AD HOC COMMITTEE ON LIBRARIES FACILITIES MASTER PLAN

APPENDIX B

**Re-Envisioning the Library: The Intellectual Commons of the University**

**December 7, 2000**

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**Re-Envisioning the Library: The Intellectual Commons of the University**

*December 7, 1999*

*The academic library is the intellectual commons of the university—physically and virtually. The library's mission is to meet the information needs of all members of the broad university community. In 2010, this will mean providing information, services, and resources at the point and time of need. This paper describes a vision for the next ten years of the library in the university community.*

## INTRODUCTION

Recent and dramatic technological advances are catalyzing change in academic libraries as never before. The explosion of new technologies and information in all forms—print, digital, and multimedia—creates both challenges and opportunities in every area of the library, including space (physical and virtual), services, collections, access, and preservation and digitization. Change is not unusual for libraries. In the past, new technologies as well as new types of users have required a re-thinking of the library's functions, methods, and tools. The difference today is the scale and speed of change including unprecedented new means for storage, retrieval and communication of information. Still, the basic mission of the academic library remains the same—to meet the information needs of people through the gathering, organization, preservation and dissemination of information.

This is also an unprecedented time of change for higher education. While universities remain committed to the fundamental functions of research, teaching, and service, the means and locus of these activities are being transformed. For example, in research, faculty are now able to work daily with colleagues across the globe on collaborative research and development. In on-campus teaching, there are new modes of delivery that go far beyond the traditional lecture-textbook-test including experiential, authentic, and problem based learning that focuses on group and Web-based interactions. These changes are taking place on campus as well as in cyberspace. Scholars and students are still being drawn to the central, physical campus but they are also able to take advantage of learning opportunities across institutions and borders. Also, while the traditional disciplines continue to thrive, we see an explosion in cross- and inter-disciplinary education and scholarship. Universities are also looking outward as much as inward—focusing on the needs of the broader community in educational programs, investigation, and public service and working in new forms of partnerships with the corporate sector.

These and other changes in the focus, extent, and nature of the university widen the scope and demand for library services, facilities, and resources. Change in the university must be matched by change in its information infrastructure. That is the academic library—the information infrastructure for the academic and scholarship side of the university. In order to meet the needs of a broader constituency who are working globally and continuously, the academic library must anticipate the information needs of evolving, expanding and increasingly cross-disciplinary curricula delivered through new means. In this type of environment, the library cannot function merely as a passive repository of materials. Rather, the increasingly complex academic world requires an active library that can provide information services, instruction, and resources at point and time of need. Again—change in the university must be matched by change in its information infrastructure.

Fortunately, today's new technologies offer extraordinary capabilities that enable academic libraries to adapt to, and respond to the changing needs of the entire university community. Libraries will be able to provide quality resources and services to faculty and students anywhere in the world, 24 hours a day, seven days a week. Quality defines the difference between the library's resources and services and the overwhelming flood of chaotic information available on the Internet. Libraries add value and quality to information—especially information accessible via the Internet--by determining the needs of the various user groups in the extended university community and then methodically collecting, organizing, and storing information and resources in order to facilitate effective access and use. Academic libraries also add value through a full range of information services to users. These services include direct involvement in selecting and gathering information and resources for courses and research as well as instruction in information and technology skills in order to help users more effectively and efficiently find and use information. Librarians will also work more often and more directly with faculty—by providing collaboration and consulting on the information aspects of content learning and research. This includes sharing expertise on the information systems, formats, resources, and processes that can be provided for a given course of study.

The academic library will also continue to serve as the information focal point for new and special electronic and multimedia objects and resources. Cutting-edge technological advances create additional demands for special information facilities. For example, the developing Internet 2 will offer high-end capabilities for development and communication of electronic objects, information, and resources. Even in ten years, however, access is likely to be limited to certain areas on campus, e.g., to special research projects, selected departments, and designated public use areas. It is appropriate and desirable to locate those areas in library facilities.

However, new forms of information technology do not always replace the old. Some forms of storing and retrieving information will change. Print reference materials, for example, are increasingly being replaced by electronic systems that are as complete, more accessible, and more easily updated and maintained. One estimate is that 50% of monographs and 90% of serials will be available in digital form within the next 10 years.[1]

New technology also builds on existing technologies. For example, while hypertext allows us to link and jump from context to context, it does not replace the logical argument or narrative structure of a monograph. Computer technology as we know it today is additive as well as transformational. The challenge for libraries is to determine which forms add value to information and knowledge and to apply technology for effective and efficient access, storage, and retrieval.

This dual nature—transformation along with coexistence of the old and the new – will continue to characterize the future library of 2010. The academic library as a physical entity will remain a recognizable presence in the academic environment; however, the academic library will also be a virtual "anywhere-anytime-interactive" presence for members of the extended university community. With this in mind, we seek to be both visionary and concrete in predicting what will be a challenging future; we choose aspects of the contemporary library that we believe define the transformation of library, and attempt to envision the likely future through this framework future.

[1] For the University of Washington, this would still mean adding at least 50,000 new print items to the collection.

Related Resources

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**I. Library as intellectual commons**

*Reality:* The library is a physical space that houses a collection of materials. Trained professional librarians add value to the library's collection by collecting, cataloging, arranging, circulating, and preserving those materials and by providing reference services. The collection is then physically accessed by patrons who come to work with the materials on-site, or to carry portions of the collection away to a remote site.

*Changing Reality:* The fundamental change in the academic library is the transformation from a static, passive repository of information to a dynamic, active entity committed to information services and the organization of resources.

With the advent of remote access to materials, there is some speculation about the disappearance of the physical space that houses the library's collection. It is tempting to believe that digitization in the academic library of the future will solve some of the challenges facing libraries in terms of limited space. For example, it is common knowledge that digital information does not require as much space as traditional formats. If at some point we have the technology and resources to digitize all information objects, this could lead to the belief that the library of 2010 will be physically smaller: because collections will be digital rather than print-based, and the demand on the physical infrastructure of the University will be eased. This view of the future fails to take into account the new operational contexts that will likely appear.

While it is possible that the space devoted to collections of physical information objects will be smaller in the future than it is in 1999, the space devoted to people, information processing, and digital objects will be larger. The academic library space will house facilities for training in information systems, communication facilities, networked information resources, collection development facilities (e.g. equipment and expertise for digitizing information objects), a physical collection (books, journals, manuscripts, archives, records etc), and workspaces for people (faculty, students, and staff).

The library in 2010 will serve as a meeting place for all members of the university community; it will be the intellectual commons. The purpose of the physical space will extend beyond housing books and other print resources. It will also be a space for group interaction, for services, and for consultation with library personnel. Furthermore, in 2010 there will still be plenty of print materials. Even though the entities traditionally housed in a library will become increasingly digital, the library will still be dealing with

multiple and overlapping genres. Library users will continue to demand that print resources be stored in a way that makes them immediately and easily available.

The academic library as intellectual commons will also be a virtual space. In terms of services, the library in 2010 will also increasingly provide information at the point and time of need. This means that when people use an information appliance—be it a computer similar to those in use today or information appliances with the computer technology embedded in tabletops, notepads, and other devices to access information, they will be using the outputs, services, values and expertise of the academic library. People will still need to relate their information gathering to a place that they call the library, and will assign credibility to information sources and resources that they associate with the institution and values of library. It is here that the value added dimensions and the expansion of the library in 2010 will be most evident.

In this way, the library will function both physically and virtually. Library buildings will house facilities for training in information systems, communication facilities, networked information resources, collection development facilities (e.g. equipment and expertise for digitizing information objects), a physical collection (books, journals, manuscripts, archives, records etc), and workspaces for people (faculty, students, and staff). While it is possible that in the long-term, some of the space devoted to collections of physical information objects may be smaller, in the interim, the need for physical space for resources will continue to grow. This is true because retrospective digitizing of print collections is in its early stages and there is no way to speculate on the rate and extent of digitization of older resources. Until all resources are digitized and readily available through computer networks, faculty, researchers, and students will still require access to print collections. So, even though the entities traditionally housed in a library will be increasingly digital, this will involve an ongoing transition. At the same time, while not increasing at the explosive rate of digital information, print collections still continue to grow. Therefore, even in the year 2010, library will be dealing with multiple and sometimes overlapping genres. One likely solution to the space dilemma is to increasingly rely on remote storage for those resources that do not require immediate retrieval by large numbers of users.

The role of the academic library will not shrink in the future; instead, it will be playing an increasingly major role in the university and broader community. Like the role of libraries and information units in other institutions, the scope of the academic library is expanding to cover the entire information infrastructure. This is increasingly important as the university expands into new intellectual and outreach areas. The emergence of an extremely complex information world means increased demand for the value-added, quality information services and resources that academic libraries provide.

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**II. Adding Value to Information**

*Reality:* The library is an institution where trained professionals work to add value to information, making it more useful to people who value the services that libraries provide. These value-added information services include selection and acquisition; organization through cataloging, classifying, and arrangement; circulation; preservation; and reference services.

*Changing Reality:* Even though the need for physical library space will not disappear, technological change does indeed allow for anytime-anywhere access to information. The academic library adds value to information artifacts that are part of the library's collection as well as to information, resources, and systems available elsewhere. For example, value is added through access tools that link to selected resources from disparate sources and by providing links between various access tools (e.g., online catalogs and indexing sources) to the full-text of the information object. Today, information portals are one tool that libraries can use to add value by providing ways to customize access for disciplines, courses, and individuals. In 10 years, the customization will be much further developed—and two-way. That is, there will be automatic and continual interaction between user profiles and library systems. The user interaction will be built around evolving user preferences determined through overt choices as well as through use patterns.

Academic libraries are challenged to deal with an increasing scholarly output and with new kinds of information objects. Complex *documents* are being created with linked data, images, sound and video. Methods for cataloging, storing and retrieving such objects are being devised.

Access to remote information and remote users forces libraries to rethink the services that they provide, and how they could improve information available beyond the walls of the library. Access to more information should not mean a decline in the quality of information provision. The library of 2010 must extend the same types of service it currently provides beyond the walls of the library and into all parts of the university and community.

The physical academic library is not a static, passive repository of information; it is the context for action—interpretation, sensemaking, filtering, searching and gathering, analyzing, synthesizing, evaluating, communicating, collaborating – actively engaged in the full range of information behaviors. The future of library will be defined by the full information infrastructure that it provides for users—24 hours, 7 days a week—including collections, means of access, services, instruction, and consultation.

The academic library's value-adding role will become more important as people engage in information seeking beyond the walls of the library, but still want the reassurance of

knowing which of the wide range of information sources that they encounter are credible. The role of library as value adding entity will also have a ripple effect. This will begin with the people involved. Professional librarians will be more actively engaged with teaching and research, providing information literacy instruction, and services like the digitizing, gathering, and applying of information to specific tasks that address the needs of faculty, researchers, and students. These services will produce users with increasingly sophisticated information skills which in turn will further demand that libraries provide point of presence delivery of services and resources.

Library and information science schools will be part of this ripple effect. The interaction between the library as a value adding institution and users will allow the library to act as a *teaching hospital*. Libraries could be used as a training and testing ground for library and information science students, as well as for other information and technology professionals experimenting with new forms of delivery and access. Conversely, this relationship would also provide opportunities for the library to bring the practical problems of the field to the schools for research and collaborative problem-solving. The SLIS Futures Committee suggested this possibility in its 1996 report.

Ultimately, as noted earlier, the academic library will change in response to new and changing educational philosophies and programs. The library must reflect and support the evolving academic learning and scholarly environment. Approaches like experiential learning, authentic learning, resource based or problem based learning, interdisciplinary studies, define what users will expect of the academic library. While these expectations will guide the changes in services and resources of the library, the changes will in turn, affect user expectations and perceptions.

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**III. Library Functions**

Major library functional areas can generally be organized around selecting, organizing and providing access to, and preserving information, and teaching users to be knowledgeable and expert consumers of information. To further describe the changing policy and technical environment of libraries and the opportunities it provides, it is useful to consider the following table which illustrates the trajectory of change in libraries over a twenty year period.

Ten years ago the Internet was in its infancy and the World Wide Web did not exist. At the end of the century we are at the beginning of profound changes in communications and information technologies. Given the breathtaking rate at which change is taking place, it is impossible to imagine all the possibilities that will be presented over the next ten years. The key to maintaining the excellent library services and collections that the University presently enjoys will be an expert staff with the necessary training and skills to assess opportunities, to help shape change, and to understand the information needs of the university community.

| PAST – 1990 (PRE-WEB) | PRESENT – 2000 (WEB) | FUTURE – 2010 (POST-WEB?) |
|---|---|---|
| Reference assistance at desk. Telephone reference. Teaching of library skills → | Complex info environment. Information literacy is a growing concern. → | Academic librarians are teaching info literacy at a range of higher levels. Basics handled in K-12. |
| Comprehensive onsite collection, supplemented by ILL. → | Mixed collections, onsite/offsite with reliance on ILL/doc delivery. Beginnings of regional and national collections. → | Distributed global (physical and virtual) collections with unique resources held locally. Majority of delivery online. |
| Organizing info with catalog and other un-integrated access tools → | Developing metadata standards. Some integration between access tools and content. → | Integrated access tools and multimedia content. Librarians are building knowledge databases with faculty. |
| Preservation of organic materials → | Digitization of print for access. Info "born–digtial" a problem. No reliable infrastructure for preservation of digital. → | Available infrastructure for assured preservation of digital and print information. |

**a. Research and Instructional Services**

*Pre-Web:* Trained and knowledgeable professionals at the reference desk help the patron with questions about how to access the knowledge represented by the collection in the library. This usually requires the patron to come to the library to receive assistance. Telephone and mail reference are offered to those patrons unable to come to the library.

Librarians and library users work within a relatively stable information environment that is primarily print based. Information search and retrieval mechanisms are well understood, at least at the elementary level. Library catalogs, abstracting and indexing tools and other bibliographic tools provide citations to the information resource that must then be retrieved manually.

Instruction in use of the library focuses on skills such as how to use the catalog or how to use individual bibliographic tools. Limited instruction is offered in classroom settings; much assistance is offered one-on-one to individual users.

*Current Web environment:* Increasingly libraries are extending their services outside the physical library as information is accessible from remote locations. Information services for researchers and clinicians are needed by members of the university community located many places in the state and region. There also is an increasing expectation for rapid, responsive services customized to the needs of individual users and available at the point of need. Already we know from research that some users come to the library less often, but are using the library more. Electronic reference, electronic notices and renewals, online help guides, and other services are being created to allow users to receive assistance at a distance. Students and faculty are working from offices and homes and receiving the library and its services at their desktops. However, research also shows that while overall remote use is increasing there is a concomitant increase in onsite use.

Library instruction and user education are evolving into curriculum-integrated instruction in finding, evaluating and using information. Library users have expressed urgent need for help in navigating the information maze of the web. Information literacy, which began as a library concern, has now become a major issue for faculty, students, administrators, and policy makers as well.

The need for information literacy instruction is demanding that librarians have closer contact with academic departments as they work together with faculty to design and deliver curriculum. This contact benefits all parties involved; it gives librarians a better sense of their patrons' needs, exposes the students to the range of the services that librarians can offer, and it allows faculty to include practical instruction which will improve student performance in their curriculum.

*Implications for the UW for 2010:* The UW Libraries have responded to this changing reality by creating and implementing a wide range of electronic services, collaborating with campus partners to offer curriculum integrated information literacy services, and enriching services to educators and researchers through desktop delivery of information resources.
Electronic reserves, electronic reference, online circulation services, online help and instruction, electronic notification services, and grants funding and information services are available to library users.

The UWired collaboration with the UW Libraries, Computing & Communications, Educational Outreach, Undergraduate Education, and Educational Partnerships has been extended to numerous affiliates and partners on and off campus. UWired has created new models for integrating technology into teaching and learning. Information literacy is a particular focus of Uwired. It has been recognized nationally as a model program for libraries and is often cited in publication.

UW librarians are working with faculty and staff to provide curriculum integrated information literacy. In some cases librarians are team-teaching courses. For example, the Health Sciences Library has worked with the School of Nursing to develop six modules on information literacy to be integrated into every Nursing course. The new graduate program in Textual Studies has included librarians from the beginning of curriculum planning; one of the required seminar courses is taught by librarians. And the transformation of the Geography Department's curriculum has involved the Geography Librarian in every aspect of its work.

While it is difficult to project the complete outline of the Libraries' service program in 2010, it is apparent that librarians will be doing more teaching and working more with faculty in curriculum development and delivery. Librarians will need to be more skilled in curriculum design and delivery. Perhaps it will be time to consider faculty status for librarians at the University of Washington.

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**b. Collection Management, Knowledge Resources and Scholarly Communication**

*Pre-Web:* Academic libraries build onsite collections to meet the majority of the information needs of the faculty and students of their universities. In specialty areas the goal is a comprehensive collection. Traditional collection development policies are written to reflect the library's collection objectives for each discipline (comprehensive, research, undergraduate, et cetera). Onsite collections are supplemented by borrowing from other libraries through interlibrary loan. In some libraries interlibrary borrowing is restricted to faculty and graduate students, on the assumption that each library would meet the needs of its undergraduate users. The size of a library's collection is taken to be an indication of its quality; i.e., how well it meets the information needs of its users.

Library material purchases are predictive, in part because print materials have limited production runs and go out-of-print. Based on knowledge of disciplinary publishing patterns and of the disciplinary ambitions of their institutions, library selectors project needs for books and journals as they are published. Future demand or need is anticipated.

Some efforts at cooperative collection development between libraries are evident. Agreement about major or expensive purchases might be reached so that a member of the cooperative will buy a copy of certain materials with agreement to share among the cooperative. With some exceptions the sort of cooperation has limited success. Mostly duplicative collections grow among research libraries.

The world of scholarly communication is relatively stable, based in the print environment. Most information resources require the user to physically retrieve the object. Limited online bibliographic databases, such as Dialog, are available, but require mediation by a librarian. Access tools, such as catalogs and indexes, are separate from content.

*Current Web environment:* Since the mid 1980's libraries have struggled with the escalating cost of library materials. They have experienced double digit increases in the cost of journal subscriptions each year since 1990. For the most part, library budgets have not kept up with inflation.

This *crisis in scholarly communication* has led to increasing cancellation of serial subscriptions, a decrease in purchase of monographs, and an increased reliance on interlibrary borrowing and document delivery. Most libraries no longer strive to assemble comprehensive collections onsite.

Another major development has been the explosion in digital information and the infrastructure to distribute it (the World Wide Web). Technology developments have provided tools making anyone on the Web a publisher. Individuals now have the ability to create and publish information on individual websites and to link those sites to other sites on the Web. Many scholarly journals are now available in both print and online, and some new electronic-only journals have been created. Access is being integrated with content by new businesses that aggregate and distribute information in combination with a customized front end and search engine. Materials are increasingly not located *in* the library, but rather, *through* the library, as libraries license information instead of purchase it, all the while wondering about future accessibility to the licensed information. Who will archive and assume permanent responsibility for digital information? Should libraries assume this responsibility, even for licensed information, if publishers will give permission? The definition of a library's collection has been forever altered.

Electronic resources to date have not replaced more traditional materials. Hazelton's study in the UW's Law Library indicates that even electronic versions of print resources do not necessarily duplicate the information in print.

The library is now very permeable. Users are not always aware they are using information provided (licensed) by the library. We need to make it very evident to people where the library is when they are invoking information behaviors remote from library as institution. The library must grow here.

The Web presents new opportunities and challenges to libraries in building or creating collections of information. It also calls for new skills in aggregating information via web pages that meet the needs of faculty and students. There is a need and an opportunity to develop authoritative portals to trusted information. The situation is currently chaotic, with libraries, researchers and research groups, commercial enterprises, interested individuals and others duplicating efforts at assembling portals to information on the Web. Development of search engines that can retrieve information needed, without *noise* in the search results, is needed. Those developments are being driven by e-commerce interests at this time.

There are also opportunities for the library to create new knowledge by digitizing information resources from its collections, linking them with similar resources from other

library collections, and creating new relationships among those resources. The graphic capabilities of the Web have led to new interest in image collections and their use in teaching and research. Much of the new development of information on the Web is focussed on non-print information formats: images, video, sound. Librarians are being consulted for their expertise in selecting and organizing information by faculty members who are creating knowledge bases to support their own research and teaching.

There also is an opportunity for creating customized information, formatted to the needs of individual users. Mass customization is an idea frequently talked about in e-commerce. The amount of information, the information retrieval expertise needed to access meaningful information, and the increasing expectations for immediate service, combine to create a need for services and information retrieval tailored to the individual user.

Successful consortia have been formed to jointly license databases and other electronic resources, with real dollar savings attributable to these collaborative activities. Unlike earlier attempts at cooperative collection development, decisions about which partner will house the material are irrelevant. Every consortium member has immediate access. Such licensed databases are workable and accessible extensions of their onsite collections.

It is true that increasing digitization will give libraries access to a greater number of resources, allowing them to increase their collection significantly. However, these resources are not free and a larger collection is not necessarily a better collection. To increase their usefulness, collections must be more targeted to the needs of the university community—to curriculum, faculty, students – as well as to the needs of the individual user. As collections increase, organization and retrieval of digital information and the library functions of evaluation, selection and quality assurance become even more important.

*Implications for the UW for 2010:* The University of Washington Libraries is unique in the Northwest in terms of the scale and scope of its collections—including electronic information. It is one of the preeminent research libraries of North America. It serves as the library of last resort for many people outside the University. Specialized and primary resource materials are collected to support research, ranging from first edition literary works to the latest government statistics to the most current medical information. Unique manuscript and archival materials also are important parts of the collection. The Libraries also has specialized staff to provide needed services. For example, over 30 languages are read and spoken by the staff and many staff members have advanced degrees in specialized subjects. The ambitions of the Libraries match the ambitions of the University as a major research institution.

The Libraries is expected to meet the information needs of all the University's disciplines, from advanced medical research and clinical treatment to international studies, to humanities and fine arts, to interdisciplinary studies. The cost and use of library varies widely among the disciplines. The Libraries is challenged to meet those varying needs.

The UW Libraries has undertaken a number of initiatives to take advantages of the opportunities and meet the challenges of the digital environment. Over 20% of the Libraries' materials budget is now spent on electronic information, with access provided through the Information Gateway designed to serve as a portal to reliable, selected information. Unique image collections are being digitized to provide better access (see

www.content.lib.washington.edu) and Libraries' staff members are playing leadership roles nationally and internationally in the development of metadata standards for digital information. Librarians also are working with faculty members to create specialized knowledge bases to support teaching and learning (see links to Cities and Buildings, Jacob Lawrence Project). The Libraries, working with the College of Engineering, is refining a toolkit, called Content, for creation, organization and retrieval of image and other multimedia databases.

The "My Gateway" feature of the Information Gateway is being offered as a way to create a customized view of information and the Web. My Gateway has been cited nationally by the Library and Information Technology Association as a technology to watch.

UW librarians also are active in changing the definition of the UW's library collections. How to *select* web resources to link to Libraries subject web pages is being discussed and guidelines developed. The Libraries also is involved in consortia activities with other academic libraries in the state and is investigating other national consortia arrangements. Expertise in licensing has been acquired and staff are working nationally on copyright and intellectual property issues.

How will the Libraries' collections and associated services evolve by 2010? To some extent the answer to this question depends on the evolution of scholarly communication and publishing. Clearly, there will be more electronic information. More information in traditional formats will be digitized retrospectively. It is likely that the amount of publishing in print will have begun to decrease by 2010 and perhaps the format of the scholarly monograph will evolve. Statewide or even national licensing of databases will become common and the UW Libraries should benefit. Customized information will be the norm. The amount of research and scholarly information will continue to spiral upward. A new generation of faculty members will have arrived at our university, bringing unforeseen changes. How and where instruction is delivered will have changed with consequences for where and how information is provided. Perhaps the economics of digital publishing and information will be more mature, with more predictable patters of costs and prices.

The UW Libraries will continue to be the premier library in our region and a national resource. Staff will continue to develop expertise in licensing and contracting for information with assurances for digital preservation. The Libraries will continue to collect unique primary, print and archival resources. More and better tools for customizing information will be available, in part due to efforts currently underway in the Libraries.

Related Resources

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**c. Organizing Knowledge and Providing Access**

*Pre-Web:* Books and journals are cataloged and organized on the shelf, with one place for each book. As patrons access materials in the stacks, browsing and serendipitous discovery are possible. Each item can be checked out to one patron and is then unavailable for use by others. Authorization for use is face-to-face.

Cataloging is done under rules created for the print and card catalog environment which have been adapted for the creation of machine-readable records. MARC is the standard for communicating and exchanging catalog records. Contributions to the national cataloging database, maintained primarily at OCLC, have created a shared resource for cataloging records. Libraries have used technology to increase productivity in the cataloging and other processing functions in individual libraries.

Access is provided by a series of related but un-integrated tools—library catalog, indexes and abstracting services, and other access tools.

Photocopiers for making individual copies of journal articles, portions of monographs, and other information and microform readers/printers for copying microforms are essential services for library users.

*Current Web environment:* As new forms of information have appeared (web pages, electronic resources, compound documents) new ways to organize (i.e., catalog) those information resources have been necessary. New forms of access and organization are beginning to appear. The Web allows a library or an individual to hyperlink information resources. Work is underway to design standard metadata (data about data) systems to allow searching for and exchange of information across retrieval systems. New methods and tools are evolving with a universal access tool as the ideal: one interface, or portal, or catalog, as the way to resources of all types. It is now possible to imbed links so that searchers can jump from the citation for an item directly to the full-text of the article.

Users are faced with an overwhelming amount of information. The current environment is chaotic and un-organized. The possibility of fully organizing the Web is being debated. Multiple approaches to the same piece of information (multiple ways of discovery) are possible. Library users often do not know where they are on the Web and do not

necessarily understand that they may be using a resource provided by a library. The idea that things on the Web are "free" is widespread.

The technology for circulation has changed dramatically in the past several years—barcodes, security gates and plates, and online catalogs that can tell a patron whether or when material is available. Patrons may now renew materials from home by computer or telephone and many libraries are experimenting with self-check out of materials and patron-initiated interlibrary loan. Technology will not only impact how physical objects are loaned to patrons but increasingly libraries provide access to material that cannot be loaned. The materials exist instead in an electronic format at a remote site and are accessible only to authorized users.

*Implications for the UW for 2010:* It is important for the UW Libraries to be involved as much as possible in the development of new access mechanisms and new organizing tools and standards in order to share their expertise and to shape development as needed by our library users. Among the Libraries staff are recognized national experts in cataloging and organization of information as evidenced by the Libraries invitation to participate in the work of the Dublin Core group to develop international metadata standards and participation as trainers in the work of the Program for Cooperative Cataloging of the Library of Congress.

The Libraries Information Gateway has been recognized for its high quality. Librarians have presented at national and international meetings on the Gateway and on the Digital Registry which automatically generates subject web pages from centrally cataloged resources. Libraries staff must continue to work on national standards for integrated retrieval tools.

The new technologies also provide an opportunity for increasing productivity through process improvements. The staff must continue to take advantage of new systems capabilities; to influence the design of systems for library processes and of new automated services introduced by vendors.

New access mechanisms have been introduced to verify eligibility for services via such developments as the new proxy server to authenticate remote users not using the campus modem pool.

Related Resources

Kohl, David F. "Public Services in the Revolutionized Environment." In *The National Electronic Library: A Guide to the Future for Library Managers*, ed. Gary M. Pitkin, 139-145. Westport, Connecticut: Greenwood Press, 1996.

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Ciuffetti, Peter. "Cataloging for a Worldwide Digital Library: A Proposal for Organizing Ephemeral Metadata Information." In *Finding Common Ground: Creating the Library of the Future Without Diminishing the Library of the Past*, ed. Cheryl LaGuardia and Barbara A. Mitchell, 337-344. New York: Neal-Schuman Publishers, 1998.

McCue, Janet et al. "Providing 'Services' to the Electronic Library: The Role of Technical Services." In *Finding Common Ground: Creating the Library of the Future Without Diminishing the Library of the Past*, ed. Cheryl LaGuardia and Barbara A. Mitchell, 357-374. New York: Neal-Schuman Publishers, 1998.

**d. Preservation and Storage**

*Pre-Web:* Preservation of organic materials (paper, cloth, clay tablets, vellum, et cetera) has been the focus of research and development. Content is preserved through preservation of the object. Preservation is separate from access issues. Early electronic data and information (e.g. NASA data) is lost through lack of action and understanding of the medium.

*Current Web environment:* Digitization has been introduced as a preservation technique for paper-based materials. Brittle materials can be digitized to improve access and to preserve. Preservation of information born digital is also an increasing challenge. Reliable methods are needed for migrating digital information into the future as hardware and software change.

Preservation of the physical object remains important for historic and scholarly reasons. Preservation of paper, cloth, et cetera continues to be an essential focus, but digital preservation has also become a critical issue. Until libraries are assured of techniques for migrating digital information into the future they will be reluctant to give up print versions. The issue is equally critical for born-digital information. Methods and institutions for insuring their preservation and reformation in the future are needed.

The will continue to be a need for the preservation of traditional materials. This includes both circulating materials and unique materials in manuscript and archival collections.

*Implications for the UW for 2010:* The Libraries cannot totally rely on current systems and structures for preserving digital information into the future. Some faculty and others are reluctant to give up print when digital forms are available. Regional or national cooperation should be sought to assure the existence of some print copies of materials that have been converted to electronic formats. The libraries need to understand where (which disciplines) and when faculty and researchers are prepared to accept a digital information base.

<u>Related Resources</u>

Treadwell, Jane B. "Traveling Through the Wilderness: The Long Transition to the Digital Library." In *Finding Common Ground: Creating the Library of the Future Without Diminishing the Library of the Past*, ed. Cheryl LaGuardia and Barbara A. Mitchell, 74-79. New York: Neal-Schuman Publishers, 1998.

McManus, Jean. "Archiving the Content of Print and Electronic Reference Works in the Digital Age: An Analysis and a Proposal." In *Finding Common Ground: Creating the Library of the Future Without Diminishing the Library of the Past*, ed. Cheryl LaGuardia and Barbara A. Mitchell, 375-380. New York: Neal-Schuman Publishers, 1998.

**IV. Library and the Information School: A Symbiotic Relationship**

*Past reality:* For a variety of administrative and institutional reasons, schools of library and information science have historically had minimal or incidental relationships with the libraries at their parent institutions. While some contact has been beneficial to both (e.g., the school's students do receive paid, on-the-job training in areas related to their chosen field and the libraries get a knowledgeable and interested group of interns and part-time workers), the relationship has remained marginal. Only a few students, relative to the school's population, have an opportunity to take advantage of the training, the training varies in its intensity and quality, and the day-to-day demands of running a library often prevent the institution from fully benefiting from a ready and willing pool of students.

*Changing Reality:* The library and the Information School will have a transformational, mutually beneficial relationship. For years the medical model of education has included hands-on, clinical training for medical students in teaching and research hospitals. This relationship between the educational arm and the institutional arm of the medical field has been very successful: Teaching and research hospitals have often gained local, national, even international reputations as top-ranked, state-of-the-art medical facilities while the associated medical schools have concurrently gained similarly stellar reputations for medical education.

In the future library, the parallels in the medical model of education will be closely examined and utilized. Just as the hospital's patients present a panoply of medical "needs" to the medical professionals and students engaged in providing care at the hospital, so do the library's patrons present a wide variety of information needs. These information needs are currently resolved by library professionals who, in the future library, will have an active role in demonstrating - in classroom and the library "laboratory" - the process of satisfying these needs. In turn, a vibrant and cutting edge Information School, engaged with such a future library, would be involved - in the classroom and library "laboratory" –in research and demonstration projects utilizing new technology, insights, developments, and techniques that could be applied to the "needs" resolution process. Current questions such as how to utilize databases assembled by individual faculty members, how to define a collection in the context of the full-text electronic environment, or how to best educate patrons in satisfying their information needs in the newer, complex information environment are just a sampling of questions that could be grappled with by working professionals in the libraries alongside masters and doctoral students encountering the problems for the first time and bringing to the problems a fresh perspective.

Further, just as the teaching and research hospital as an institution—apart from its patients—is engaged in resolving a myriad number of administrative and institutional problems, so too the "teaching and research library" of the future will be able to bring to an Information School a real-world perspective and context for faculty and students. The two together - library and Information School - can then engage in joint ventures to examine and resolve the problems presented by the real-world context.

*Implications for the UW for 2010:* Few universities are better suited to fulfill this future vision of the "teaching and research library." With a library that has a national reputation and that is the premier research library in the vast geographic area of the Pacific Northwest and with a vibrant, growing Information School that is rapidly gaining

national attention and praise, the University of Washington is poised to bring to fruition this vision.

## V. SUMMARY

Even in stable times, seeking to predict the future is a daunting task. Attempting to do this in an time of unprecedented change is even more difficult, but all the more important. New information technology capabilities affect every aspect of the nature of library work—the ends (services and resources for users) and the means (interaction with users; selection of information and resources; organization, storage, retrieval and delivery of information). And, as emphasized, this is also a time of exceptional change for higher education.

We therefore accepted the challenge of re-envisioning the academic library fully aware of the difficulties and importance of doing so. We carefully combed the literature for the thoughts and projections of others; we conducted numerous discussions with colleagues; we argued among ourselves. Ultimately, we concluded that given the challenge of the information revolution, the academic library can and must play an even greater and more active role in the university. Education and research in an electronic age demands a complex, high-level, and flexible information infrastructure (services, systems, resources, instruction). The library, as an information- and people-focused institution, is the appropriate entity to be charged with this responsibility.

We stated that the academic library is the intellectual commons of the university, meaning that the library must do more than passively provide access to resources. The library's ongoing mission continues to be is to meet the information needs of all members of the broad university community. The library provides the physical and virtual information environment where people, information, and ideas interact to form knowledge and wisdom and where that knowledge and wisdom is gathered, stored, and shared for consideration by others now and in the future.