance via a nationwide toll-free telephone number, e-mail, and online chat,
- Document delivery and interlibrary loan for supplying material not owned by our library,
- Web access to library catalogs, databases, electronic books, journals, and reserves, and
- A librarian to oversee library outreach services.

The cost of services and resources is absorbed by the Libraries’ budget and is offered free of charge to distance learners.

The role of the outreach librarian has changed dramatically over the past 20 years. This specialized reference position has always been responsible for managing library services to distance learners and as such has been the primary contact and provider of reference service, mediated searching, document delivery, and instruction. Library outreach services and off-campus students were viewed as “different” at a time when access to resources and librarians was severely restricted by proximity to the campus library.

Advances in technology have directly affected the ways in which distance clientele are served. Technology has eliminated the need for mediated searches and increased the means, speed, and efficiency of document delivery. However, responsibilities for technical advice and system interface have been added to the job (Matson, 1997; Gandhi, 2004). The Web accessible digital library of today requires knowledge of proxy servers, copyright, and monitoring of library Web pages for content, organization, and navigation. Furthermore, the outreach librar-

ian has been proactive in initiatives that resulted in the addition of an online tutorial, e-reserves, and online chat reference service.

The most recent change occurred in the summer of 2003 when we began routing e-mail and toll-free telephone requests to the central reference desk rather than directly to the outreach librarian. All reference librarians began serving distance learners. This decision was made for several reasons. First, the distinctions had blurred between on-campus and off-campus users of the library because anyone using the library from outside the campus network had to do so via the proxy server. Increasingly, our campus students and faculty were using the library remotely so all reference librarians needed to be proficient in serving everyone. Second, was the desire to expand the hours of reference service to evenings and weekends for remote users without adding additional staff. Finally, all reference librarians were assigned times for handling online chat and consequently had to be able to answer questions from remote users.

COOPERATIVE RELATIONSHIPS WITH THE OUTREACH SCHOOL

The extensive array of library services for UW distance learners is feasible because of a close working relationship between the Outreach School and the Libraries. Both units have a strong commitment to the principle that geography ought not make a difference for student learning. Consequently, there is a high degree of synergism in the relationship between the two units. Library services for distance students are integral to the mission and the academic plans of both units. The academic plan of Outreach Credit Programs states "the Division will initiate cooperative efforts to design and implement the enhancement of student-centered support services and efficient administrative systems. These initiatives will involve the academic departments, the Graduate School, [and] the Libraries" (2004). The Libraries academic plan mirrors this sentiment when it states "the Libraries have a strong commitment to providing remote users with equitable access to library services and resources regardless of location. UW students, faculty, and staff can access our online databases, books, and journals from anywhere using a proxy server to authenticate their UW affiliation" (2004).

Ongoing dialogue between librarians; Outreach School administrators, instructional designers, academic advisers; University faculty, information technology staff; and Wyoming community college librarians is

essential. The Libraries actively seek ways to engage each of these constituent groups in conversations, both formal and informal, about matters of mutual concern. These relationships have been developed over time and are a testament to the careful planning and vision of Library and Outreach School administrators during the 1980s. Librarians attempt to meet with Outreach School administration and academic designers once a semester to compare notes and make sure our services are visible and appropriate to their needs. Our Outreach librarian is proactive in contacting university faculty who are teaching outreach courses to make them aware of the scope of library services available to their students.

Communication with campus information technology staff is frequent and tends to deal with patron authentication, security, and firewall issues. We have a formal agreement with Casper College, a Wyoming community college, to provide library services to a large cohort group of UW outreach students taking classes and pursuing degrees under the auspices of the UW/CC Center. There are a number of other agreements between UW and Wyoming community colleges that require some level of attention in terms of library support. Since community college libraries host University of Wyoming outreach students in their libraries with regularity, they benefit from having current information about our resources and services, and we need current information about their needs.

INTEGRATION OF LIBRARY SERVICES INTO ONLINE COURSES

Offering library support in the online environment was a natural expansion of our services. Since the UW Libraries already had a robust structure of policies and services relating to distance students and their library needs, moving into a new arena was a logical progression. Prior to the introduction of Online UW in the spring of 1999, the Libraries sat in on initial discussions between the Outreach School and its partner eCollege.com to determine how to serve the library needs of the online population. Embedding the Library and its services into online courses has included two components. The first component involved making library resources accessible within the online courses. The second component involved integrating information literacy/bibliographic instruction into online courses.

Although embedding library reference services and resources into online courses was easily accomplished with links to the library from the Online UW course platform, links alone were insufficient. As is the case in most libraries, access to electronic resources is restricted and accomplished through a proxy server that authenticates and authorizes use of licensed resources. While proxy servers facilitate access to licensed resources, they are not transparent to students who must use them. Instructions for creating a username and password and using the proxy server were needed. In addition, questions about requesting materials, document delivery, assistance from a librarian, and cost of service had to be addressed.

In the past five years, we have refined the links and information based on student problems and confusion. Currently, the basic links are:

- Getting started: doing research from a distance
- UW Libraries–Search for books, articles, subject resources, and more
- Ask Us–Chat online, e-mail, or speak with a librarian
- Interlibrary loan form–Request materials be sent free of charge
- Reserves
- Style guides and writing resources
- *TIP–Tutorial for Info Power*

Each link opens a new window so students can move easily between their course and the library. “Getting started: doing research from a distance” describes as succinctly as possible obtaining a username and password, finding books, finding articles, accessing e-reserves, requesting materials, and getting help from a librarian.

Instruction has also evolved over time and been more challenging and time consuming than making resources accessible. Initially it was done one on one via e-mail exchanges or through telephone conversations. These options continue to be available but two other instructional methods that are more proactive are also used. First, the distance-learning librarian, in conjunction with reference librarians, was instrumental in developing *TIP*, an interactive Web tutorial that has been in use since fall 2001. *TIP* was designed as an introduction to information literacy skills and is currently used primarily by first-year undergraduates, although it is also used in some upper division and graduate courses. In approximately 45 minutes, *TIP* provides a foundation for thinking strategically about information and research. (For a thorough discussion of

TIP see Kearley, 2002 and Phillips, 2003.) Five modules teach students how to:

- Investigate a topic
- Search for information
- Locate information in the library
- Evaluate the quality of information
- Utilize the information in papers, speeches, or projects

While *TIP* provides a basis for our campus-wide information literacy initiative, it is not completed in isolation. Information literacy is a core component of our first-year University Studies Program. Courses for this program are rooted in an academic discipline. Faculty members incorporate information literacy into course objectives, teaching methods, assignments, and assessment criteria. Completing *TIP* and passing the quiz is only a piece of the campus initiative. Typically a face-to-face class with a subject librarian complements *TIP*. The librarian focuses on bridging the gap between the theoretical and the reality of the electronic and physical library environment. Teaching information literacy calls for a partnership between librarians and teaching faculty. At the University of Wyoming, the endorsement of information literacy as a skill needed for graduation has allowed librarians to partner with faculty in a meaningful way to realize this goal. The online Nursing program is a case in point.

CASE STUDY: NURSING INSTRUCTIONAL SUPPORT

Nursing is a discipline that has recognized the need for information literacy. According to Shorten (2001, 86):

In the new millennium, healthcare environments will increasingly demand nurses to be flexible, innovative and “information literate” professionals, able to solve complex patient problems by utilizing the best available evidence.

A demand for safe and effective healthcare requires the necessary skills in order to incorporate research findings into practice.

The University of Wyoming Fay W. Whitney School of Nursing has whole-heartedly adopted this position and integrated it into its *mission and philosophy*.

The faculty believe that professional nurses function in the roles of carer/helper/counselor; advocate; consumer of research. . . . Research links the science and practice of nursing. The role of consumer of research is demonstrated by participating in, valuing, and using research findings to improve practice and to modify care based on a changing and expanding body of knowledge. (2004)

Consequently, Nursing faculty members have worked closely with the outreach librarian to ensure that Nursing students learn how to use the library to conduct research. Nursing students are distributed throughout the United States and overseas so it is imperative that they have access to an academic library and the ability to use it.

The Nursing program has taken full advantage of the *TIP* tutorial and requires students in two different research courses to complete it. One course is required for the RN/BSN degree and the other for the Master's in Nursing. While *TIP* provides a foundation for thinking strategically about information, it is supplemented in online Nursing courses with an assignment that focuses on the mechanics of using the digital library. Students in both courses obtain a username and password, find a book in the catalog, locate a research article in a health database and an online journal, and e-mail a full-text article. Graduate students have the additional tasks of using the advanced searching capabilities, creating a list of marked records, and using the linking feature from the article database to the catalog. This assignment is completed very early in the semester so that students are equipped to conduct the research required by the Nursing faculty.

We consider these efforts a strong beginning but believe more instruction for online Nursing students is warranted. We are in the initial stages of developing an additional tutorial for Nursing specific databases. In particular, we want Nursing students to be proficient in searching health databases and Web sites that are free and accessible to the public so that after they graduate and no longer have access to the university's licensed databases they can continue to "incorporate research findings into practice."

We also want to promote more communication between online Nursing students and librarians. All students are e-mailed a reminder about library outreach services two to three weeks into each semester. However, our online chat and evening and weekend reference hours are underused and need to be marketed. Another possibility is to include in the assignment the requirement to consult a librarian about research strategy.

CONCLUSION

Two factors influence future consideration of how to most appropriately provide library reference services to University of Wyoming distance learners. First, the profile of an “average” outreach student will continue to change. To be sure, there will remain a group of people for whom taking classes on the main campus is impossible. The challenge of keeping their learning environment personal and connected will remain with us. We will continue to dedicate a library faculty position to working directly with students and instructors who reside outside the main campus community who are truly distance learners.

At the same time, many campus students are beginning to perceive outreach classes, particularly online classes, as a desirable option. There is no longer a distinct demarcation between regular classes and outreach classes. The shift in enrollment growth to the online sector is indicative that on campus students are taking them in preference to courses relying on synchronous delivery. We anticipate that this group of students may find using the library online a better option than physically coming into the building, despite the fact they are able to do so. Our challenge will be to provide needed services to them in an effective and efficient manner. All librarians must possess strong knowledge and expertise in dealing with issues of remote access to the library, as this becomes the norm rather than the exception.

Second, expectations upon librarians to provide expertise and leadership in teaching and evaluating information literacy will continue to grow. We must seek ways to work in collaboration with faculty and make our expertise more generally available to the online community. The Outreach librarian will continue to seek ways to make faculty aware of the existence of the information literacy tutorial, and its use in meeting graduation requirements. Currently, Wyoming community college transfer students are allowed to fulfill the information literacy requirement of the University Studies Program by taking the tutorial and passing the quiz with a grade of 70% or higher. Information about the tutorial and the availability of a librarian to work with classes will be shared with Wyoming community college academic advisors to enable transfer students to meet this requirement. We will explore the feasibility of developing an online course that will be an option for students seeking to fulfill the University Studies requirement for information literacy.

All of this will require the Outreach librarian to devote more time to online students. If this is done on a student-by-student basis, instruction

will be extremely time consuming and labor intensive. Therefore, methods to instruct an entire online class will need to be developed. Two possibilities to be explored are e-mailing a series of library briefings to online students (with permission from the course instructor) and developing subject specific tutorials. In addition, we plan to work cooperatively with the Outreach School to include information about our chat reference service and evening reference hours in the orientation packets sent to every outreach student.

We will continue to adhere to the principle that we seek to meet varied needs by services appropriate to student circumstances. We realize that there can be no one-size-fits-all approach to meeting the reference and instructional needs of online students. Our challenge is to be flexible in response to the ever-changing face of distance education.

REFERENCES

- ACRL Guidelines for Distance Learning Library Services. American Library Association. 2003. Accessed June 11, 2004, <http://www.ala.org/ala/acrl/acrlstandards/guidelinesdistancelearning.htm>.
- Giles, Kara L. "Reflections on a privilege." *C&RL News*, 65:5 (2004): 261-263.
- Gandhi, Smiti. "Academic librarians and distance education." *Reference & User Services Quarterly*, 43:2 (2004): 138-154.
- Hansen, Brian. "Distance Learning." *The CQ Researcher Online* 11, no. 42 (December 7, 2001): 993-1016. <http://library.cqpress.com/cqresearcher>.
- Hardy, Deborah. *Wyoming University: The first 100 years 1886-1986*. Laramie, WY: University of Wyoming, 1986.
- Johnson, Jean. "Two models for providing library services to off-campus students in Wyoming." In *The Off-campus Services Conference Proceedings* (ed. B. M. Lessin). Mount Pleasant, MI: Central Michigan University Press, 1987: 135-142.
- Kearley, Jamie, and Lori Phillips. "Distilling the Information Literacy Standards: Less Is More." Co-published simultaneously in *Journal of Library Administration* 37 (2002): 411-424, and *Distance Learning Library Services: The Tenth Off-Campus Library Services Conference* (ed. Patrick B. Mahoney) (2002): 411-424.
- Matson, Lisa Dallape and David J. Bonski, "Do Digital Libraries Need Librarians? An Experiential Dialogue." *Online*, 21:6 (1997). Accessed June 17, 2004, <http://www.onlinemag.net/NovOL97/matson11.html>.
- Phillips, Lori, and Jamie Kearley. "TIP: Tutorial for Information Power and Campus-Wide Information Literacy." *Reference Services Review*, 31 (2003).
- Schloman, Barbara F. "Information literacy: The benefits of partnership." *Online Journal of Issues in Nursing*, (2001). Accessed June 2, 2004, http://www.nursingworld.org/ojin/infocol/info_5.htm.
- Shorten, Allison, Margaret C. Wallace, and Patrick A. Crookes. "Developing information literacy: A key to evidence-based nursing." *International Nursing Review*, 48 (2001): 86-92.

- U.S. Department of Education, National Center for Educational Statistics. *The Condition of Education 2002*, NCES 2002-025 (Washington DC: U.S. Government Printing Office, 2002) 102.
- University of Wyoming Fay W. Whitney School of Nursing. *Mission and Philosophy*. Accessed June 17, 2004, <http://uwadmnweb.uwyo.edu/nursing/aboutschool/missionphilosophy.asp>.
- University of Wyoming Libraries. *Academic Plan*. Accessed July 20, 2004, <http://www-lib.uwyo.edu/movingforward/LibrariesAcademicPlan.pdf>.
- University of Wyoming Outreach Credit Programs. *Academic Plan*. Accessed July 20, 2004, <http://outreach.uwyo.edu/academicplan/ocp.htm>.
- Waits, T., and L. Lewis, "Distance Education at Degree Granting Postsecondary Institutions: 2000-2001," NCES 2003-017. Washington, DC: Government Printing Office, 2003. Accessed June 21, 2004, <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003017>.

Chapter Six

Flexible Learning and the Library

John Arfield

Introduction

Flexible learning has received increased attention in universities as it has become seen as an important element in any strategy for coping with the sharp increases in the number of students entering higher education. These increases place strains on teaching accommodation, as universities struggle with insufficient seats in lecture halls and other teaching rooms. They place strains on academic staff, who, while needing to improve research performance and output, must cope with larger groups of students and increased amounts of marking and assessment. They place strains, too, on libraries, which face more students in need of books, study spaces and assistance.

From this point of view flexible learning may be seen merely as a device to shore up the ability of the higher education system to produce a greater number of graduates. Yet flexible learning should rather be viewed as a means of improving the effectiveness of education. Seen from this more positive perspective it complements the library's central role in the education of a student. An educated society is a society whose members have developed the capacity to think independently and critically and who are able to find and to use information. In this the ability of an individual to use libraries effectively is essential; the more that a student's education fosters this ability the more valuable his or her education will be.

As a central resource supporting teaching and learning, the library is intimately concerned with changes in the process of education. Changes in the population using the library, changes in the methods used in teaching and learning, and changes in the technologies that can be used in the learning process all require the library itself to change and to adapt the services it offers to ensure that they are appropriate and meet the needs of its users.

Changes will affect the library service in a number of ways. The characteristics of the users of the library will be more varied than in the past, the type of material required will be different, the development of information

handling skills will be more important, and the involvement of library staff in the delivery of education will be critical.

Changing users, changing needs

Students

It is likely that the users of libraries will be more varied than in the past. Courses which free students from the necessity to attend university full-time and which enable much more flexible patterns of study may attract people with backgrounds that are very different from the school-leavers for which courses have in the past been designed. They may have a wider range of experience and a different level of motivation (McElroy, 1988). Universities are developing courses which attempt to open access to study for students from commerce and industry whose primary entrance qualifications are experience and potential rather than academic qualifications. Such students may be returning to learning after a considerable period of time, they may not previously have followed an academic course of study, they usually have full-time jobs and are likely to have family responsibilities. Some courses are intended to meet the needs of both full- and part-time mature students. Typically these students have had no recent formal education, have a high level of motivation but also a higher level of doubt as to their ability to cope with the learning environment.

For such people traditional library opening hours, loan periods and reservation arrangements may not be suitable. In order to protect the interests of students who are unable to attend the library during the day it may be necessary to set up separate collections. It may be necessary to have special sessions in the evenings to give instruction in the use of information, and to have senior library staff available at such times to deal with reference enquiries. As students come to rely increasingly on access to information which is available to them via computers rather than through the printed page, the technical support that they will need must be available to them when it is required. Students with other commitments and demands on their time will be less able than full-time students to visit the library themselves. Documents may need to be delivered to them either by post or electronically. Library staff may need to provide more of their service over the telephone and special arrangements may be required to enable such students to reserve or renew books. Access may need to be provided over computer networks to data or programs which are in the library. Those who do not arrive in 'learning mode' may require considerable amounts of support and advice from library staff at times when such assistance has not traditionally been available.

Teachers

Teachers themselves may find that they have new needs when they are faced with developing flexible learning strategies. The library may need to provide relevant books and journals on the subject of writing courseware,

using new teaching methods and constructing learning packs. Examples of material that has been developed elsewhere will also be a useful source of ideas. There will need to be close liaison with any initiatives the university may set up to promote flexible learning strategies. It may be appropriate to establish a separate collection of such material, to publicize it and to find ways to promote its use.

Changing methods of teaching and learning

Flexible learning is a term which covers a number of techniques and approaches to teaching, all of which may have different impacts on the library, and to which the library may contribute in different ways. The key features which these techniques have in common are that a variety of teaching methods beyond lectures and seminars are used and that individual students are required to play a greater part in the direction and pace of their own learning.

Distance learning techniques

The central problem of distance learning – the delivery of courses to students who are at a distance from the university itself – is how to provide the materials that students need. There may be a need for a postal service or the setting up of small regional libraries. It may be necessary to seek to establish reciprocal arrangements with other university or public libraries. Course material in the form of pre-printed notes or specially prepared course textbooks may be produced. Where these involve reproducing extracts from published work there may be issues of copyright that will need to be resolved. The current copyright agreement in the UK between the Committee of Vice-Chancellors and Principals and the Copyright Licensing Agency, acting on behalf of most rights holders, stipulates that study packs which contain *four or more* extracts of copyright material in sets of *five or more* must be cleared for copying through the CLA's telephone service CLARCS. Payment will be required. This agreement is in force until 31 July 1995.

Some of the techniques of distance learning may be applied within an institution as lecturers are less able to spend time with their own students. At the beginning of a course pre-produced course workbooks may be distributed to students, who are then able to work through them at their own speed. Insofar as these workbooks avoid the need for students to use the library to find their reading, they reduce the pressure on libraries. Such workbooks might, however, contain reading lists or set assignments that require increased use of the library.

Libraries themselves are being forced to consider using such techniques in order to give guidance to students on their use of the library. It has become extremely difficult to give introductory lectures or tours to large groups of new students; there have been a number of responses to solve

this problem. Some solutions have used introductory videos or tape-slide guides. Some libraries have developed introductory packs for distribution to new students. At Loughborough University tours conducted by library staff are now confined to groups of students, such as part-time or foreign students, who can benefit from the specialized assistance that can only be given by library staff (Davies, 1993). All other new students are encouraged to take a copy of the library's self-guided tour. This printed leaflet leads a student through the library by way of points which are clearly and prominently signposted; at each point the guide gives a clear and concise explanation of the key features. This method has the advantage of greatly reducing the amount of library staff time that is devoted to introductory tours; but it also has the considerable benefit from the student's point of view that the tour can be taken at the time and speed that is convenient and appropriate to the student, and allows parts to be repeated at will. In the first year of use the guide was publicized only to new students, but it soon became clear from comments received that second- and third-year students also wished to use it.

Project work

Another key feature of much flexible learning is to encourage learning by finding out or by doing. This can be a much more effective way of learning than merely being told facts. It often takes the form of project work. This approach places the onus on students to find information for themselves. This gives rise to the need to find relevant information in a usable form within defined time constraints. The skills developed in achieving this are important in themselves quite apart from the direct benefit to the project work. Project work may also require students to gain knowledge and skills that have not been taught as part of their foundation work. This approach means that much greater demands are made of the professional skills of library staff as the need to impart information-handling skills becomes increasingly important and as they deal with more frequent, more specialized and more varied requests for assistance in finding information.

Projects may not only be undertaken at the individual level; they may also be given to groups of students. This can give a taste of collaborative research, and can also draw on the capacity of post-experience students to learn from each other. Such students may prefer to work at home or in the library. The library may therefore need to provide study space where group work and discussions can take place without causing disturbance to other library users.

Information technology

Information technology has added new dimensions to flexible learning. The use of computers allows learning materials to be delivered directly over networks and enables a two-way flow of information. Modularization can

result in very large classes for common units. This can cause intense short-term demand for set texts. A recent report from the higher education funding councils has suggested that delivery of such texts electronically may be part of a solution to this problem (Joint Funding Councils' Libraries Review Group, 1993). Interactive video and computer software permit learning without the direct intervention of a teacher, and expert systems can be used to enhance learning. Students' work can be submitted electronically and be returned with marks and comments by the teacher. Teleconferencing and e-mail can remove some of the constraints of physical distance from the teacher. The delivery of information and learning resources, whether they are physically held in the local library, or remote, opens up new possibilities for teachers. The essential pre-condition for successful use of these possibilities, however, is ready access to computing facilities for all who need them. The cost of providing and maintaining these facilities is one of the major problems in realizing the potential of new technology.

Changing libraries

Reading lists

It is likely that conventional reading lists will continue to play an important part in flexible learning courses. There is often a wide gap between the perception that tutors have of the function of books in the learning process (and therefore their expectations of students) and the perceptions of their students, who are often unwilling to read any more than what is absolutely essential or to look any further than what is available in the short loan collection. Lecturers may provide reading lists which are unrealistically long and undifferentiated. It is crucial that library staff should have reading lists well before they are used by students in order to ensure that sufficient copies are present in the library's stock (although it is not easy to estimate what the likely usage of titles on reading lists is likely to be). Reading lists also provide evidence to library staff of how a course is likely to be organized and what the impact on the library is likely to be (Graham, 1986). However, the library is rarely able to rely entirely on reading lists for an indication of the impact of a course: lecturers frequently make verbal additions to the printed list, often fail to give any indication of the relative importance of the titles and fail to notify the library of any special assignments which they may give students.

For reading lists to become more effective, however, there will need to be an active participation by the library in feeding back to lecturers information about the use of their reading lists. The library is in a good position to do this. There is a tendency for students to concentrate on the real syllabus (ie, the minimum that needs to be done to get a satisfactory degree) rather than the published syllabus, and to confine their reading accordingly. Student requirements of course guides include a wide choice of readings, an indication of the location of library materials, clearly defined *essential*

readings for each week and the identification of the most relevant page numbers when a whole book was given as a reference. Although this tendency is regrettable it is a fact that cannot be ignored. In the light of information provided by the library, teachers might reduce the amount of reading expected of students, earmarking, for example, sections of books rather than the whole work and expecting less of the student's own discrimination. Information from the library on how reading lists are actually used should result in more effective lists.

As undergraduates gain increasing access to computing facilities, reading lists may be consulted on-line. When they are integrated with networked library catalogues it is possible to see whether a book is on loan, when it will be available, and to reserve it. The ability of computers to record the use made of reading lists will enable monitoring and provide information on how they are actually used. Students will be able to comment on reading lists, requesting the supervisor for further or alternative reading or asking questions.

Book stock

The demand that will be placed on the library's book stock will vary according to the subject being taught and the teaching methods to be used. In some subjects at some levels an appropriate strategy for a teaching department might be to eschew background reading altogether in favour of teaching from a single textbook. Students will be expected to purchase their own textbooks, or may be lent a copy by the department, with little effect on the library. In other subjects there may be intensive demand for books, requiring extensive use of a short loan collection.

Increased use of project work may mean the library having to provide a wider range of reading than might have been required for a course relying heavily on textbooks and introduces an element of unpredictability into what books may be needed. If projects are within a narrow range and are repeated each year, the library may be able to support them adequately as long as sufficient advance notice is given. If there is a wide range, or if students are able to choose their own projects without prior investigation of the support that they will require from the library, they may find severe difficulties in obtaining the material when it is needed.

In the near future readings themselves may be accessible online, avoiding congestion for the printed version. There are crucial questions of copyright to be resolved; once they are, and students have ready access to terminals, the effect on library services could be dramatic.

Non-print media

In addition to books and periodicals the library may find itself with an important role in providing other forms of information. The library may be asked to house course packs and student essays. Although hitherto the use

of audio-visual material in teaching has not been as widespread as was once predicted, videos, audio cassettes and multimedia packages may all need to be accessible in the library. This in turn may require greater investment in space and funding for playback equipment. It may also require a re-examination of the relationship between the library and the university media services department. In some universities library and media services have been amalgamated into a single service unit.

Computer-based services

The library will be required to house a wide range of books, periodicals, audio-visual resources and computer software. In addition the library will wish to enable students to gain easy access to resources outside the university. Students working on projects may need increased access to the inter-library loan service. Computer teaching programs and packages developed at one university will be generally available to the university community. Libraries and computer centres will need to work together to ensure that students have access to them. The broad bandwidth provided by SuperJANET will enable video and audio to be delivered across the network. Data banks and other resources available over the Internet may be relevant to students working on projects; library staff will need to give advice and guidance on what is available and how it may be used.

Information-handling skills

Clearly courses which rely less on the direct provision of instruction by teachers in classrooms and more on students taking responsibility for conducting their own learning make it essential that students should know *how* to do this. Study skills need to be provided early in any course which requires students to take more responsibility for their own learning. Academic staff themselves have the primary responsibility for this, and they must ensure that students are equipped and prepared for the active part they will be expected to take in their own learning. None the less library staff have a unique role to play in providing students with appropriate skills in seeking and handling information. Experience has shown that in order to be effective, training in information skills should be integrated as an essential part of a course; should have some results in that the training should be directly related to the broader aims of the course; and should actively involve students. It should also have some reward, with successful completion of this part of the course contributing to the ultimate success of the student. How this can be accommodated by staff who are already busy and who will be increasingly in demand to answer the specific enquiries that will arise from increased amounts of project work and increased use of networked information sources is a critical question for librarians.

Librarians and the educational process

Monitoring and assessment

Above all the successful development of flexible learning within a university requires that the library and its staff should be closely involved in the process at all stages. It cannot be assumed by course designers that the library will have the resources to meet the new requirements that such courses may bring. At the same time there may be possibilities for the creative use of library resources which may be overlooked in the absence of a member of the library staff. At the very least there must be ample information given to the library at an early stage so that it can assess the library support that will be required. But much better is a realization that library staff are partners with academic staff in the teaching and learning of students and that they have a distinctive and important contribution to make. With this sort of integration into the university's teaching process the library's own experience of how students use libraries in this process can be fed back into the design and revision of courses. For this to happen both libraries and academic departments need to have a clear view of the intended outcomes of a teaching programme. The current emphasis on assessment of teaching quality aims to introduce a cycle of improvement. That there should be so little attention paid in assessment procedures to the role of the library as a key element in a student's learning experience is a serious omission. Libraries must organize their resources and their staff in such a way as to build strong links with teaching staff and their courses so that they are used to greatest effect.

References

- Davies, E J (1993) 'The hitch-hiker's guide to the academic library; the development of a self-guided tour at Loughborough University of Technology', *Library Management*, 14, 7, 4-13.
- Graham, T (1986) 'University libraries, students and reading provision' in Baker, D (ed.) *Student Reading Needs and Higher Education*, London: Library Association.
- Joint Funding Councils' Libraries Review Group (1993) *Report*, Bristol: HEFCE.
- McElroy, A R (1988) 'Resourcing and supporting open and distance learning: some educational and managerial models', *Learning Resources Journal*, 4, 3, 100-112.

Library Collections and Distance Information: New Models of Collection Development for the 21st Century

Harold Billings

A discussion of library collections, distance information, and emergent models of collection development by which information resources will be managed in the next century can be highlighted by several unarguable trends.

- If there is anyone who believes print-on-paper is dying they have not been reading publishing statistics.
- The ability of libraries to maintain acquisitions programs that keep up with the ongoing pace of paper-based publishing continues to diminish.
- As libraries continue to constrict their purchases towards their most basic needs, conventional wisdom would suggest that library collections are all beginning to look alike.

Recent research by Anna Perrault confirms this increasing homogeneity of academic library acquisitions and collections.¹ She notes

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[Haworth co-indexing entry note]: "Library Collections and Distance Information: New Models of Collection Development for the 21st Century." Billings, Harold. Co-published simultaneously in *Journal of Library Administration* (The Haworth Press, Inc.) Vol. 24, No. 1/2, 1996, pp. 3-17; and: *Emerging Patterns of Collection Development in Expanding Resource Sharing, Electronic Information and Network Environment* (ed: Sul H. Lee) The Haworth Press, Inc., 1996, pp. 3-17. Single or multiple copies of this article are available for a fee from The Haworth Document Delivery Service [1-800-342-9678, 9:00 a.m. - 5:00 p.m. (EST). E-mail address: getinfo@haworth.com].

that her findings support the Mellon report that suggests a “narrowing” of access to scholarly information, a concern that research libraries will look “more and more alike over time,” and a resulting “decline in the richness of collections overall, not merely a decline in the range of holdings of any one library.”²

- At the same time that print-on-paper publishing flourishes, the growth of distance information continues at an exponential pace. By this I mean the expansion of interlibrary services in all its variations, document delivery in its many manifestations, as well as the creation and distribution of information objects coruscating from a digital forge.

A major task for libraries in coming years will be the addition to their collections of appropriate books and journals in paper-based format, the management of an increasing proportion of information that will become available in digital form, and the communal melding of these information streams into a common pool for the fishing of information.

Libraries must modify and update collection development policies and procedures to recognize that the local collection will evolve into one enhanced and extended by digital technologies and electronic information sources. Policies for managing—and sharing—national and global mega-collections will emerge from the construction of cooperative programs on a scale that far transcends concerns for building the local collection.

We should not be surprised that policies will be and, indeed, are already being established by those governing bodies that fund our libraries to move us towards collection development practices that may conflict with what we have always presumed would be local or cooperative collection development decisions.

It is important that new models of collection development emerge to equip libraries, and the larger library and information community, for the responsibilities they will bear for access to all forms of information in the next century.

This paper touches briefly on issues where library collections and distance information come together on a policy level and how these issues will shape the future.

CHARACTERISTICS OF THE NEW INFORMATION ENVIRONMENT

Let me describe briefly what I believe to be some of the characteristics of the new information environment. The changing nature of information is providing a dramatic impetus towards a reconsideration of issues that have always been basic to collection development. Both artifactual and digital information must be selected, organized, preserved and delivered from physical collections and electronic repositories. Both analog and digital formats will be delivered locally or to distant locations by carriers appropriate to the format.

Professor William A. Wulf of the University of Virginia—in a wonderful article entitled “Warning: Information Technology Will Transform the University”—has recently described the changing nature of universities and libraries: “Instead of a hoarder of containers, the library must either become the facilitator of retrieval and dissemination or be relegated to the role of a museum. If we project far enough into the future, it’s not clear whether there is a distinction between the library and the book,” he says.³

“The technology of the bibliographic citation,” he continues, “pales by comparison with the hypertextual link: the ability to gain immediate access to the full referenced source and hence to browse through the context of the reference. It will take a long time to build the web and especially to incorporate the paper legacy, but the value of a seamless mesh will doom the discrete isolated volume.”

To my mind, the greatest challenge in managing this wealth of collections and interwebbed information will be to find a means to merge the information sources—and the results of searching these sources—in order to provide the content that satisfies the information seeker whether it be textual information, hypertext, raw data, response-invoking semiotics such as art or music, or that grander thing whatever it may be that we call knowledge.

The answer to this challenge will represent a resolution of economic, technological, ideational, and philosophical matters that will transform the information environment. In order to better understand that information scene, and the collection policies required to shape it, it might be well to consider some of its physical and temporal characteristics.

Time and distance will remain in the genetic structure of the print-on-paper model. Distance information carried by a stream of digital pulses is characterized by transmutability, manipulability, and a dangerous fragility. We do not yet really understand how to secure the permanent retention of such information or how to establish policies to guarantee an appropriate assignment of responsibility for its preservation.

Distance and location are of little moment to any format until the information is required. Geography is virtually negligible in the digital information world. It may not yet be the case that distance is dead, but it is certainly dying. Time, on the other hand, is very much an issue in the currentness of some content, how quickly it can be accessed, and as a condition of the mind that strokes it.

Selection will continue to be the most important issue in the total process of information service. Identification of prospective scholarly resources has become simpler in many regards as bibliographic and indexing tools have improved. But selection will become more complicated as the information world itself continues to expand and as information objects grow increasingly more complex.

Delivery will remain the most difficult problem for paper-based services. While distance—as noted above—is becoming virtually a non-issue in many areas of library service, it continues to be a significant barrier in others. As distance information becomes more routine—that is, as all our libraries rely increasingly on remote access as well as on the collections we have at hand—a new set of collection-building consternations will confront us at every level of decision-making in the acquisitions process. These must be treated in our collection policies.

One of the major problems that must be addressed in the new information environment will be an appropriate choice for what will be the chief characteristic of the information object. Will it be print or will it be digital? Will it be both?

Will the digital version provide for such a richer mixture of content, of information searching and retrieval capabilities, of extended information linking and expansion of knowledge availability that a paper version will be redundant and an unnecessary expense? Or will a paper copy represent a necessity for any one of a number of quite justifiable reasons—ease of use for content access,

convenience as a mobile information unit, as a useful back-up, or as a warm and fuzzy security blanket for the intellectual child in each of us?

This issue is not as simple as deciding whether to acquire a title in one format or another, whether to bind it or not, whether to discard it after a period of time in which it is perceived to be useful in a physical format regardless of whether a digital version exists or not, or whether the title has significance because of its format, quality of construction, or artifactual significance. The issue should be considered more holistically in terms of defining what the total requirements are for effective, efficient access to knowledge sources, on a title by title basis, on an object by object basis, or a construct by construct basis, within the organic information world.

What are the fiscal issues involved in these choices?

Collection development policies must include such considerations as these as they are modified to fit the circumstance of this strange and wonderful new world in which the information object itself may well be a compound of multimedia content, of both client and server software, and of self-referential cataloging data.

What are some of the other special issues and challenges that will affect collection development at that borderline of dynamic tension where the physical library collection and the digital world of compound information converge, separate, augment one another, and do battle?

First of all, we can be absolutely secure in our knowledge that library services will be required in the information future. Librarians will continue to build value for systems that connect information and its prospective users. Librarians will be the tool-shapers and the information guides, hunters and fishers in this new information ecology. Many will continue their work in those locations we have called libraries.

Anyone who enters an enormous warehouse of books, or a vast star space of digital knowledge which has not been thoroughly organized, will quickly have to seek a librarian to achieve any major degree of success in an information search. A library as a repository for physical collections, as a central bank of subject and information retrieval expertise, as a station from which information mis-

sions depart, will be just as important in the information future as it has been in the information past.

On a very practical basis, libraries must negotiate much of the complex contractual web that determines to which digital information a user has access. Individuals have been able to buy books and subscribe to journals. Without some affiliation with libraries how will individuals be able to gain access to certain electronic information that requires payment at the door, and which may not be available through a commercial information service, or available only at greater expense from a non-library source? The library as a cost-center middleman, using economies of scale in its payment for information access, and in chasing the dream of making information as freely available as possible, will continue in a digital world as in print. Libraries will impose more cost-recovery charges for information access than in the past, but it appears certain that the cost to all of information-units delivered will decline.

Librarians will be indispensable in the development of collection development policies whether they be at the local level, at the cooperatively managed mega-collection level, or within a reshaped information management framework driven by those who control the institutional funding that dictates what libraries will collect and how they will share resources with one another.

THE ESTABLISHMENT OF COLLECTION DEVELOPMENT POLICIES

Twenty-five years ago most of our libraries were just beginning to establish collection development policies to assist in the management of our acquisition programs. Over the years these policies have been massaged, revised, perhaps even laid aside and forgotten as the quickening of research has produced more information for printed library materials, and as flat or reduced budgets have negated our best-laid plans for acquisition programs.

For the most part, those collection policies initiated in the 1970s included selection criteria regarding the academic and research interests to be supported, the scope and level of intensity at which these subjects would be acquired, and information regarding the language, publication date, and the formats appropriate for acquisition.

With the advent of expanded cooperative resource-sharing programs in the 1980s, the application of policies based on organizational agreements and national perspectives grew more intensive. These programs utilized such mechanisms as the National Shelf List Measurement Project, the RLG Conspectus, and other descriptive and analytical methodologies established among institutions involved in library networking cooperatives to rationalize collection building responsibilities among the participants.

Collection policies, of course, had moved on to include matters relating to duplication, disposition, disaster plans, and preservation.

While granting the continuing importance of these long-standing guidelines for the development of collections appropriate to local institutional needs, or for collections joined to one another symbiotically through resource-sharing agreements, the development of the digital library begs the introduction of entirely new considerations into collection development policy statements as we look towards the twenty-first century.

New factors—the rapidly increasing availability of network-accessible information resources, the incorporation of digitization into numerous information activities, and the concept of managed information—have not surprisingly started to emerge as issues to be incorporated into our selection policies.

In the 1995 edition of her useful textbook on collection development, the late Elizabeth Futas notes that some areas of collection development discussion “have not yet appeared in any discernible number of policies. Among these areas are the collecting and archiving of electronic journals, the Internet and its relationship to collection building, cooperative efforts in collection development and preservation of materials. Why these areas have yet to show up is somewhat perplexing since the library profession is certainly concerned about their impact on collection growth and development.”⁴

Happily, these issues are now beginning to receive attention in the literature. The so-called “mainstreaming” of the selection of Internet resources into the collection development process has been extremely well introduced in a recent article by Demas, McDonald and Lawrence of Cornell University, growing out of earlier work by Demas.⁵

"We believe," they say, "it is time for collection development librarians to focus intensively on the processes of collection development as applied to networked and other electronic resources."

Beyond that, as they point out, "Applying the principles of selection to Internet-accessible resources is but one part of a larger challenge: learning how to select among a wide variety of potential access mechanisms."

In my view, the recognition that the same information resources may be available in print, microform, CD-ROM, locally mounted magnetic tape files, or in digital representations via various retrieval tools on the Internet, is still just a beginning at determining how we can best relate this multiplicity of resources to one another so that the knowledge seeker can most easily find the content that is being sought whether it is in a local or remote collection or regardless of the digital format in which it is enwrapped.

Each of our institutions will be exploring the addition of a new vocabulary to our collection development policies. These will describe our intention at the local level to deal with the mix of physical and digital resources that we will "acquire," but we will be looking, increasingly I believe, at other issues still to be addressed in collection development policy for the twenty-first century information environment. These issues will exist at a macro level reflecting larger institutional, state, and national policy issues than just our typical local collection orientation.

"Historically a university has been a place," William Wulf writes. Scholars gathered where they could be safe, where there were other scholars with whom to converse, where there was access to scholarly materials, and in contemporary times, to scientific instruments and library collections. "Where the scholars assembled, the students followed," Wulf says.

He cites John Cardinal Newman's nineteenth-century essays on the university in which Newman says if he had to describe what a university was, he would draw his answer from its ancient designation as a Stadium Generale: "This description implies the assemblage of strangers from all parts in one spot."

To me, in cyberspace all roads lead to a digital Rome. Indeed, any road can lead anywhere and everywhere. No one need be a stranger to any place, and virtual assemblages at the desktop will

soon be common. I am speaking, of course, of digital access and teleconferencing.

Wulf continues: "With powerful ubiquitous computing and networking, I believe that each of the university's functions can be distributed in space, and possibly in time. Remote scholarship is the direct analog of telecommuting in the business world, and every bit as appealing."

It is suggested that computing and networking provide for a learner-centered environment rather than the traditional teacher-centered environment that has been a characteristic of the university as place. It appears to me that in cyberspace any element of the scholarly process can be centric at any time, or at all points in place and time, whether it be the teacher, the student—or the library collection.

TOWARDS MANAGED INFORMATION

It is apparent that there is a growing trend at all levels of education to consider carefully what the new technologies can do to help distribute the scholarly process, not because of the immediately perceived virtues of how technology can improve the system, but rather because of fiscal, demographic and social pressures.

Fiscal constrictions in higher education are certainly urging a distributed responsibility among educational institutions for the provision of support for distance education and for life-long learning. Teachers and students both must share their scholarly experience in the same company as the informational materials—the library collections—that must be readily available to them. Distance information will be a fundamental resource for distance learning. It is small wonder that there is such a strong swell of interest these days in digital libraries.

The forces at work at the macro level that will surely promote easy digital access to information of all kinds may well relegate our local collection development policies to a secondary status. These overriding forces will at once affect our local acquisitions programs as well as the resource-sharing activities through which we will increasingly provide access to information based on trans-institutional policies and directives.

It is clear to me that we are being steered by our funding bodies towards managed information programs, and our information acquisitions programs and collection development policies will increasingly reflect the influences of this pressure. I do not necessarily mean to criticize this tactic, but it is one that I believe should be more widely understood if we are to take advantage of the many opportunities it may present. Librarians should not simply be made to feel suffocated by the application of control beyond levels that they are familiar with. Any new funding or resource-sharing strategy should be considered for its potential benefit.

Collection development policies themselves have been the very instruments by which libraries have attempted to manage their local acquisition programs and collections, but this type of management has been self-imposed and is not the kind of control that I have in mind.

While I don't want to overdo an analogy with health care, it is the case that both information and health care share a number of similarities. Both are essential to the public good. Both health care and information services face substantial increases in costs that simply cannot be sustained through usual budget growth. Technology has been a major benefit in shaping and improving both services but it has also helped boost costs. Both health care and information services have experienced major increases in service demands, and attempts to manage the increased demands and costs have some striking similarities.

We are moving towards managed information just as surely as we have moved towards managed health care. Library funding entities have recognized that there is no way to keep up with the levels of service demands and the rise in costs without the application of management principles to control costs by urging libraries into arrangements that take more advantage of leveraged resources. These include consortial information purchases and more centralized coordination of what has been a very decentralized system of information acquisitions. Rather than providing additional funding to individual institutions for the acquisition of multiple copies of an information object to be located at duplicative sites, funding bodies are pooling limited dollars to promote the acquisition of collections

and information services to be shared from central servers among the various participants in resource-sharing programs

In order to effectuate this policy, Information Management Organizations (IMOs) are being established among libraries just like their HMO counterparts have been established in health services.

The press of libraries into resource-sharing programs has been both subtle and overt. Where cooperation was once a choice that was left pretty much up to individual libraries, the new patterns that are emerging find multi-institutional funding bodies pushing libraries into arrangements for sharing local collections and access programs to distribute the cost of information acquisition, management, and delivery activities, while also improving the range and depth of information acquired.

While local institutions and libraries may still choose whether to participate or not in some of these extended resource-sharing programs, they will get special funding or benefits from other incentives that are being made available *only* if they buy into centrally managed information programs.

There are several examples of the application of this developing strategy. On a national level, the recent establishment of the AAU/ARL foreign acquisitions programs is an example that can be cited as a "soft" model of managed information.

In this model—encouraged by university presidents, the ARL, and foundation funding—libraries will assume responsibility for acquiring parts of the larger information universe while delegating the procurement of other pieces of that universe of knowledge to others. This represents a much larger commitment on a national basis than any we have had since the days of the Farmington Plan, the National Program for Acquisitions and Cataloging (NPAC), the Public Law 480 Program and the Latin American Cooperative Acquisitions Program (LACAP). Some programs were aimed at increasing duplication on an institution by institution basis, rather than simply ensuring that a copy would be acquired, cataloged and preserved for the many to share. These latter-day commitments to resource sharing are being encouraged at the institutional level, at a national organizational level, and at a funding level rather than being generated most specifically at the library level.

Similarly, other library organizations—on a regional, system or

state level—are being pushed towards managed information programs. In my state of Texas, the TexShare library information-sharing program has been developed under the auspices of the Texas Council of State University Librarians. It has been funded at modest but helpful levels by the State Legislature, and those funds have been deeded to and are being managed by the Texas Higher Education Coordinating Board. In order to receive the most direct benefit of this funding, libraries are being asked to sign an agreement that they will participate in several specified statewide programs before they become eligible to receive funding or services being made available through the TexShare program.

These funds are indeed being leveraged to the advantage of the participants in the program. The costs of information delivery services are being reduced while the amount of information available to the participants is being increased, but libraries are having to give up a certain degree of independence in order to benefit from the managed information program.

A similar arrangement has been established among members of the University of Texas System libraries, whereby the fifteen academic and medical libraries in the UT System are utilizing funds made available from central System funds to participate in mutually agreed to, managed information service programs. It is increasingly more difficult for an institution to choose not to move its local library funding towards supporting commonly agreed to, shared programs if it wishes to gain any advantage from the seed funding from the central UT System source. These are not simply cooperative programs, they are efforts aimed at tightly managed coordinated activities.

Managed information programs that incorporate selection, budgeting, and fund allocation of network resources do not fit well with our existing models based on the \$50 book or the \$100 journal. The resources are more costly, decisions are more complex. Are the days of the lone bibliographer or scholar making decisions on their own for the mega-collections as numbered as the lone library making decisions on its own? Networking strains our organizational models and precepts, and obsolescent models and policies must give way to ones which best fit the fresh paradigm.

While a comprehensive survey is needed to fully assess the

degree to which managed information-sharing programs are being established on a national basis, a recent article in *The Chronicle of Higher Education* notes that "Statewide efforts already exist in Alabama, Georgia, Illinois, Louisiana, Ohio, Virginia, and Texas, while interstate groups have been formed among Big Ten research universities and among small liberal-arts colleges."⁶

I suspect that my description of managed information services will find a great deal of resonance among state-supported institutions participating in these programs, while private institutions may not feel as much top-down pressure for such consortial participation as do public ones.

Given that IMOs are already influencing the directions in which we acquire materials for our local collections as well as to share with one another, I can envision the application of still other management policies being added as riders to our funding authorizations. For example, many of us in the course of the establishment of resource-sharing programs have said: "You collect this, and I will collect that, and we will share those collections."

Might it not be a next logical step for a coordinating body to say to several of us in a state or university system: "All of you institutions offering graduate programs in biotechnology acquire one copy of a monograph and share it; all of you offering similar academic degree programs share in the cost of a subscription or an access license to digital information, and establish a physical or electronic carrier to distribute that information among yourselves."

In other words, do not just segregate collection responsibilities by institutional specialization, but aggregate institutionally by discipline offered and establish collection policies to reflect this practice. Never mind that the divisions of knowledge are inherently artificial, and contrary to the growth of interdisciplinary study and compound information. It should also be obvious that the establishment of standards and commonly agreed to collection and educational protocols in such an environment will be extremely difficult, but must be accomplished.

"And, oh, by the way," I hear that coordinating body saying, "you get only one professor to share among you in teaching this discipline and in directing research."

Distance learning is the hottest game in town and gown. It is in

all of our library's best interests to ensure that policy makers understand that where distance learning goes it will require distance information as her hand-maiden.

SUMMARY

In summary, contemporary collection development policies must continue to be updated to reflect the actual practices and changes in the traditional building of local collections. They must also reflect the decisions that have been made to share collections through cooperative resource-sharing agreements, or to reveal the growing trans-consortial pressure of coordinating or funding agencies towards managed information and instructional programs.

Collection policies must recognize the evolving relationships between physical and digital information sources, and the creation of truly new multimedia or compound information objects that include text, graphics, sound, video and multi-dimensional animation—hyperlinked on a global basis.

The twenty-first century's system of information services and scholarship will be built on a new infrastructure that will be defined in our collection development policies. Elements included will be local acquisitions policy, collaborative agreements, managed information programs, networked collections and digital information, appropriate attention to copyright and intellectual property rights, cost-recovery-based services, and—if this structure is to stand—an economic framework unlike anything that presently exists.

Both library collections and distance information will be moving together towards digital center stage as this process unfolds in the years ahead.

NOTES

1. Anna H. Perrault, "Study Confirms Increased Homogeneity in Academic Library Acquisitions," *ARL: A Bimonthly Newsletter of Research Library Issues and Actions* 189 (May 1995): 5.

2. Anthony M. Cummings and others, *University Libraries and Scholarly Communication: A Study Prepared for the Andrew W. Mellon Foundation* (Washington: The Association of Research Libraries for The Andrew W. Mellon Foundation, 1992), 3.

3. Wm. A. Wulf, "Warning: Information Technology Will Transform the University," *Issues in Science and Technology* 11 (Summer 1995): 46-52.

4. Elizabeth Futas, ed., *Collection Development Policies and Procedures*. 3d ed. (Phoenix: Oryx Press, 1995).

5. Samuel Demas, Peter McDonald and Gregory Lawrence, "The Internet and Collection Development: Mainstreaming Selection of Internet Resources," *Library Resources & Technical Services* 39 (July 1995): 275-290.

6. Thomas J. DeLoughry, "Purchasing Power: Cost-sharing Efforts Help College Libraries Finance Electronic Acquisitions," *The Chronicle of Higher Education* 92 (Feb. 9, 1996): A21-A22.

Chapter 8

The Challenge of the Virtual Library

The escalation in the library customer's demand for access to electronic resources has library administrators considering and implementing the creation of the all-electronic, full-service "virtual library." As the information needs of the general public have become ever more sophisticated, the ability to obtain easy access not only to reference resources, but to *all* library services electronically has become a major expectation of the library customer. Therefore, whether it is virtual or traditional, any service that can be offered from the library, excluding perhaps actually taking possession of a borrowed book, must be available to all.

Wendy Pradt Lougee of the University of Michigan has written,

Technology has evolved to a point where it has had a tremendously democratizing effect in its distributed form, with the potential to alter dramatically the roles of the various stakeholders in communication, publishing, and the generation of information. Indeed, theoretically anyone can serve as "publisher" in the dissemination of knowledge. Anyone can amass and organize resources and declare himself or herself a "library." These forces have also stressed and altered the traditional linear processes that move works from author to publisher to library, and they could alter the library's relative position in these linear processes.¹

The concept of the virtual library has been deliberated and, in a mounting number of institutions, successfully developed over the course of the past decade. Today, there are "virtual libraries," "digital libraries," "libraries without walls," or the like, on every subject from gardening to fish. Although most of these libraries have been developed by academic and corporate entities, public libraries and library consortia are examining their viability as well. Today, however, so

many libraries are either constructing these virtual libraries or at least considering building one that a respectable library of literature has already been published on the subject (see the bibliography).

Despite the fact that these terms have often been used interchangeably, there is a clear distinction between the concept of the “virtual” and the “digital” library. The digital library has been described as an entity that basically stores materials in electronic format and manipulates large collections of those materials effectively.

The virtual library, on the other hand, has been defined as:

- “. . . an organized set of links to items on the network”²
- “Directories with resources that librarians or cybrarians have organized in a logical way.”³

The Santa Fe Workshop on Distributed Knowledge Work Environments has more accurately defined the concept of the virtual library as “not merely equivalent to a digitized collection with information management tools. It is rather an environment to bring together collections, services, and people in support of the full life cycle of creation, dissemination, use, and preservation of data, information and knowledge.”⁴

In the most comprehensive and practical model, a virtual library can combine the best electronic resources with traditional library services such as ready reference, document delivery, renewals, library card registration, reciprocal borrowing, and instant access to community information using as few mouse clicks as possible. “The library’s broad responsibility [is] to make sense of the environment of information to its users—no longer focused simply on description and categorization, but increasingly challenged to bring order, coherence, usability, and integration to our physical and virtual libraries.”⁵

The virtual library was originally developed to serve the academic community. As it became necessary for university researchers to access an increasing number of electronic resources, the concept was initiated to fill that need. Users could log onto a single organized site and click from resource to resource, solving their individual research queries.

The library administrator must consider the virtual library as an *extension* of existing services rather than an addition to them. The vir-

tual library must not serve as a replacement for libraries seeking a solution to problematic traditional library functions.

As the virtual library becomes reality, an administrative development team must regularly survey electronic resources for possible addition to the available resources. Review sites for electronic resources are increasing, and evaluation of these resources serves as the team's primary reference source for appropriate content. A selection of these sites follows:

<<http://www.vuw.ac.nz/~agsmith/evaln/evaln.htm>>
<<http://lii.org>>
<<http://scout.cs.wisc.edu/report/sr/current/>>
<<http://www.sitesource.com>>
<<http://www.ifla.org/II/etext/htm>>
<<http://www.unc.edu/cit/infobits/index.html>>
<<http://www.clearinghouse.net>>
<[http://sunsite.berkeley.edu/KidsClick!/">http://sunsite.berkeley.edu/KidsClick!/>](http://sunsite.berkeley.edu/KidsClick!/)

The following selected list of active virtual libraries includes several sites that already offer an excellent fusion of fulfillment of customer need combined with the best professional resource selection:

- *The Internet Public Library*, <<http://www.ipl.org/>>—considered the best virtual library of its kind presently operating. By clicking on their “Collections” link, one is transported to a search directory supported by thousands of excellent sources.
- *Project Bartleby*, <<http://www.bartleby.com/>>—a privately held company that offers access to tens of thousands of books in full-text over the Web.
- *Project Gutenberg*, <<http://promo.net/pg/>>—the virtual library of literary content, with more than 10,000 works online.
- *American Memory*, <<http://memory.loc.gov/ammem/amhome.html>>—the Library of Congress's massive undertaking of digitizing and making available virtual library of their multimedia collections.
- *California Digital Library*, <<http://www.cdlib.org/>>—Access to more than 14 million items across nine campuses of University of California.

Along with the growing number of virtual libraries, a number of serious issues arise. Since the concept is barely a decade old, it appears to be premature to sound the death knell for the planet's brick and mortar libraries, especially since *more* libraries are being built today, not fewer. However, one view, perhaps several years into the future, suggests we at least consider these issues:

- If electronic access is accepted as a viable replacement for print by funding agencies, will print libraries disappear in favor of virtual libraries?
- Will publishers eventually produce everything they publish electronically *instead* of in print? Can they afford to produce both as costs increase?
- Will the copyright laws continue to be rewritten and refined in order to accommodate violations in electronic access? Is the Digital Millennium Copyright Act enough?
- Will the number of electronic database publishers decline as more material can be accessed freely through other means?
- Is fair use an acceptable fallback position for virtual libraries to justify linking to copyrighted sites for free?
- What will it mean for the royalties of individual copyright holders who have written material that is being linked around the world through virtual libraries?
- Can public libraries adequately justify funding such an endeavor? Can they afford not to?

The Consortial Perspective

A multitype library consortium (MLC) will approach the creation of a virtual library from a unique perspective. As the membership of the MLC may include public, academic, school, and special libraries with vastly different needs, building a virtual entity that can adequately serve all of its members is a challenge. "The consortial virtual library is more of a superset of the traditional library than a subset. [It] deals with collections and services, and includes both digital and non-digital resources. The consortial virtual library as a complex organization that offers a range of services."⁶

A virtual library created by an MLC has no tangible counterpart within the consortium. Its primary value is to offer the user a single service point from which to perform a broadcast search of the OPACs

of member libraries as well as all licensed or free databases selected for the virtual library. The most familiar means by which to present a broadcast search is through the Z39.50 information retrieval protocol. The National Information Standards Institute (NISO), an accredited standards developer that serves the library, information, and publishing communities, approved the original standard in 1988. Basically, it defines a standard way for two computers to communicate for the purpose of information retrieval. Z39.50 makes it easier to use large information databases by standardizing the procedures and features for searching and retrieving information. Specifically, Z39.50 supports information retrieval in a distributed client and server environment where a computer operating as a client submits a search request (query) to another computer acting as an information server. Software on the server performs a search on one or more databases and creates a set of records that meet the criteria of the search request as a result. The server returns records from the resulting set to the client for processing. The power of Z39.50 is that it separates the user interface on the client side from the information servers, search engines, and databases. Z39.50 provides a consistent view of information from a wide variety of sources and offers client implementers the capability to integrate information from a range of databases and servers.

Another protocol developed to conduct a broadcast search is through what has been described as “prism” technology. This technology “uses a library’s circulation system from any vendor as a springboard to the databases for simultaneous searches of all the facility’s resources . . . it enables you to search any or all when resources that are hotlinked on the library’s web site at the same time with one interface.”⁷

Since it is unlikely that the libraries that are members of the MLC have all engaged the same integrated library system (ILS) vendor, there must be appropriate technologies to search each ILS and return as uniform a result as possible. There must also be a vibrant and exciting design so that the look and feel of the front end of the virtual library is appealing as well as functional.

A virtual library of this sort creates a value-added service for members and potential users of an MLC in the form of a “union catalog” that will include all of the OPACs of the member libraries. With the addition of selected appropriate databases that may be searched through a single interface, the virtual library of the MLC may offer a service that has no tangible counterpart.

Conclusion

Questions of clarity, content, and copyright must be considered by the library administrator should he or she embark on the construction of a virtual library. While a number of library professionals have been comfortable with the concept of the virtual library as simply another means of defining their own digital collections as opposed to their print collections, it is clear that the full-blown version is much more. Today, as an increasing amount of content is conceived directly in digital format, the design of the virtual library is as important as the design of the physical one. Building the virtual library is little different than building the brick and mortar variety. The planning that goes into supporting the construction of the former must be equal to the labor of giving birth to the latter.