Academic Libraries

Susan Carol Curzon
Oviatt Library, California State University, Northridge, Northridge, California, U.S.A.

Jennie Quiñónez-Skinner
Department of Reference and Instructional Services, Oviatt Library, California State University, Northridge, Northridge, California, U.S.A.

Abstract

This entry provides an introduction to academic libraries including an overview of the mission, history, governance, external influences, collections, services, organizational structure, personnel, administration, and facilities of academic libraries. The issues and future of academic libraries are also discussed.

Academic Libraries are libraries that belong to institutions of higher education including publicly funded, federal, state, provincial, or national universities or colleges, privately funded universities or colleges, two-year community or junior colleges which can be publicly or privately funded, tribal colleges, professional schools, and special focus institutions that offer a single or small set of programs. These institutions grant a range of degrees from the associate of arts to the baccalaureate and from the master's degree to the doctorate. This entry will provide an overview of academic libraries including such topics as their mission, history, governance, external influences, collections, services, organizational structure, personnel, administration, and facilities.

The mission of academic libraries is to support the educational and research activities of their parent institution through the provision of collections, services, and user education. Providing support for teaching, learning, and research is the focus of academic libraries. Academic libraries are vital to the success of the academic enterprise of their institutions whose research and teaching agenda are greatly enriched by libraries whose collections are broad, rich, and diverse.

Academic libraries are found in almost all postsecondary educational environments. There are 17,000 institutions of higher education throughout the world today.[1] There is no count available of the number of academic libraries internationally. However, UNESCO has a portal for academic and research libraries that reveals 3785 libraries providing a link from all parts of the world.[2] In the United States, there are 3700 academic libraries today according to the National Center for Education Statistics.[3]

While the core mission of academic libraries remains consistent throughout institutions of higher education, academic libraries vary considerably from each other in size, in resources, in collections, in services, in complexity, and in numbers of library facilities serving the institution. The variation is largely a product of the mission, the history, the size, and the funding of its parent institution. Looking at some examples of variations around the globe, there is the Harvard University Library which is "the largest academic library in the world," founded in 1638, and developed to serve this institution's extensive research agenda and internationally recognized programs.[4] Another example of variation is the Kenya School of Professional Studies Library which was only established in 1991 to serve its 2500 student population.[5] Yet another example of variation is the University of the South Pacific which has libraries located throughout its 12 member countries (Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu).[6] This is in accordance with the University's mission of being "the premier provider of tertiary education in the Pacific region."[7]

HISTORICAL CONTEXT OF ACADEMIC LIBRARIES

From the early card catalogs to Online Public Access Catalogs (OPACs), from print indexes to periodicals via electronic article databases hosted online, the organization and access of academic library materials has changed dramatically over the past century. For hundreds of years, the predecessors of today's academic libraries relied on inventory lists, similar to contemporary archival finding aides, to keep track of books, scrolls, and tablets.[8] During the nineteenth century, the rotary printing press, public funding for colleges and universities, and the emergence of the profession of librarianship laid the groundwork for the meeting of technology and user-centered services which changed libraries in the twentieth century.

During World War II and throughout the Cold War, government funding for natural and social science

research expanded to include area studies, such as Latin American studies. These new disciplines were integral in the development of new collections and the creation of new resources.[9] Collections at academic libraries expanded as new research areas were explored by faculty; this expansion included non-English books.

The children of the World War II generation, the baby boomers, entered college during a time of great social and political change. Just as the student population increased so did the collections in academic libraries which now grew to 100,702,000 volumes.[10] The Civil and Women's Rights movements diversified the campus population and challenged the traditional research canons. For libraries, as the population changed, so did library collections change with new subject areas, and so did new issues emerge in user services and education. With a large number of first-generation college students, the role of the academic library was not just to preserve a collection, but to continue a larger discussion within the profession, lasting into the twenty-first century about how to teach users to search independently and more effectively with a wealth of information now available in the library and online.

For academic libraries, two great shifts in technology occurred during the twentieth century. The first shift occurred with the development of Machine-Readable Catalog (MARC) standards. In conjunction with MARC, the Anglo-American Cataloguing Rules provided the format for descriptive cataloging while the Library of Congress Subject Headings were used to describe the subject matter of a record.[11] Automation of library records allowed computers to read information about a book using data elements, such as code. The first OPAC was launched in 1970 at Ohio State University and facilitated the sharing of library information between institutions.[12] In 1981 the Ohio State project would be known as the Online Computer Library Center (OCLC).[13]

The second great shift, the 1990s, was the age of the Internet. For centuries libraries were the primary source for information and materials, but the Internet broadened the meaning of library science and the potential for sharing information. Now, academic libraries are competing with information sources not just created by scholars, but sources created by everyday people who were challenging the library and faculty as the gatekeepers of knowledge.

Libraries have responded by opening their collections to the public. Many archival collections have a portion of their materials including photographs and finding aids, available online. Similarly the OPAC's are accessible through library homepages giving users throughout the world the ability to search the holdings at any particular institution, at anytime. More than a quarter century after OCLC was formed, WorldCat launched a public tool for searching more than "one billion items in over ten thousand libraries worldwide."[13]

In the years ahead, libraries in higher education face many hurdles: funding cutbacks, increased costs for electronic serials and books, and a student population with ever changing user needs. The field itself is in a state of flux and self discovery, as academic libraries rethink their place in the larger world of information. Much of the strength of library resources lies in their print collection and knowledge of staff. Finding ways to package and promote services to the new generation of students and faculty will require opening the field to opportunities for sharing resources, for cooperatively creating online tutorials and instructional components for the growing online classes. Our success will depend on the ability of the librarians and administrators to adapt to social, economic, and political changes that have impacted academic libraries throughout the twentieth century.

EXTERNAL INFLUENCES

Academic libraries, as a key component of the academic enterprise, are influenced by the same forces influencing education today. While these forces vary from country by country, such important issues of student enrollment and retention; student preparation for college; time to graduation; competitive salaries for campus personnel; trends in academic disciplines; distance education; changes in educational legislation; technology-based instruction; and adequate funding are universal and impact the library. The library must assist with solving the institution's challenges, exist within the confines of its budget, and react to its changing needs. Other external influences related to accreditation, legislation, intellectual property, and the actions of organizations and associations can also impact the library very directly.

Accreditation is an important external influence in some countries. Within the United States for example, there are regional commissions which accredit the universities because "In a quality assurance environment, accreditation is the most visible 'report card' regarding the quality of institutional effectiveness and performance."[14] Academic libraries are often evaluated as part of the accreditation process on the range of services, the depth of collections in a variety of subject fields, the outreach to the academic departments, the integration of the library into the academic enterprise, and the information literacy focus. The core question for accrediting agencies is—can this library support the stated educational and research mission of the institution?

To assist with this process, the Association of College and Research Libraries (ACRL) in the United States has developed standards or "a comprehensive outline to methodically examine and analyze all library operations, services, and outcomes in the context of accreditation." The intent of this document is to "provide both a quantitative and a qualitative approach to assessing the effectiveness of a library and its librarians" so that the library can demonstrate its compliance with the requirements of the accrediting body.[15]

Academic libraries can also be impacted and controlled by legislation or governmental regulations. For example, a user's borrowing and searching history has been private and protected in most academic libraries, but recent legislation in the form of the USA Patriot Act has had an impact on user records. The USA Patriot Act "broadly expanded law enforcement's surveillance and investigative powers" which in turn allowed authorities more access into the confidentiality of library circulation and other usage records.[16]

Another example of an external influence is intellectual property which has grown ever more complex with emerging technologies. As the American Library Association (ALA) states

> Copyright issues are among the most hotly contested issues in the legal and legislative world; billions of dollars are at stake. Legal principles and technological capabilities are constantly challenging each other and every outcome can directly affect the future of libraries.[17]

Of course, in the global economy, intellectual property issues are not simply an issue for one country alone. For example, countries that are members of the World Trade Organization know of the "Agreement on Trade Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods"

> which sets out the obligations of member governments to provide procedures and remedies under their domestic law to ensure that intellectual property rights can be effectively enforced, by foreign right holders as well as by their own nationals.[18]

Another example of a global influence is the agreement between the European Union and the U.S. Department of Education, Fund for the Improvement of Postsecondary Education (FIPSE)

> which decided to promote a 'Transatlantic Degree Programme' that can contribute to innovation and recognition of curricula and teaching methods and to the acquisition of skills required to meet the challenges of the global knowledge-based economy.[19]

Such cooperation is very desirable globally but may call upon academic libraries for increasing or new services.

PROFESSIONAL ASSOCIATIONS

Academic libraries are also participants in and influenced by professional associations. Such associations further the success of academic libraries by providing a forum for the exchange of ideas, by influencing public policy relating to libraries and information and higher education, by providing opportunities to network with colleagues; by

creating opportunities for cooperation and dialogue; and by providing leadership on emerging issues.

Library associations for academic libraries are all across the world. For example, there is the Association of Caribbean University and Research Libraries located in Puerto Rico; the International Association of Technological University Libraries located in Ireland; the Canadian Association of Research Libraries (ARL)/Association des bibliothèques de recherche du Canada located in Ottawa, or the Association of Libraries of Czech Universities located in Prague.[20]

Academic libraries also participate in The International Federation of Library Associations and Institutions (IFLA). In their strategic plan, IFLA cites that "The Academic and Research Libraries Section promotes and strengthens the development, cooperation and good management of academic and research libraries in all countries."[21]

In the United States, the American Library Association has a division called the Association of College and Research Libraries (ACRL). ACRL is "dedicated to enhancing the ability of academic library and information professionals to serve the information needs of the higher education community and to improve learning, teaching, and research."[22]

Another example is the Association of Research Libraries whose 123 member libraries are part of research-extensive universities in the United States and Canada. "ARL member libraries are distinguished by the breadth and quality of their research-oriented collections as well as the characteristics and magnitude of the multidisciplinary communities they serve."[23]

There are other associations and organizations that set standards which have an impact on libraries. For example, the National Information Standards Organization (NISO) addresses

> the communication needs of libraries, information services, publishing and book trade in such areas as: information transfer formats, identification systems (codes and numbering systems), publication formats, and library equipment and supplies.

This same ALA Web site provides an excellent list of such organizations.[24]

GOVERNANCE AND HIERARCHY

The governance of academic libraries is subject to the governance structure of the colleges or universities of which they are a part. This governing structure establishes the budget as well as the policies and the regulations with which the library must also comply.

The governance of institutions does vary, but usually the institution reports to a Board of Trustees whose members are either elected or appointed from such groups as

alumni, faculty, community members, major donors, or political or religious affiliates. A Board of Trustees governs within the charter and bylaws of the institution which lays out their rights and responsibilities and which is legally binding. One example of a Board of Trustees is from the University of Queensland in Australia which is governed by a 22-member senate representing University and community interests. Another example comes from the University of British Columbia in Canada which has a 21-person board of governors including[26] 11 persons appointed by the Lieutenant-Governor of the province.[27] The head of the institution, frequently called a President or Chancellor, reports directly to the Board of Trustees. In turn, the chief academic officer often called a provost, a vice chancellor, or vice president, reports to the President or Chancellor.

The head of the Library, who often uses such titles as University Librarian (UL), Dean, or Director, often reports to the chief academic officer because libraries are part of the academic enterprise or the activities of teaching, learning, and research, all of which are the domain of the chief academic officer.

Additionally, the library might also have faculty advisors appointed or elected by the academic senate of the institution. The academic senate, which not all institutions of higher education have, is comprised of faculty members elected by their peers to participate in the shared governance of the institution in matters pertaining to teaching, curriculum, research, and faculty personnel matters. These faculty senators work directly with the UL advising on such matters as policy, services, and budget as well as providing the UL with input on the changing needs of the faculty and students. These faculty advisors might also act as advocates for the library particularly in supporting the library's financial needs.

ORGANIZATIONAL STRUCTURE

The organizational structure, that is, the way that the service units within the library are organized hierarchically, varies substantially in academic libraries depending upon size, history, and need. The following is a general description of a common organizational structure with discussion on some variations. Generally speaking, many academic libraries are divided into Public Services and Technical Services although there are many variations on the names. All services or units report into Library Administration.

Library Administration is comprised of the Office of the UL as well as management and staff personnel associated with planning, policy-making, budget, personnel, facilities, security, and fund-raising. Often the UL has one or more assistant or associate University Librarians (AUL). Administration is responsible for leadership and all its many dimensions, for the provision of resources and for decision-making. Administration also has a

regulatory role to make sure that the library is in compliance with policies, regulations, and budgetary matters.

Public Services, which usually reports to an AUL or equivalent, is responsible for connecting the user to resources through the provision of direct services that make the library understandable, accessible, and easy to use. Public Services is comprised of service units such as reference or research services, user education, circulation, interlibrary loan, media, government documents, maps, and other specialized services. Sometimes outreach services to students is located here and sometimes in Administration. The reference services unit and the user education unit can often be separate services from Public Services.

Technical Services, which also reports to an AUL or equivalent, is comprised of the acquisition, the cataloging, and the processing of resources. It is the job of Technical Services to order, receive, and process resources in an expeditious fashion so that the resources are available to the user as soon as possible. Bindery and repair of resources are usually located in Technical Services. Many Technical Services units today have contract management personnel because some of the traditional responsibilities of Technical Services personnel are being outsourced such as the copy cataloging, bar coding, and labeling of books.

Collection Development/Bibliography, or the selection of resources, can be located in Technical Services or in Public Services but it could also be a separate unit if the library is large enough. Personnel in this unit, usually librarians, are responsible for selecting the information resources, including print, electronic, and media, which meet the curriculum and research needs of the institution.

Services that are technology-based such as digital archives or institutional repositories are emerging fields and not yet stable in their operations, and so could report anywhere in the library.

Library Systems, or the unit that is responsible for library technology, can exist as one unit managing the integrated library system, the Web development, other online systems, and the computers and computer labs. Management personnel, such as a systems administrator or director of technology, usually are responsible for Library Systems. However, these duties can also be split into different areas. For example, the personnel who support the integrated library system might report to Technical Services. The Web developer might report to Administration. Personnel who manage the computers and computer labs might report to Administration or to Public Services.

Special Collections of rare materials, archives, and oral histories are usually a separate unit particularly in libraries of considerable size. Special Collections is usually headed up by a Curator who may report to the AUL of Public Services or to the UL.

Large institutions of higher education usually have more than one library on the campus. In fact, large research universities can have dozens of libraries on

campus. For example, Oxford University in England has over 100 separate libraries.[28]

Sometimes libraries in these large institutions are united under one UL, but often not. For example, the heads of medical or law libraries often report directly to the dean of the medical or law school rather than the UL. The head of an academic departmental library, such as a business library, could report to the dean of the college of business rather than the UL.

Institutions of higher education that have developed satellite campuses to reach students in remote geographic areas usually have satellite libraries on those campuses. The heads of the satellite libraries might also report to the UL.

Regardless of the reporting line, it is increasingly important for the libraries in one institution to cooperate through a single integrated library system, by access to shared resources and by shared technical services support. This cooperative and integrated approach benefits greatly the students and faculty.

The important issue is not how the library is organized but how efficient and effective its structure is and how well its systems and processes are integrated for the benefit of the user.

USER PRIVILEGES

The users of academic libraries are primarily students and faculty of the parent institution. Academic libraries also extend library privileges to visiting scholars and other researchers. Publicly funded colleges and universities may provide some limited library privileges to members of the greater community. Members of the Friends of the Library, a fund-raising and support group, alumni, other significant friends and donors also usually receive some limited library privileges. Sometimes there is reciprocity between nearby academic libraries to extend library privileges to each other's faculty.

Library privileges in academic libraries are not consistent across groups of users. Along a continuum of increasing privileges, faculty members usually receive the most privileges as befitting their pivotal role in a teaching and research enterprise. After faculty come graduate students in terms of range of privileges, and then undergraduate students.

The range of library privileges include the ability to check-out resources including media, to use interlibrary loan, to request document delivery, to access online resources, to access course reserves, to use the computers, to browse closed stack areas, to use private study carrels and group study rooms, and to access rare and valuable materials.

PUBLIC SERVICES

Each generation of library users has had different expectations for service and access to their library's collection.

In response, academic libraries are continually adapting to their user's needs and lifestyles. For example, many academic libraries are concerned about the experience a patron has when they use the library which now includes digital as well as physical space.

There are many public services in a library. The purpose of these services is to connect the user to resources and to encourage use of the resources so that faculty research can be supported and so that students can fully engage in scholarly activity. However, the development of these services has been based on the idea that the library should be user-friendly, straightforward, and rapid in response. Many libraries make a special effort to make user services simpler for freshmen and sophomores who are still learning about scholarly research.

The following section explores some of the main public/user services found in most academic libraries.

Circulation: The circulation unit in the academic library is a key access service point. At the circulation desk users can checkout library materials, renew books, return materials, and pay fines; these functions are some of the more visible tasks associated with the circulation desk. Circulation personnel usually staff the library for all hours that the library is open.

Staff at the circulation desk have a variety of other responsibilities that are important to keeping the library running which include the following: maintaining the books in order on the open stacks, re-shelving, supervising group and individual study rooms, collecting books for campus book drops, opening and closing the library, managing holds and course reserves, staffing the library entrances and exits, tagging damaged items for repair, assisting students with disabilities, troubleshooting photocopiers and self checkout machines, and collecting statistics when necessary. Additionally, circulation serves as backup to the other service desks, often manages problem or troublesome users, and often has responsibility for security.

Interlibrary loan: Interlibrary loan has roots in the early monastic libraries, where materials were shared between communities of religious scholars. Today the role of the interlibrary loan continues to expand the user's access to a collection, beyond the holdings of their own library. There are three items that are typically requested via interlibrary loan: books, periodical articles, and dissertations. Many libraries will also lend media and microfiche. Books are actually lent from an institution and mailed to the borrowing library. For articles, there are two options, users receive a photocopy of the original, which they are allowed to keep, or a scanned copy of the article is sent electronically to the borrower. User-initiated interlibrary loan is more common as citation databases provide links to other library catalogs. Frequently requested items from interlibrary loan are tracked and the information is sent to bibliographers to assess the benefits and costs of adding books or journals to the collection.

Course reserves: To support instruction on campus, academic libraries manage course reserves; faculty can place books, media, and articles on a limited check out for their students. The typical checkout period is 2 hr, but can be set up for longer periods of time. Increasingly, faculty can also select articles and book chapters for electronic reserves. Materials are scanned and kept online for the duration of the semester; to deal with copyright issues, only students enrolled in the class are permitted access to the materials via login and password. Some libraries are hosting multimedia on electronic reserves; this is a popular option for colleges with film or cultural study programs.

Government documents/maps: Many users need assistance while researching federal, state, and local government documents. For example, in the United States, the federal government uses its own classification system called the "Superintendent of Documents Classification System" which is organized by the originating agency and quite different from the more familiar Library of Congress classification system used by most American academic libraries. Many libraries with staff who are specialists in government documents provide on-call service to help the users or provide an entire service desk if the collection is large enough. Libraries collect government documents as they contain a wealth of information about an extraordinary range of topics such as labor, health, legislation, politics, statistical data, trade, and agriculture. Many of these same jurisdictions also issue maps. Increasingly government information is provided electronically making them easier to use but much, especially retrospectively, is still only in print form.

Journals and microform: Users are often challenged to use print and electronic journals and microform. Some academic libraries provide service desks specifically for this service in addition to the reference desk. Although academic journals are largely electronic at this point, and even with the advent of federated searching, they still are not intuitive for the majority of users and require a fair amount of guidance. Microforms, which for many years were the only form of retrospective newspapers and journals, are particularly labor-intensive requiring expensive equipment and assistance to search through this resource. Many academic libraries still have very large microform collections from the past which are still used by researchers.

Special collections: Providing service to resources contained in a special collections unit create some of the greatest challenges in terms of service. Special collections can contain a wide variety of rare books or other items, archives, oral histories, letters, diaries, photographs, memorabilia, paintings, and so forth. Resources in special collections share the common bond of being rare, valuable, and sometimes unique. While still giving access to authorized users, the staff must make sure that the materials are properly handled, safe, and secure. Users must be visible at all times to the staff and often there are video monitors to protect the rare materials. Many special collections operate very much like their own library with policies and procedures particular to their needs.

Exhibits: Many libraries provide an educational experience by providing exhibits. Exhibits require substantial work and maintenance. The purpose of the exhibits is to show students some of the library's treasures or inform them about historical or current events or personages. Faculty will sometimes use the exhibits for assignments. Exhibits are also used for fund-raising purposes by inviting current and potential donors to the opening of an exhibit.

Computer assistance: Most academic libraries provide computers for students to use including laptop checkouts. Additionally, libraries are providing other higher-end technology so that students can create multimedia productions. Even though students are increasingly skillful in their use of computers still assistance is required to help the students with software, hardware, e-mail, logons, and access. Sometimes libraries partner with campus information technology units by having their help desk in the library.

Imaging services: Students still need to photocopy, print out their papers, fax, and use high-end color printers. Academic libraries usually provide on-site imaging services for this purpose. There is usually a cost for any one of these services. Mostly this activity is outsourced to a vendor rather than the library providing the service directly. A partnership is formed and both the library and the vendor share in the profits.

Service for specialized collections: Many academic libraries have collections which require more assistance to use; which require different housing than the stack area; and/or which require more security for the collections. Some libraries provide a service area and desk staffed by personnel knowledgeable in the field of the specialized collection. Examples of specialized collections include music scores, media, curriculum materials, science collections, and so forth. Many of these specialized collections areas also operate like their own library with unique policies and procedures.

Reference: The reference desk provides immediate one-on-one research assistance usually from a librarian. A reference interaction can be as simple as pointing out the circulation desk to a lost user. Other questions are not so easy to answer; most reference questions require extensive knowledge of the library's collection and a solid subject specialization.

The role of the reference desk as a service point is a topic of continued debate in library science and among library administrators. Statistics from the ARL show a decrease in reference transactions between the years 1991 and 2004, by 34%.[29] The statistics from ARL are not without criticism; they represent only research libraries and do not delve into the types of questions at the reference desk that are increasingly complicated and entail more time with students.

The drop in reference desk traffic sparked some library administrators to dissolve their reference desk or replace it with an information desk. The newest University of California campus at Merced never had a reference desk. The services associated with the desk are handled through chat and e-mail. Librarians use portable devices such as cell phones and laptops to respond immediately to patron questions.[30] Moving reference to a purely digital environment is the exception and not the norm in institutions of higher education.

Most academic libraries offer a hybrid reference services. The array of services include: a visit to the physical library to seek help at the reference desk; an individual appointment with a librarian; a call on the phone, e-mail, or online chat with a librarian. Each of these formats has their own advantages and disadvantages; online services provide convenient remote access, while visits to the reference desk provide an opportunity for more in-depth assistance.

A typical reference desk will have resources grouped as ready reference or general reference; in this collection are encyclopedias, dictionaries, atlases, and handbooks. Each library is organized differently, but ready reference is for items that are used frequently such as style manuals and the schedule of classes. With more general information online, many of the questions at the desk involve searching for information that is available on the Web.

User education: Library user education can occur through any service but it primarily refers to formal instruction by librarians to help the user to use resources effectively. In the United States, this educational process began in the late nineteenth century, even earlier at German universities. As collections at academic libraries grew, so did the need for a better way to organize materials; as a result, users were unfamiliar with the library's system and collection. The term bibliographic instruction was coined to describe user education. These early bibliographic instruction classes taught users how to search for materials in the collection and how to create a works cited list; for example, one of the earliest library instructors was Edwin Woodruff who taught at Cornell University.[31]

The explosion of information both in print and on the Web meant that users increasingly needed intellectual tools to use library resources and other information effectively. These tools were identified as a set of skills necessary for a user to recognize when information is needed, how to locate the information, and how to use effectively found information; this process became central to the information literacy standards outlined by the ALA's Presidential Committee on Information Literacy in 1989.[32] The development and mainstreaming of instructional programs shared a common purpose—provide students with the training to help them complete their assignments and develop critical thinking skills for their life during and post college. The popularity of these programs increased with major information literacy initiatives

started, for example, by the California State University librarians who brought a program of information literacy to 23 campuses.[33]

In today's academic libraries, bibliographic/library instruction often takes place in a computer lab, usually for 1 hr and only once during the academic session. Professors usually bring their classes to the library after making arrangements with the librarian beforehand. Throughout the year, the librarians teach a variety of sessions that cover a wide range of subjects from general information literacy tasks to more specialized research skills, depending on the type of class and needs of the students.

While a librarian will vary the instruction depending upon the subject matter and requests by professors, a typical instructional session at the library will contain some of the following points: finding materials using the library's online catalog; creating a research statement and question; selecting the appropriate keywords to search the OPAC and article databases; selecting an appropriate database depending on the topic; narrowing and expanding a search using advanced search options and truncation; finding the article or books cited in an article database or catalog, respectively; differentiating between a scholarly or popular source; citing sources using the appropriate style guide; and evaluating information on the World Wide Web.

Online instruction is increasingly popular using the capabilities of course management systems or through the library's Web pages. Initially, study guides, created as static Web pages, were the first round of materials to be placed online; most of the guides were reproductions of handouts photocopied and passed out during library instructional sessions. A typical study guide includes suggested reference books, article databases, and other Web pages that are useful for an area of study. Now, dynamic Web pages that allow users to contribute content to a Web page are gaining in popularity. Users can leave comments and tag information on dynamic pages; although, the newness can distract from some of the problems associated with these pages. Most of the user content driven pages are not easily accessible for students with disabilities using assistive technology such as Job Access with Speech (JAWS), which reads Web page content to visually impaired patrons. User-driven content is also a concern because there is no way to monitor the dissemination of misinformation on dynamic pages.

Beyond the study guide, librarians at academic universities have explored other techniques for incorporating technology with information literacy curriculum. Online tutorials gained popularity because of technology advances. More affordable software for taking snapshots of a computer screen or filming sample search on an online database allowed librarians to bring the instructional class to the user, anywhere. The ACRL hosts the Peer-Reviewed Instructional Materials Online database, also known as PRIMO. Through PRIMO librarians are able to review tutorials developed by their colleagues.

The goal of PRIMO is to share resources and tools throughout the profession.[34] Similar to dynamic Web pages, any online instructional component must be accessible to all patrons to meet Americans with Disabilities Act (ADA) standards for access; for example, an audio file needs accompanying text and an image file needs audio or text describing its purpose.[35]

The need for user education continues. In early standardized tests designed by the Educational Testing Service, the Information and Communication Technology (ICT) test showed that students had difficulty identifying biased material on the Web and when searching a database most of the students found irrelevant results.[36]

COLLECTION DEVELOPMENT

Collection Development is the selection and maintenance, including weeding, of materials, primarily books and serials, based on the needs of the academic departments, faculty, and students.

In the later part of the twentieth century, Collection Development became increasingly more challenging as institutions faced smaller budgets and a greater demand for digital resources, such as electronic serials and books. The difficult terrain of digital content required more training for academic librarians and staff in copyright law, contracts, and in issues of preservation of electronic collections.[37]

Typically, Collection Development is the responsibility of a bibliographer, also known as a subject specialist; they are assigned to one or more disciplines; some colleges and universities have a head Collection Development librarian who oversees all of the bibliographers.

Selecting materials for a collection is a subjective process and thus personal interests and biases are unavoidable. In response, librarians use Collection Development policies to outline the selection and maintenance process in detail. Collection Development policies follow a similar structure. First, the policy outlines the history and needs of an academic program on campus. Second, the policy describes the scope of the current library collection. Third the policy outlines the immediate and future needs of the libraries collection for a subject area, which are defined as languages, geographical areas, subtopics, and material types. The policy statements provide both the current and future staff with guidelines for building the collection over a long period of time.

An ongoing issue in Collection Development is the involvement of faculty in the decision-making process for materials; there are positives and negatives to their involvement. Faculty are engaged in their subject area and know the recent publications, new scholars, and important research trends; on the flip side, this type of narrow research expertise can make it difficult for scholars to see the importance of other subject area collections. Alternatively, many libraries have purchase suggestion forms for faculty and students. These forms provide an opportunity for the campus community to share their ideas about new books and serials with the librarians.

Users appreciate the ability to access library materials on demand and from off-campus locations; electronic article databases and full text articles are often popular with faculty and students. However, most academic libraries experience a pervasive lack of funding. Despite the popularity of journals, librarians in Collection Development must choose selectively depending on their annual budget. The Library Journal's Periodical Price Survey for 2007 predicted that by 2008 periodicals in the following indexes would increase by 7.9%—Arts and Humanities Citation Index, Social Sciences Citation Index, and the Science Citation Index.[38] Similarly, periodical titles in EBSCO Host's Academic Search Premier were expected to increase to 9.8% in 2008.[38]

The median amount spent on serials in 1994 was $2,892,898; almost a decade later the median amount spent on serials was $5,340,158.[39]

For libraries with fixed budgets, any increase in material costs must be matched by an increase in funding, but often this does not occur, leaving bibliographers to decide which items are less vital to the collection subject areas.

At the University of California, 10 campus libraries issued a joint report in January of 2007 describing value-based journal prices, measurable data about journals, and metrics, to investigate if the journal's institutional price is related to its academic value. In a time of scarce funding and continued annual increases for subscriptions, academic libraries continue to grapple with the future of electronic serials and e-books which are necessary for the promotion and tenure of their faculty and the sharing of information within the scholarly community.[40]

Technical Services

Technical Services is responsible for acquiring materials for the collection in support of the mission of the educational and research priorities. Traditional functions included in technical services operations are acquisitions, cataloging, preservation, and conservation.

After the bibliographer selects materials for the collection, an acquisitions unit, within Technical Services, is in charge of orders, payments, tracking budgets, and processing received materials. Academic libraries purchase books and other media that are printed by many different publishers, but dealing with so many publishers individually would be a logistical headache for the library's staff. To simplify purchases, there are vendors, sometimes known as jobbers, who act as the intermediary between the academic library and publisher. Many libraries work with several different vendors as opposed to thousands of different publishers. Vendors are not the only source of materials, but they help consolidate the purchasing process for a large number of items within the collection.

Once materials are received, the item moves to cataloging. Cataloging is the process by which entries are made into the library's catalog of holdings. These entries include descriptive information about the book, subject headings, and call numbers. An academic library in the United States uses the Library of Congress Subject Headings to describe content of a book, periodical genre, media, and, sometimes, special collections; one item can have several different subject headings. A call number is generated from the 21 main classes found in the Library of Congress Classification schedules. Other classification schemes include the Dewey Decimal System, not often used in academic libraries, and the U.S. Superintendent of Documents classification system for federal documents.

Cataloging at an academic library can take two different formats: copy cataloging and original cataloging. While copy cataloging, or the use of existing cataloging from a bibliographic utility, has helped institutions standardize their metadata, the more specialized and rare materials require original cataloging by a subject specialist.

Next, the library's staff prepares each item for the stacks by placing check-out slips, ownership stamps, classification labels, security strips, and protective covers as needed on the item. With more vendors offering shelf ready materials, many libraries opt to pay upfront for these activities. Most libraries have a split with some items coming shelf ready and some being processed in-house.

Some items will take a different path through Technical Services. For example, print journal subscriptions will be checked in with close attention being paid to verifying that the journal is on schedule or initiating the claiming process to the publisher if not.

Electronic resources are very complex and require staff that specializes in them. Activities include establishing and checking links to databases or e-books, ensuring that materials are still accessible, troubleshooting, and the monitoring of license agreements.

Conservation and preservation are two additional functions of Technical Services. For print collections, the definition of conservation is the "noninvasive physical or chemical methods employed to ensure the survival of manuscripts, books, and other documents."[41] Preservation can be a "broad range of activities intended to prevent, retard, or stop deterioration of materials or to retain the intellectual content of materials no longer physically intact."[42] Both definitions describe conservation and preservation as it relates to print resource, but libraries are working together now to address some of the unique preservation issues involved in digital collections.[43] An academic library's efforts in caring for its resources can vary widely from a small in-house repair effort to a substantial unit with specialized staff handling valuable and rare materials.

As more collections are available online, and this is especially true for serials, the function and role of Technical Services will continue to develop. Two issues of interest for the future are outsourcing and the development of digital collections. First, outsourcing for cataloging and processing is an increasing option for academic libraries. Reaction to outsourcing is mixed. On one side, sending materials off-site decreases some of the staffing and work at the local level reducing costs. On the other side, outsourcing may adversely affect the quality of local cataloging.

The second issue for academic libraries and Technical Services is the continuing development in electronic resources and digital content. This introduces concerns such as the role of licensing agreements, assessing copyright for online journals and article databases, and the tracking and cataloging of these resources. One significant issue is that the idea of ownership is blurred with electronic resources. Once the subscription stops, the library has lost its investment unless backfiles have also been purchased. Librarians are now working for guarantees that the materials available today will be available and accessible for patrons in the years to come. This is referred to as *perpetual access*. This is problematic when there is not guarantee of the lifespan of a vendor or publishing company; and therefore, there are no guarantees that access will be the same. The role of Technical Services is the management of these resources and ensuring that both print and electronic resources are available to users.

ADMINISTRATION

Most academic libraries are multimillion dollar operations and as such require the same sound management principles that any business requires to succeed. Planning, leadership, policy making, customer service, personnel management, assessment, marketing and outreach, communication, and budgeting are all vital components and must be managed with the same skill as in any other business.

For example, customer service is a vital component of academic libraries. A focus on the needs of the students and faculty is essential as the library is an important player in the teaching, learning, and research process. Students and faculty rely upon the library to provide them with essential knowledge resources. Some libraries, in order to understand user needs, have participated in LibQual which is offered by the ARL and which is used to "solicit, track, understand, and act upon users' opinions of service quality."[44]

These and other assessment methods have helped libraries to continually understand their users and to make needed changes in resources and services as user needs alter.

Another example is marketing and outreach. In this increasingly complex electronic environment, libraries have many competitors for the users searching for information even though an academic library is unrivaled in its depth of scholarly information. However, in order to encourage usage and maintain visibility and viability, marketing and outreach are vital. For example, most academic libraries issue

informative, glossy newsletters about new acquisitions or new services. Increasingly, such information is going out electronically. Libraries also offer programs to attract the academic community such as speaking engagements with well-known authors or scholars and exhibit openings.

Outreach can take many other forms. Most libraries participate in new student orientations and new faculty orientations and offer workshops on library research. Some libraries participate in outreach efforts before the students enroll in college by offering advanced placement privileges for high school students.

Importantly, as an academic library can never have too many friends, it is vital that the library through its UL and its librarians have close relationships with the colleges and the academic departments.

Increasingly academic libraries in the Western world are required to participate in fund-raising to supplement the budget. Fund-raising can take many forms including obtaining rare collections, endowments, support for library services, collections and programs, funding for buildings, equipment, and furniture, and so on. In order to have successful fund-raising, the library needs to have a director of development and other fund-raising staff in order to work closely with the donors. It is a significant effort which can have significant results but which requires a long-term effort.

In order to achieve economies of scale and expand their fiscal reach, some academic libraries are engaging in cooperative buying. A good example is the California State University whose 23 campus libraries have joined together since 1989 to negotiate discounted pricing and leverage the "purchasing power of the largest system of higher education in the nation."[45]

For the same reason, academic libraries will also join a consortium which engages in purchasing resources or services at a lower cost because of the number of libraries participating. In 1997, the now-named International Coalition of Library Consortia (ICOLC) first met, and as of 2000 was comprised of nearly 150 consortia from around the world. The ICOLC keeps the members informed about new resources, pricing practices, and provides an opportunity for vendors to meet with buyers.[46]

ACADEMIC LIBRARY PERSONNEL

Academic libraries are staffed by a mix of personnel. The proportion of librarians in libraries is relatively small to the total number of personnel. Most categories of staffing fall into librarians (that is, persons with a degree in library or information science), library assistants (that is, specialists in the work of libraries), clerical, student employees, and administrators. There are also other specialists in the fields of accounting, personnel, building management and, of course, technology (see also entry on *Academic Librarianship*, p. 1).

LIBRARY BUILDINGS

Academic library buildings range greatly in size depending upon their purpose, history, size of collection, size of student population, and available funding. Regardless of size, many similar issues confront academic libraries today in terms of their buildings. The most challenging of these issues is the impact of digital information and therefore a common belief that library buildings are either not needed or can be greatly reduced when the physical collection is not growing at the rate it once did. A more sophisticated view is that the role of the library is expanding and changing and therefore demanding new uses of its facilities in addition to its traditional uses.

As Leighton and Weber point out "the library is recognized more than ever as a locus for educational effort in a social setting. The building must meet the need for the 'library as place' within academe…."[47] The authors go on to say that "…this intangible characteristic is often a major force in shaping the academic objective of the library building to meet the institutional goals for the years ahead."[47]

One of the most compelling trends over the last two decades is the emergence of the information commons which largely refers to a place where students have access to both information and technology resources. This concept emerged because students needed a place where they could use the latest technology, research and write their paper online, create a multimedia presentation, and post it online for their professors. Importantly, an information commons provides the students with a sense of place and shared community. The layout of the room often encourages collaboration and group work.

For a good example, see The University of Southern California (USC) in Los Angeles which is one of the early pioneers in creating an information commons. USC provides a full range of computing facilities, software, printing, consultation, adaptive technologies, collaborative workrooms, user support, and writing consultation.[48]

Study facilities have also changed significantly in recent years. There is a push for more student-friendly study areas largely out of concern that students will no longer come to the library because of the remote access provided to digital resources. In order to encourage studying and learning in the library, more attention in the library today is directed at learning spaces that are more comfortable with better seating and wireless access. Additionally, students now need more collaborative and group study space in order to work on group projects assigned by their professors or simply to study together. These rooms or areas designated for collaborative study often have flexible seating and smart boards for group work.

In keeping with the need to attract students, libraries are also relaxing the rules about drinks and sometimes food

in the library. Academic libraries are also adding coffee shops to lure students in and also to benefit from the proceeds. For example, the University of Waterloo's Dana Porter Library in Canada, has "Browsers" which is a coffee shop located on the main floor of the library and which provides students with an area of relaxation for studying, being with friends, and enjoying a cup of coffee.[49]

What is still unknown is whether or not more comfortable spaces, increasing group study rooms, and providing cafes have actually increased students' study time or improved their study habits.

Libraries in the United States today also need to be very conscientious to come into compliance with the Americans with Disabilities Act of 1990 which gives civil rights protections for persons with disabilities. ADA requires that buildings be both usable and accessible to a person with a disability including both customers and employees. A library today needs to make sure that it is removing barriers to access, designing for accessibility, or providing alternative access.[50] Many libraries also go a step further by providing students with disabilities special rooms and/or special assistive technology equipment such as adjustable furniture, Kurzweil reading machines, speech recognition software, magnifiers, and screen readers.[51]

As print collections grow beyond the capacity of the library to retain, some libraries are weeding, but more and more are developing alternative storage places. The world's first automated storage and retrieval system was developed at California State University Northridge's Oviatt Library. This system contains over 13,000 bins occupying an 8000 sq.ft. facility that is 40 feet high and allows for over one million items to be stored. This library uses the storage facility for lesser used materials and older periodicals. The system interfaces with the library's catalog and the user commands the system to retrieve the item needed.[52] Now about 20 libraries in the United States have this system.

Some academic libraries use off-site storage. For example, the University of California maintains the UC Southern Regional Facility which is off-site storage for lesser used but still needed collections. In 2006/2007, the facility added over a quarter of a million volumes. Storage is not its only responsibility. This service sends books for interlibrary loan, guaranteeing 24 hr service for its member UC libraries, and also is engaged in preservation and digitization.[53]

Libraries now and in the future must be able to be flexible in their spaces, provide robust technology, and create collaborative study spaces, and a more appealing environment. This is all coupled with the need to still provide for the care and housing of the collection, for the wide range of services, and of course a good environment for the staff. This is particularly challenging in older buildings that may not be scheduled for renovation or rebuilding.

CONCLUSION

The advent of digital information has had a dramatic impact on academic libraries in terms of service, facilities, and skill set needed for personnel. As the premiere support service to teaching, learning, and research, academic libraries will continue to thrive and play an important role, but their future will require vigilance. The library needs to become easier to use so that it competes effectively against popular search engines that are aggressively adding scholarly sources. Academic libraries also need to market consistently their extraordinary resources. Librarians need to focus equal attention on the online presence of the library as they do on its physical presence so that the students and faculty have a positive library experience regardless of when or how they interact. Academic libraries must be continually scanning the environment for significant changes in technology and user needs so that they can continue to shift with the times. Given their strong sense of purpose, the richness of their resources and the dedication of their staff, academic libraries will maintain their all-important mission of supporting teaching, learning, and research.

REFERENCES

1. *The World List of Universities and other Institutions of Higher Education*, Palgrave Macmillan: New York, 2006; 2131.
2. http://www.unesco.org/cgibin/webworld/portal_bib2/cgi/page.cgi?d=1&g=Libraries/Academic_and_Research/index.shtml (accessed November 12, 2007).
3. Holton, B.; Vaden, K.; O'Shea, P.; Williams, J. *Academic Libraries 2004*; National Center for Education Statistics; U.S. Department of Education: Washington DC, 2006; 1–49, http://nces.ed.gov/pubs2007/2007301.pdf (accessed November 2007).
4. http://www.hno.harvard.edu/guide/to_do/to_do6.html (accessed November 2007).
5. http://www.ksps.ac.ke/modules/facilities/index.php?id_facility=1 (accessed November 2007).
6. http://www.usp.ac.fj/index.php?id=4470 (accessed November 2007).
7. http://www.usp.ac.fj/ (accessed November 2007).
8. http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED373806 (accessed December 2007).
9. Rafael, V.L. The cultures of area studies in the United States. Soc. Text **1994**, *12* (4), 91–111.
10. Carpenter, K.E. Libraries. In *Encyclopedia of American Cultural and Intellectual History*; Cayton, M.K., Williams, P.W., Eds.; Charles Scribner's Sons: New York, 2001; Vol. 3, 372–373.
11. Rau, E.P. Managing the machine in the stacks: Operations research, bibliographic control and library computerization, 1950–2000. Libr. Hist. **2007**, *23* (2), 151–168. Academic Search Elite, EBSCOhost (accessed December 10, 2007).

12. Things we use in libraries and when they were invented. Am. Libr. **2006**, *37* (1), 46. Academic Search Elite (accessed December 10, 2007).

13. http://www.oclc.org/about/history (accessed January 2008).

14. Bangert, S. Understanding accreditation. In *Proven Strategies for Building an Information Literacy Program*; Curzon, S.C., Lampert, L.D., Eds.; Neal Schuman Publishers: New York, 2007; 216.

15. http://www.ala.org/ala/acrl/acrlstandards/standardslibraries.cfm (accessed November 2007).

16. http://www.ala.org/ala/washoff/woissues/civilliberties/theusapatriotact/usapatriotact.cfm (accessed November 2007).

17. http://www.ala.org/ala/washoff/woissues/copyrightb/copyright.cfm (accessed November 2007).

18. http://www.wto.org/english/docs_e/legal_e/ursum_e.htm#nAgreement (accessed November 2007).

19. http://ec.europa.eu/education/programmes/eu-usa/index_en.html (accessed November 2007).

20. http://www.ala.org/ala/iro/intlassocorgconf/libraryassociations.cfm (accessed December 2007).

21. http://www.ifla.org/VII/s2/annual/sp02.htm (accessed November 2007).

22. http://www.ala.org/ala/acrl/aboutacrl/whatisacrl/whatacrl.cfm (accessed November 2007).

23. http://www.arl.org/arl/governance/stratplan.shtml (accessed November 12, 2007).

24. http://www.ala.org/ala/ors/standardsa/standardsmanual/manual.cfm#1 (accessed November 2007).

25. http://www.uq.edu.au/about/governance (accessed November 2007).

26. http://www.bog.ubc.ca/ (accessed November 2007).

27. http://www.bog.ubc.ca/about/role.html (accessed November 2007).

28. http://www.ox.ac.uk/research/libraries/index.html (accessed November 2007).

29. Graph 1, page 7, http://www.arl.org/bm~doc/arlstat04.pdf (accessed November 2007).

30. Carlson, S. Are reference desks dying out? Chron. High. Educ. **2007**, *53* (33), A37–A39. Academic Search Elite (EBSCOhost) (assessed December 2007).

31. Lorenzen, M. A brief history of library information in the United States of America. Illinois Libr. **2001**, *83* (2), 8–18. OmniFile,WilsonWeb (accessed December 2007).

32. http://www.ala.org/ala/acrl/acrlpubs/whitepapers/presidential.cfm (accessed December 2007).

33. Rockman, I.F. Integrating information literacy into the learning outcomes of academic disciplines: A critical 21st-century issue. Coll. Res. Libr. News **2003**, *64* (9), 612–615. OmniFile, WilsonWeb (accessed December 2007).

34. http://www.ala.org/ala/acrlbucket/is/iscommittees/webpages/emergingtech/primo/index.cfm (accessed November 2007).

35. http://www.usdoj.gov/crt/ada/stdspdf.htm (accessed 2008).

36. Foster, A.L. Students fall short on 'information literacy,' educational testing service's study finds. Chron. High. Educ. **2006**, *53* (10), A36. Academic Search Elite, EBSCOhost (accessed December 2007).

37. Johnson, P. *Fundamentals of Collection Development and Management*; American Library Association: Chicago, IL, 2004, 9.

38. Van Orsdel, L.C.; Born, K. Serial wars. Libr. J. **2007**, *132* (7), 43–48. Academic Search Elite, EBSCOhost (accessed December 2007).

39. http://www.arl.org/bm~doc/monser06.pdf (accessed December 2007).

40. http://www2.library.ucla.edu/facultynews/6901.cfm (accessed December 2007).

41. Johnson, P. *Fundamentals of Collection Development and Management*; American Library Association: Chicago, IL, 2004; 312.

42. Johnson, P. *Fundamentals of Collection Development and Management*; American Library Association: Chicago, IL, 2004; 321.

43. G.L. Task force to address digital preservation. Am. Libr. **2007**, *38* (10), 29.

44. http://www.libqual.org/ (accessed November 2007).

45. http://seir.calstate.edu/about/index.shtml (accessed November 2007).

46. http://www.library.yale.edu/consortia (accessed November 2007).

47. Leighton, P.D.; Weber, D.C. *Planning Academic and Research Library Buildings,* 3rd Ed.; American Library Association: Chicago, IL, 2000; 25.

48. http://www.usc.edu/libraries/locations/leavey/ic (accessed December 2007).

49. http://www.lib.uwaterloo.ca/locations/browsers.html (accessed December 2007).

50. http://www.usdoj.gov/crt/ada (accessed December 2007).

51. http://library.csun.edu/Library_Services/adarooms.html (accessed December 2007).

52. http://library.csun.edu/About_the_Library/asrs.html (accessed December 2007).

53. http://www.srlf.ucla.edu/AnnualRpt/SRLFannualRpt20062007.pdf (accessed December 2007).