Introduction

Since the rise of universities across Europe during the Age of Enlightenment, the academic library has always held a central position as the heart of an institution—both symbolically and in terms of its physical placement. Preeminently sited and often heroic in scale and character, the library has served as a visual anchor for the surrounding buildings on campus. These early academic libraries were very different from those of the monastic tradition from which they emerged. Unlike the medieval cloistered buildings that were frequented only by monks, libraries at such venerable institutions as Cambridge University and Trinity College at the University of Dublin were both centers of learning and important gathering places for scholars throughout the Western world. Richly embellished with stained glass windows, paneled with ornately carved oak, and appointed with marble statuary commemorating Greek and Roman philosophers, these libraries exuded an almost palpable sense of spiritual and intellectual contemplation. As a “temple of scholarship,” the library as place assumed an almost sanctified role, reflected both in its architecture as well as in its siting.

As developed for more than 200 years, academic libraries in the United States and abroad have generally been designed first and foremost as places to collect, access, and preserve print collections. To enter and use them was considered a privilege. Despite their handsome exteriors, the interior spaces were often dim and confining, the buildings were difficult to navigate, and specialized services and collections were inaccessible to all but the serious scholar. Libraries were revered but, with the exception of providing expanding collections, were comparatively static buildings. Planning and design of these facilities were primarily devoted to the preservation and security of materials and to the efficiency of the library collection services. Prime space was routinely reserved for processing materials.

Given this longstanding practice, it is no surprise that the traditional library that we inherit today is not the library of the future. To meet today’s academic needs as well as those in the future, the library must reflect the values, mission, and goals of the institution of which it is a part, as well as accommodate myriad new information and learning technologies and the ways we access and use them. As an extension of the classroom, library space needs to embody new pedagogies, including collaborative and interactive learning modalities. Significantly, the library must serve as the principal building on campus where one can truly experience and benefit from the centrality of an institution’s intellectual community.
Reinventing the Library—Technology as Catalyst

With the emergence and integration of information technology, many predicted that the library would become obsolete. Once students had the option of using their computers anywhere on campus—in their residence halls, at the local cyber café, or under a shady tree in the quad—why would they need to go to the library? Those charged with guiding the future of a college or university demanded that this question be answered before they committed any additional funding to perpetuate the “library”—a facility that many decision makers often considered little more than a warehouse for an outmoded medium for communication or scholarship. Many asserted that the virtual library would replace the physical library. The library as a place would no longer be a critical component of an academic institution.

While information technology has not replaced print media, and not expected to do so in the foreseeable future, it has nonetheless had an astonishing and quite unanticipated impact on the role of the library. Contrary to the predictions of diminishing use and eventual obsolescence of libraries, usage has expanded dramatically—sometimes doubling or even tripling. These increases are particularly common at libraries and institutions that have worked with their architects and planners to anticipate the full impact of the integration of new information technologies throughout their facilities. At institutions where such collaborative planning has occurred—for our firm, at the University of Southern California, Emory University, and Dartmouth College, and more recently, at Illinois Wesleyan University and Lake Forest College—new library usage speaks for itself: The demand for services and technological access to information, regardless of format, is beyond expectations.

The library, which is still a combination of the past (print collections) and the present (new information technologies), must be viewed with a new perspective and understanding if it is to fulfill its potential in adding value to the advancement of the institution’s academic mission and in moving with that institution into the future. Rather than threatening the traditional concept of the library, the integration of new information technology has actually become the catalyst that transforms the library into a more vital and critical intellectual center of life at colleges and universities today.

When beginning to conceptualize and plan a library for the future, we must first ask an obvious question: If faculty, scholars, and students can now obtain information in any format and access it anywhere on campus, then why does the library, as a physical place, play such an important role in the renewal and advancement of an institution’s intellectual life? The answer is straightforward: The library is the only centralized location where new and emerging information technologies can be combined with traditional knowledge resources in a user-focused, service-rich environment that supports today’s social and educational patterns of learning, teaching, and research. Whereas the Internet has tended to isolate people, the library, as a physical place, has done just the opposite. Within the institution, as a reinvigorated, dynamic learning resource, the library can once again become the centerpiece for establishing the intellectual community and scholarly enterprise.
When Shepley Bulfinch Richardson and Abbott prepared the programmatic concept for the renovation and expansion of the Perkins Library at Duke University, we asked a student why he used the library. He replied that when he "got serious," that was the only place he wanted to be. This attitude is surprisingly consistent wherever we have recently renovated or added to library facilities. Students at all levels of academic proficiency need and want to go to the library now more than ever before. Going to the library adds value to their lives and offers many of the tools and experiences that will give them the competitive edge they will need to succeed after their formal education is completed. There is an expectation that the library is the place to be; it is where the action is.

People often ask, "What recently completed library can I visit that exemplifies the perfect library design?" Consistently, and regretfully, we reply that no single, ideal example exists. When undertaking a new project, it is important to analyze a wide variety of successful planning and design elements from as many projects as possible. Our objective is to draw from the best of these elements and to add to them in new ways to meet the unique requirements of a given institution's library program today and the future.

As we go forward, we must recognize the meaningful contribution that the library can provide if planned correctly. The goal of effective planning is to make the experience and services of the library transparent to the user. Rather than hide resources, the library should bring them to the user, creating a one-stop shopping experience. Whether users access e-mail, digitized resources, or special print collections, or are reformatting and publishing a paper, the library should enable them to advance their learning experiences.

The Berry-Baker Library at Dartmouth is an excellent example of a facility where a newly renovated and expanded library space, combined with computing and interactive media functions, was planned with how students learn and communicate in this new information age foremost in mind. In the planning stage, we asked several questions that included: Why do students enter the library? What is the sequence of use of the services or technology students require? How should service points be configured with respect to anticipated types of inquiry and use patterns? Do we bring together library staff in a central information commons, or should they remain with specific collections or services? What configuration of services is most flexible?

The resolution of these issues generated the formation of the library as a unique place. Although the Dartmouth library has been designed around a carefully thought-out service and activity pattern, its real test will be over time in terms of the ability of its central information space to adapt to evolving patterns of use without losing the order and transparency of its basic organizational idea.

Libraries as Learning Laboratories

As new technologies are created that increasingly inform the learning experience, any institution seriously considering the future of its libraries must reach a consensus on the role that it wants these facilities to play in meeting the needs not only of its current academic community but also of the community it aspires to create in the future. The principal challenge for the architect is to design a learning and research environment that is transparent and sufficiently flexible to support this evolution in use. However, we must not design space that is so
generic or anonymous that it lacks the distinctive quality that should be expected for such an important building. The charge to architects is to create libraries that, themselves, learn. One key concept is that the library as a place must be self-organizing—that is, sufficiently flexible to meet changing space needs. To accomplish this, library planners must be more entrepreneurial in outlook, periodically evaluating the effective use of space and assessing new placements of services and configurations of learning spaces in response to changes in user demand.

At recent master-planning projects for the libraries at Massachusetts Institute of Technology and Rice University, each institution developed a vision for their facilities based on a thorough analysis of how and when students did their academic work. At both universities, they found that this was primarily between 11:00 p.m. and 4:00 a.m.—the very period when the library was typically closed. As a result, design responses should be premised on 24-hour access, with critical services and technology provided and located when and where they are needed.

The use of electronic databases, digitized formats, and interactive media has also fostered a major shift from the dominance of independent study to more collaborative and interactive learning. A student can go to this place called the “library” and see it as a logical extension of the classroom. It is a place to access and explore with fellow students information in a variety of formats, analyze the information in group discussion, and produce a publication or a presentation for the next day’s seminar.

To address this need, libraries must provide numerous technology-infused group study rooms and project-development spaces. As “laboratories that learn,” these spaces are designed to be easily reconfigured in response to new technologies and pedagogies. In this interactive learning environment, it is important to accommodate the sound of learning—lively group discussions or intense conversations over coffee—by controlling the impact of acoustics as well as the visual aspects of this activity. At the same time, we must not lose sight of the dedicated, contemplative spaces that will remain an important aspect of any place of scholarship.

Ten or fifteen years ago, we were taking all the teaching facilities out of libraries. The goal was to “purify” the library—to separate it from the classroom experience. Today, these spaces are not only back in the library, but in a more dynamic way than ever. Although they sometimes add to the stock of the institution’s teaching spaces, more significantly, they take advantage of a potential to become infused with new information technologies in a service-rich environment.

In this regard, the faculty plays a significant role in drawing students to the library. Now that information is available almost instantaneously anywhere on campus, faculty expect their students to use their time in the library thinking analytically, rather than simply searching for information. Faculty also see the library as an extension of the classroom, as a place in which students engage in a collaborative learning process, a place where they will, it is hoped, develop or refine their critical thinking.

Several years ago, we designed a number of facilities in academic libraries that were expressly aimed at helping faculty members advance their own understanding and use of changing information technologies. As faculty members have become increasingly sophisticated in their use of technology, we now provide special kinds of
teaching spaces for the application of these skills. At the same time, traditional and often-arbitrary boundaries among disciplines are breaking down. In response to these changes, interactive presentation spaces and virtual reality labs are becoming the norm. Faculty members can now make connections with interrelated disciplines or disciplines other than their own and access resources, regardless of their locations. The library is regarded as the laboratory for the humanist and social scientist.

When we were planning to renovate the Countway Library at Harvard Medical School, a senior researcher gave us a clue as to how the library was being used in this new information age. He stated that as a result of electronic access to information, the pace of his research had increased exponentially. What used to take two weeks could now be completed in two hours. As a result of this efficiency, the researcher’s postdoctoral fellows were asked to be in the library on a regular basis and charged with evaluating resources and acquiring publications at a pace never before imagined—a research method that became known as “search and seize.” This time-sensitive pattern of use not only provided our planning team with an understanding of how the library continues to be a critical part of the intellectual life of an institution but also gave us insight into how to organize various functions to most efficiently serve its users. Understanding the horizontal and vertical organization of services and collections was paramount.

A Place for Community, Contemplation

One of the fascinating things that we are now observing is the impact of redesigned library space on the so-called “psychosocial” aspects of an academic community. The library’s primary role is to advance and enrich the student’s educational experience; however, by cutting across all disciplines and functions, the library also serves a significant social role. It is a place where people come together on levels and in ways that they might not in the residence hall, classroom, or off-campus location. Upon entering the library, the student becomes part of a larger community—a community that endows one with a greater sense of self and higher purpose. Students inform us that they want their library to “feel bigger than they are.” They want to be part of the richness of the tradition of scholarship as well as its expectation of the future. They want to experience a sense of inspiration.

While students are intensely engaged in using new technologies, they also want to enjoy the library as a contemplative oasis. Interestingly, a significant majority of students still considers the traditional reading room their favorite area of the library—the great, vaulted, light-filled space, whose walls are lined with books they may never pull off the shelf.

The Planning Process

The way in which we are plan libraries today has changed significantly. Planners and designers define space in response to anticipated user patterns, identifying the physical characteristics of this space and the specific value it will add to the educational mission of the institution as a whole. Previously, program requirements were developed in response to carefully defined comparative library standards, such as the number of books to be housed, the number of seats for a particular style of study, or the number of square feet required for a specific technical
support function. The quick and easy solution to any perceived need was formula driven—always to add more space.

Very often, this was the wrong response. Too much space has already been built in the name of library “needs” without any real understanding of the true value or contribution of expanded or renovated facilities to the institution’s long-term future. The library today must function foremost as an integral and interdependent part of the institution’s total educational experience.

Achieving this goal requires a collaborative planning process. That process must include the library director, members of the administration, trustees, students, and faculty, and it must begin before a program for space needs is developed. Questions that should be addressed include the following: How should the “library,” and its services and its collections, serve the institution? What programs not in the library at present should be in the facility in the future? How does the library add value to the academic experience of the students and faculty? How is the library presently perceived, and how can it function as an interdependent facility with other learning and teaching opportunities on a campus in the future? How much of the traditional library program must remain in a centralized facility? How does the library reflect the vision of the institution of which it is part?

It is our belief that library facilities are most successful when they are conceived to be an integral part of the institution as a whole. It is no longer acceptable to consider libraries as stand-alone facilities. In the conceptual program phase of a facility, consideration must be given not only to anticipated learning patterns but also to the goals and the culture of the institution. We must consider the type of student and faculty an institution wants to attract and retain; the library plays a critical role in this respect. Once we understand the potential of the library, its role, and the value it adds to the educational experience, we can develop a detailed program to explore alternatives for spatial organization as a means to fulfill an educational vision. Only then can we create a unique physical response to the needs and aspirations of a given institution.

With this in mind, the architect and the institution need to develop a partnership, sharing a vision and goals. It has often been said that an architect cannot create a great library without a great client. A look at the planning-process model for some of our recent projects illustrates this principle.

When Duke University and Dartmouth College began to discuss “expanding” their libraries, each created a library task force and charged it with developing a vision for the library within the context of the institution. Representing the outcome of a meaningful discussion between faculty, students, library professionals, and university administrators, each group’s vision became the basis for the multi-year, planning and design effort to follow. These were exemplary efforts.

An initial challenge for any design team is to create physical space that is appropriate, yet not so specific to the institution of today that it will not be viable in the future. Working with many clients on similar projects enables us to balance present demands and unidentified future goals and needs. Each time we begin work with an institution, we are able to ask more-informed questions; we have become very good listeners.
Early program and planning decisions have a major impact on the budget, the quality of work, potential interruptions to ongoing services, and ongoing operations and maintenance. Intensive dialogue helps the client’s planning and decision-making team understand the physical implications of its planning goals. Institutions today are asking for and receiving much greater accountability for the use of their library space. They need to know how it enhances the institution’s educational mission and at what cost.

Once a project is completed, we have had the opportunity to learn from the staff and users how specific spaces, organizational ideas, or design details have performed. It is through an analysis of the successes and disappointments of planning decisions and architectural expressions on previous projects that the architect begins to understand how to approach future opportunities. It is a never-ending cycle; elements of the past are critically evaluated and lessons are learned.

**Flexibility for the Future**

If libraries are to remain dynamic, the spaces that define them and the services they offer must continually stimulate users to create new ways of searching and synthesizing materials. There is no question that almost all the library functions being planned for today will need to be reconfigured in the not-too-distant future. While certain principal design elements—such as the articulation of the perimeter wall, the introduction and control of natural light, and the placement of core areas for stairs, toilets, and heating, ventilation, and air conditioning—will remain relatively constant, the majority of space must be capable of adapting to changes in use. If this is to happen, a number of fundamental considerations must be addressed.

In the past, expanding collections reduced user space; now, it is just the opposite. Technology has enriched user space, and the services for its support are increasing at a much faster pace than ever anticipated. Today, we are asked to consider whether a facility can accommodate dense, compact shelving or whether collections should be moved off site. Is the library to be a major research facility, responsible for the acquisition and preservation of substantial collections, or, like the recently completed Lake Forest College library, is the library to focus its energy and space on teaching and learning? Regardless of any specific answer, one thing is common to all: If an institution’s goal is to increase and celebrate scholarly activity on its campus, then a flexible, reinvigorated library must become a focus of its community.

Designing the Leavey Library at the University of Southern California a number of years ago provided us with our first opportunity to combine academic computing, media, and reference services into a single, user environment. Based upon intense dialogue and the identified need for a new type of teaching/learning facility, a vision was developed for a so-called “gateway library” to house a relatively new concept at the time—a library focused around a central information commons. At the same time, an equally important design element was the definition of “laboratory space” where faculty members would come to create new curricula and learning models through partnerships with leaders in the publishing and information management industry. Despite careful planning to define specific space requirements for the collaborative research functions identified by the
users, technology evolved much more quickly than could be anticipated, and what we thought to be cutting-edge spaces were out of date within the year. The demand was beyond any expectation. We learned that space for the learning and research of tomorrow must be generically conceived and delivered, using construction techniques and infrastructures in imaginative ways that are readily adaptable to reconfiguration.

In trying to anticipate the challenges that the academic library must face if it is to remain vital in the future, the Dartmouth College Library task force charged our design team with the following mandate: all program design elements within the building should, if possible, be planned to accommodate change. Designed in association with Venturi Scott Brown and Associates in Philadelphia, our challenge was to determine how to combine and locate evolving user service points while respecting the unique configuration and quality of public space. The goal was to create a seamless flow of intellectual inquiry and exploration throughout the facility.

Large, open spaces were designed to be reconstructable, so that they could be reconfigured to meet future needs. Enclosed areas for conference rooms, private and semiprivate offices, seminar rooms, and group study rooms were planned so that in the future, these spaces could be incorporated into the open reference and computing commons area. Future needs at Dartmouth will be met by continuing to reconfigure space within the library building itself, not by future expansion. Given these challenges, we must constantly explore and reinvent the concept of flexibility but do so in space of the highest quality and offers a distinctive, intellectually rich environment for learning, teaching, and research.

**Conclusion**

The academic library as place holds a unique position on campus. No other building can so symbolically and physically represent the academic heart of an institution. If the library is to remain a dynamic life force, however, it must support the academic community in several new ways. Its space must flexibly accommodate evolving information technologies and their usage as well as become a “laboratory” for new ways of teaching and learning in a wired or wireless environment. At the same time, the library, by its architectural expression and siting, must continue to reflect the unique legacy and traditions of the institution of which it is part. It must include flexible spaces that "learn" as well as traditional reading rooms that inspire scholarship. By embracing these distinct functions, the library as a place can enhance the excitement and adventure of the academic experience, foster a sense of community, and advance the institution into the future. The library of the future remains irreplaceable.