

PLANNING STORY

The Library as Learning Commons

by Derek Jones and Andrew Grote

Even in the digital age, the library plays a fundamental role in campus life and learning, particularly when it's updated to meet the needs of 21st-century students and pedagogies.

The iconic vision of the library as the heart of a university campus dates to the earliest days of the United States. At the time when Thomas Jefferson was planning the grounds of the University of Virginia, most Western universities organized their campuses around a church or chapel. Jefferson, a devout believer in the transformative power of ideas, centered his Academical Village on a library. While the design of his rotunda was rooted in classicism, the elevation of its program was groundbreaking and established a long tradition of the library as a primary campus destination.

In the 200 years since, the university library has grown and changed with the evolving views of its role in higher education. For decades, libraries grew in size as collections expanded exponentially. In doing so, they slowly shifted their function from iconic architectural destinations to utilitarian containers for books and the individual students who quietly read them. As time went on, classicism gave way to modernism and, from the 1950s to 1970s, to Brutalism. At many colleges and universities, the enduring image of libraries became one of characterless boxes filled with outdated books. With the onset of new information technology that revolutionized access to and storage of knowledge, futurists and trend spotters raced to declare, “The library is dead!”

Far from being dead, the library remains essential to campus life and learning. It now plays a fundamental role in helping students assess the quality of information (digital and physical) and develop critical thinking skills. Faculty members increasingly partner with librarians to support

their teaching and research. Libraries have quickly filled the space of digital scholarship and are often training grounds for scholars to use new tools to research, archive, and publish new knowledge.

Today, most people can do research from home, a residence hall, or a coffee shop. This change is bringing about a dramatic shift in what libraries do and how they do it. To remain relevant in the current academic climate, libraries must be centers of the knowledge economy, of collaborative learning, and of creative production. The library is now a facilitator, bringing together individuals, interdisciplinary groups, creative technologies, collections, and more into a vibrant, learning-focused place. A revitalized library will be a “preferred destination,” an active participant in supporting knowledge creation—a “want to” space for the diverse disciplines it serves.

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Innovation labs, makerspaces, entrepreneurship hubs, and centers for digital scholarship are just a few of the unique programs libraries are hosting to draw together multiple disciplines in a single place to begin tackling the grand challenges of our times. New amenities have crept into the library to not only support multiple modes of learning but also blur the distinction between formal academic learning and the social learning that occurs beyond the directed

class curriculum. Nap rooms, gaming modules, pop-up event spaces, and branded food service have permeated the academic library to support serendipitous sharing and extended time on task.

A VISION FOR WENTWORTH

The last decade has seen the emergence of the learning commons as a flexible learning environment that blends library resources and technology with collaborative working spaces to promote active and interdisciplinary learning. While the learning commons concept is now widely embraced, actually implementing it can be a challenge for library directors who have to work within the constraints of their own aging facilities. In 2015, Kevin Kidd, the newly hired director of the Alumni Library at the Wentworth Institute of Technology (WIT), found himself facing exactly that challenge. WIT's Alumni Library lay hidden within the second and third floors of Beatty Hall, a six-story bunker-like concrete structure built in 1959 that also housed a dining hall, offices, a student center, and classrooms. At the beginning of Kidd's tenure, the library had become a neglected backwater, conspicuously absent from the campus tour itinerary.

In the fall of 2015, WIT teamed with Perkins+Will and Consigli Construction to embark on a 12-month journey to reinvent the Alumni Library as the Douglas D. Schumann Library & Learning Commons. Doing so required an integrated planning process balancing the building's inherent constraints with WIT's institutional mission and aspirational goals, which included

- » Establish a sense of community for the library and the campus
- » Streamline the library user experience
- » Update and integrate technology to promote collaboration and rapid prototyping
- » Provide a variety of study and collaboration spaces

- » Increase natural daylight
- » Improve access to resource librarians, printing/scanning, and IT support
- » Increase the quantity and quality of student seating
- » Transform the library into a campus-wide hub attracting faculty and students to cross-pollinate ideas

The practical challenges were to

- » Reduce the onsite collection by 40 percent
- » Resolve acoustical complaints
- » Address student safety and security
- » Provide easy, flexible access to power and data throughout the space
- » Upgrade the building envelope and HVAC systems
- » Work within the existing space, an inflexible Brutalist concrete waffle slab with neighbors above and below
- » Balance a finite budget with the higher cost of a “summer slammer” accelerated schedule engaging several subcontractors in an early-award, design-assist process
- » Make code updates related to life safety, accessibility, and mechanical, plumbing, and electrical concerns as well as gender equity in toilet rooms in what was once a predominantly male school

DESIGN SOLUTIONS

Partnership, listening, and team integration were key elements in the success of this design process. The team wanted to hear all voices and collect all visions and dreams. All-day collaborative workshops involved a diverse variety of project stakeholders, including an oversight committee consisting of members from the WIT facility planning group;

librarians, directors, and staff; information technology services and the IT help desk; faculty; dining services; student life/services; learning center support services; and safety and security. The design team interviewed a broad cross-section of students from varying academic majors as well as residential, commuter, and night school students, since they each have unique requirements for use of the learning commons.

The team also visited peer libraries and evaluated newer learning commons. One site visit was to view the operation of a motorized high-density shelving system. WIT decided to reduce its collection and install motorized high-density shelving to provide space-effective storage of and easy access to the library's existing books. The team balanced two critical

factors: selecting a space for the shelving system that was at once convenient and out of the way and reinforcing the structure to support it. The reduction of books opened the floor space and allowed exploration of furniture typology and variety.

Other solutions included a dramatic reduction in interior partitions and more transparent glazing, allowing the central library space to read as a large three-story living room with intersecting wood-clad trays and glass volumes (figure 1).

This “room” embraces its community of students, faculty, and staff who come together, collaborate, and learn as individuals, small groups, and teams while seamlessly and continuously arranging furniture and connecting to the latest technologies via Wi-Fi and micro raised floor systems.

Figure 1 **Central Library Space**



Photograph by Chuck Choi

A simple palette of materials gives the space a timeless aesthetic while evoking WIT's mission of experiential learning and design. To that end, the high ceiling, conceived as an ephemeral canopy of perforated metal, illuminates the room while creating a translucent veil over the existing waffle slab and mechanical ductwork. Integrated linear dashes of light illuminate the waffle shell ceiling of the existing building and the space below. A large opening in the perforated ceiling becomes a framework for a rotation of experimental student

projects developed with WIT's Experiential Learning (EPIC) program. The remaining ceilings in the space are clad in a micro perforated maple veneer, which improves the acoustic quality of the room. The design team was careful to use timeless materials for permanent elements and inject brighter colors into upholsteries and paint. For instance, the casework is simple, neutral, and durable while the fixed and moveable furniture displays a colorful chromatic counterpoint inspired by WIT's palette of yellow, orange, and red (figure 2).

Figure 2 **Mezzanine View**



Photograph by Chuck Choi

FURNITURE SELECTION

The furniture selection process was comprehensive in its scope and inclusive in its decision making. The design team orchestrated showroom visits for stakeholders to test styles, functions, aesthetics, and durability. A furniture fair held at the library was open to the campus to solicit additional input. Based on this research and feedback, the design team presented the recommended selection for the oversight

committee's approval. The final selection included some classic pieces that evoked WIT's programs in architecture, interior design, and industrial design.

The new furniture layout supports the planning goals that grew out of WIT's desire for flexible spaces, durability, adjustable power distribution, integrated technology, and seating variety. The furniture selected accommodates diverse body types and user preferences for individual quiet study,

collaborative open spaces, small-to-large-group team rooms, sit-to-stand tables, mobile pieces on castors, living room areas with fixed and flexible elements, and café-style seating for more informal areas (figure 3).

Figure 3 **Diverse, Flexible Spaces and Furniture**



Photograph by Chuck Choi

DESIGN IMPLEMENTATION: CONSTRUCTION CONSIDERATIONS

WIT had an 18-week construction schedule and needed the learning commons to open for the fall 2016 semester. This tight schedule required close collaboration among owner, architect, and contractor and informed and guided their collective decisions throughout the design process. In studying the scope of the project, all parties reviewed each area with regard to time and budget. They reviewed options for renovating the library's existing footprint, expanding the library's area, creating a large visual entrance, adding a roof terrace, and improving sustainable performance.

Consigli Construction joined the team with a commitment to delivering a guaranteed maximum price (GMP) by the end of design development. Consigli was an essential partner in evaluating and developing the project's scope. It estimated the project at the end of each phase to review whether the design was within budget and carried alternatives for multiple scope options. As a result, the project did not need to go through a value engineering process at the end of the construction documents phase.

While the existing library had a three-story atrium that could be infilled to capture more square footage, WIT decided against infilling because of the effect on schedule and cost. In previous renovations of Beatty Hall, WIT had experienced

unexpected costs when cutting into the existing two-way concrete slabs and disrupting embedded pneumatics control systems. Given this history and the tight schedule, WIT wanted to reduce risk and guided the team to limit slab cores and cuts. While this was a pragmatic decision, it also ended up preserving the unique atrium space of the original building that became central to Perkins+Will's design.

Other major upgrades to the building core included improvements to the mechanical systems in the building's upper four floors. These floors used the original unit ventilators for heat and had no dedicated cooling system. Over time, staff and faculty added window air conditioning units to provide cooling but this did not maintain consistent cooling for all users. The project was tasked with providing balanced central heating and cooling for the upper four floors while minimizing slab penetrations. The greatest limitation in the library was the 8'-0" clear height from existing floor to bottom of beam. This left no room for a ducted cooling system, as code requires a minimum 7'-6" ceiling height. The team determined that perimeter fan coil units were the best strategy to provide heating and cooling. A ring duct in the atrium ceiling delivers fresh air to the library. This approach hides all the ductwork above the metal perforated ceiling and provides fresh air to the space without requiring lower ducts on each floor.

After 60 years of use, Beatty Hall's exteriors were as outdated as its core. When the project started, most of the original steel windows were still in place—dark painted steel frames with bronze-tinted single pane glazing. These windows leaked both air and water. WIT decided to not only change out all the windows on the library floors but also replace the balance of the original windows throughout Beatty Hall. The scope of window replacement increased from the 50 windows in the library to 165 windows of varying sizes. To match the glazing of the previous renovation to the student center, replacement windows used an aluminum storefront system with thermally insulated glass units. Since Beatty Hall is a historic building, the City of Boston had to review and approve any exterior

improvements. By maintaining the windows' original proportions, the team was able to expedite the approval process and maintain the project schedule.

Driven by the aggressive schedule, the team engaged in a design-assist process with selected trades for the ceilings, mechanical systems, millwork, lighting, exterior glazing, and high-density shelving. In the design-assist process, the architect collaborates directly with subcontractors prior to the completion of design documentation. In addition to expediting the procurement and delivery of long-lead items, this process ensures that the owner's needs are addressed with affordable, constructible design solutions. By having these trades on board early, the team was able to use the winter and spring break periods to work with the subcontractors to learn more about the building and develop mock-ups for review.

DESIGN IMPACT: MEASURABLE RESULTS

Before renovation, WIT's library collections occupied nearly 40 percent of the floor area. Library staff were able to weed from the collection non-circulating items, digitally available resources, and items readily available through partner institutions to dramatically reduce the physical collection size. At the same time, new e-books and databases were continuously being added. Despite the reduced physical collection, the first year after the renovation saw significant increases in gate counts and circulating materials. This suggests that frequency of visit and accessibility of collection may have a greater impact on collection use than the number of volumes held.

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Staff once occupied more than 10 private offices fragmented into four clusters of rooms on multiple floors. Today, the

renovated staff area occupies 35 percent less space. All staff share a single suite consisting of two offices, 13 workstations, a contiguous work area for processing, and an integrated conference room, all collocated behind the central service point. Staff can now access stairs and the service elevator without crossing public spaces, making for more secure and streamlined operations. The open workplace environment, with its low partitions and shared amenities, is more conducive to cross-departmental collaboration.

In terms of meeting the initial goals of the project, student seating increased by 15 percent, thereby providing one study seat for every eight full-time-equivalent (FTE) students. This puts the new library in line with general metrics for institutions with high commuter populations. More importantly, the seating quality has improved with more space per person, more seating choice, and easier access to power through wired furniture systems (figure 4).

Figure 4 **Wired Study Space**



Photograph by Chuck Choi

Prior to the renovation, technology was largely what visitors brought with them or the flat screen monitor mounted in one of the two oversized group study rooms as an afterthought. Today, there are eight glass-enclosed group study rooms, each with sound, flat screen monitor, writable walls, and a digital reservation system to manage use. Always in high demand, these rooms are the most sought-after seating choices among students. A makerspace called the Technology Sandbox is

a new destination where visitors can test out new devices and prototype ideas (figure 5). An ultra-low-profile smart floor brings power and data cables to any region of the open learning commons and can be flexed to accommodate new configurations with little effort. Behind the scenes, there are now two properly sized telecom closets (IDF rooms)—one on each floor of the library to manage data infrastructure today while easily flexing to future needs.

Figure 5 **Technology Sandbox and Makerspace**

Photograph by Chuck Choi

For new students who have only known a high school media center, the size and scope of an academic library can be intimidating and cause “library anxiety”—a form of stress induced by overwhelming size, complexity, and navigational confusion. The renovated WIT library blends all services (information, circulation, and reference) into a single service point directly adjacent to kiosks staffed by partner organizations such as IT support, tutoring, and the writing center (figure 6). It verges on one-stop-shop convenience. New programs also punctuate the visitor experience. There is now a gallery space for sharing creative output and research. A café space welcomes visitors to use the library in both formal and social modes of learning.

In the first year after reopening, gate counts increased 49 percent and circulation rose 18 percent. While hard data is not yet available, “we have done some usage studies,”

said Kidd, “and it seems that students do remain longer throughout the day and return more often in a single day.”

He also noted that faculty now regularly meet students in the space, and the library has hosted several faculty events since the renovation. At the outset of the project, Kidd wanted the library to be a place that students made their own. A year after reopening, he mused, “The students do clean up after themselves. The space is quieter in general, so students do seem more studious. Students are adept at setting up their own collaboration zones or areas and are not shy about spreading out and taking ownership of the space.”

Since reopening, “it seems that students do remain longer throughout the day and return more often in a single day.”—Kevin Kidd, library director

Figure 6 **Information Desk**

Photograph by Chuck Choi

“The Douglas D. Schumann Library & Learning Commons is now a learning hub that strengthens our community—both on and beyond campus,” said president Zorica Pantic. “The space symbolizes our strong tradition of experiential learning and collaboration.” In the spring of 2017, design students in WIT’s EPIC program reserved the central zone in the learning commons to design and install a dynamic, interactive kinetic sculpture. Kidd acknowledged that with this kind of creative ownership, “the library is the most popular gathering spot on campus. I would say that it has been a huge success: students feel at home in the space and use it heavily.”

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Planning for Higher Education

Society for College and University Planning

www.scup.org

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ISSN 0736-0983

Indexed in the Current Index to Journals in Education (ERIC), Higher Education Abstracts, and Contents Pages in Education.

Also available from ProQuest Information and Learning, 789 E. Eisenhower Parkway, P.O. Box 1346, Ann Arbor, Michigan 48108.

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