Library Next: Transforming the Research Library for the Knowledge-Driven Age

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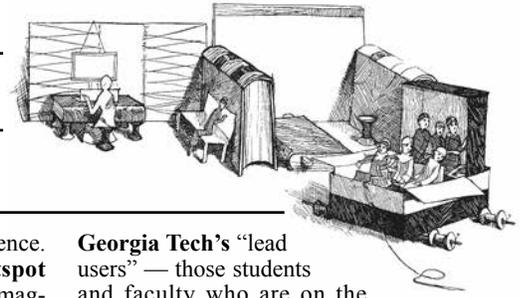
Introduction

In 2011, in order to achieve a renovation of the two library buildings, that, despite three floors that had been renovated in the previous decade, were steadily decaying and had life-safety issues, the Dean of the Libraries began an internal library conversation about reconfiguring the buildings for productive and sustainable future use. This "Library 2020" plan called for an increase in user space from 29 to 49%, a reduction in collections space from 46 to 24%, and about 50% of the collection to be relocated off-campus. Library 2020 was presented to the Provost in 2012 and was a starting point for library tours and conversations with **Georgia Tech** administrators about the future of the library. Also in 2011, conversations about possible collaborations began among the leadership of **Emory University** and **Georgia Tech Libraries**, which in 2013 resulted in a partnership to build an off-site, high density, climate controlled storage facility for Library collections. The joint "Library Service Center" opened in 2015 and the **Georgia Tech Library** moved 97% of its collection there, a significantly larger percentage than originally anticipated by the Library 2020 plan. A key short-run objective of this public-private partnership between **Georgia Tech** and **Emory University** is to allow both campuses to quickly and efficiently share print collections. An eventual objective is to share electronic resources, although this long-run goal remains challenging given the nuances of contracting and resource management (Decker & Henson 2016).

In 2013, the Institute contracted **brightspot strategy** consulting to work with the campus and Library to understand the current learning, teaching, and research experience. The Library's partnership with **brightspot** enabled the transformative work of reimagining services and spaces to meet future user needs by providing Library faculty and staff with the requisite tools, training and expertise. **brightspot** introduced the Library to "lead user theory" and research and provided instruction on identifying opportunities for new services and spaces and how to implement them. **brightspot** also worked with the architectural design firm (**BNIM** and **Praxis3** architects) to translate lead user ideas and concepts for the building design.

User Research and Program Design

After decades of advocacy by students, staff, and faculty, and years of planning and design work, the new **Georgia Tech Library** is under construction and is anticipated to be completed in 2020. These kinds of projects happen only once in a lifetime. So, how did we get here?

One of the interesting challenges from a funding perspective was cogently and succinctly explaining to stakeholders how the proposed spaces align with *future* user needs. *How can we reasonably design spaces that will not be occupied for 3-5 years into the future?* Simultaneously, the equally important question emerged, perhaps more philosophical: *why call it a "library" if there are no books in it?*

The program design of the new library was inspired by the "Lead User Theory" of **Eric von Hippel**, an **MIT** economist who researches the practice of innovation (von Hippel 1986). Our approach involved identifying and leveraging creative insights via semi-structured in-person interviews with approximately 30 of **Georgia Tech's** "lead users" — those students and faculty who are on the frontier of their respective disciplines. By better understanding how **Georgia Tech's** top scholars and researchers deal with "pain points" throughout the research process, we were able to gain insight into how the library of the future might serve a much larger community. The foundational idea behind the theory is that top scholars *find a way* to work around systems that introduce constraints and barriers to their productivity. By understanding what they do to work around such constraints, coupled with the fact that these scholars are ahead of the innovation curve (Rogers 2010), we can design a facility program and library services that are forward-thinking and aligned with where the rest of the distribution of campus scholars are heading. A natural concern is how to deal with potential risks of just focusing on lead users. Our methodology mitigated this risk by also interviewing the executive leadership of the campus to understand high-level strategic goals, as well as continually scanning the environment for relevant data and trends. This strategic effort led to the following design directions that informed and helped to calibrate the lead user interviews:

1. Positioning the library as both digital and physical, integrating complementary virtual services as good as, or better than, the in-person experience.

2. Connecting users to the universe of information, not just **Georgia Tech**.

3. Creating a more porous library, with more ways in and out of the spaces.

4. Special focus on developing spaces and services for graduate students and faculty that builds upon a long history of robust spaces and services for undergraduates.

5. Earlier and longer involvement in the research process, with broader array of expertise.

6. Increasing awareness of services and showcasing work ("making the invisible, visible").

7. "Long Life, Loose Fit": A building infrastructure that is sustainable for the long-term, and an architectural program design for interior spaces that can morph as user needs evolve.

Given these strategic design directions co-developed by library leadership, user groups, executive leadership, and the archi-

Georgia Tech Price Gilbert Library, view from North   (Rendering by BNIM)

tectural design team, we were positioned well to begin the process for designing spaces and services. The process used at the **Georgia Tech Library** consisted of the following steps:

1. Identify lead users.
2. Engage them through interviews, workshops and shadowing.
3. Identify their pain points, work-arounds and "personal innovations."
4. Compare their behaviors to environmental trends and other users.
5. Co-design spaces and services based on lead user workarounds and innovations to predict evolving research, teaching and learning behavior.

Identifying lead users can be challenging since there is no single characteristic that librarians can (or should) use to determine who falls into this category. A variety of characteristics should be applied including: recommendations from school chairs, productivity as measured by citation and other research-related bibliometrics (faculty), teaching awards, subject expertise, and service on advisory boards. At **Georgia Tech Library**, the undergraduate, graduate, and faculty advisory board members have had a significant hand in designing the library's new spaces and services. As passionate library users and productive scholars these advisory board members fall into the category of lead users. One of the key insights that emerged as we identified lead users for the advisory boards was that representativeness may not be necessary to create a forward-thinking and appropriate program for the entire campus. This may seem counterintuitive and even counter to existing practice. However, our contention is that the zeal for statistical representativeness has, in some instances, watered-down the innovative possibilities of cultivating an engaged advisory board focused on the future rather than on the past and present.

In addition to lead user contributions, some innovations emerged from an intentional environmental scanning effort. A good example of such environmental "trendspotting" is represented by the **ALA Center for the Future of Libraries**. This relatively new organization is tasked with identifying societal trends that will affect all aspects of life, including libraries. Such environmental scanning is a critically important part of a valid research design and can also uncover new opportunities and innovations to supplement lead user ideas.

The lead user approach, coupled with our related analyses and engagement (data trends, environmental scans, workshops, executive leadership guidance), led to the following program and service concepts:

The Library Store: a new way of providing proactive knowledge services to users. The service model is inspired by leading-edge retail environments, as well as engagement that happens in world-class interactive museums.

Scholars Event Network: scholarly event infrastructure that includes high-quality audio and video editing to broadcast transdisciplinary scholarship beyond borders.

Data Visualization Lab and Media Scholarship Commons: making accessible high-performance computing tools, as well as expertise, to help students and faculty integrate data visualization and multimedia into their research, teaching and learning endeavors.

retroTECH: this space and service is co-located with the Data Visualization Lab and allows the **Georgia Tech** community to "hack the past and design the future."

Innovation and Ideation Studio: inspired by the activities that happen in architectural and engineering design studios, this is a space, service and culture available for all of campus that promotes "messy making" and collaboration. The goal is to provide the space, the tools and the atmosphere for successful teamwork to happen.

Graduate Student Community: a space and community cultivated by the library, as well as with campus partners, to provide graduate students the room to grow intellectually and connect with each other across disciplines.

Faculty Research Zone: a quiet respite from the sometimes frenzied departmental atmosphere to support focused faculty research and teaching efforts. These could include, for example, book projects or other long-term research endeavors requiring regular access to library expertise and resources.

Teaching Studio: an innovative partnership between **Georgia Tech's** Center for Teaching and Learning, the Office of Information and Technology, and the library, to provide space, training and technology for faculty to "flip" their classrooms and engage in new forms of pedagogy.

Science Fiction Lounge: a space and community that aims to link the library's robust science fiction collection with the research and innovation products of **Georgia Tech** faculty and students.

Also reflected in the final architectural program are large portions of the building dedicated to quiet, individual study, as well as spaces to showcase interactive art and media, as these were "core" themes reflected in the data.

Implementation of "Library Next"

Given the complexity and novelty of the aforementioned Library Next programs and services, the library adopted a portfolio and project management approach that pervades all aspects of the design and implementation. This formalized project management required significant investment in training and organizational change management. In order to "skill up" the organization quickly, we leveraged the **Georgia Tech** Strategic Consulting group to support and co-lead the project management effort. This work is ongoing and, to date, a majority of the organization either leads projects and programs as managers, or serves as members of project teams. The ultimate goal is to have 100% of the organization actively engaged as part of the portfolio management structure.

"Library" as Sign and Signifier

A lingering challenge from the early design phase to the present has been to clearly and appropriately define the word "library" for stakeholders. When faced with a novel question or challenge, the culture within our library encourages taking a reflective approach in order to allow the requisite space and time for knowledge to coalesce and wisdom to emerge. With respect to the word "library," a small group of librarians developed an influential white paper that characterized the new **Georgia Tech Library** as an evolutionary step for **Georgia Tech's** campus and the institution of research libraries. The authors write: "[j]ust as the term 'theater' once signified a space where Greek drama was performed and now connotes a space where digital images are projected, the activity within a library space may change, but the label and the place retain their informative, symbolic power" (Bennett, Hagenmaier, Rascoe, and Rolando 2014). Although "signs" may

Georgia Tech Library Tower   **(Rendering by BNIM)**

change to "information center," "commons," or other approximations, the signifier of the word "library" transcends time and context (Radford & Radford 2005). Given this semantic claim, the authors of this white paper make the case that "[t]he reimagined and renewed **Georgia Tech Library** will continue to be the important hub for campus knowledge creation, collaboration, and scholarship that it has always been. Every great academic institution relies on the spaces, services, staff, and symbolic value of the 'library' to serve that purpose, regardless of the form its library may take" (Bennett, Hagenmaier, Rascoe, and Rolando 2014). As a result, the new facility will indeed be called a library, which stands as a rather important signifier, given the fundamental change in programmatic focus of the building.

Conclusion

As many campus libraries face the design challenge of renovating mid-century buildings that are reaching the end of their useful lives, our hope is that the **Georgia Tech Library** Next project stands as an emblem of positive change towards a "knowledge-driven" university (Youtie & Shapira 2008). Furthermore, by fully embracing the term "library" we aim to transcend and liberate ourselves from the narrow definition of a "space for books" towards an active *agora* that embraces a plurality of voices and transdisciplinary knowledge sharing. An enduring place where the human spirit, material experiences and the digital *zeitgeist* coexist in mutual beneficence.

Georgia Tech Library Tower, Grove-level Reading Room   (Rendering by BNIM)

References

Bennett, C., **Hagenmaier, W.**, **Rolando, L.**, **Rascoe, F.** (2014). *Reimagining the Georgia Tech Library*. Georgia Institute of Technology Library. *http://hdl.handle.net/1853/51712*

Decker, E.N., & **Henson, W.B.** (2016). The Library Store: A new place and space within the Georgia Tech Library. In **S. Hines** (Ed.), *Future of library space (Advances in Library Administration and Organization 2016)*. (pp.) Bingley, UK: Emerald Group Publishing, Ltd., 295.

Radford, G. P., & **Radford, M. L.** (2005). Structuralism, post-structuralism, and the library: de Saussure and Foucault. *Journal of Documentation*, *61*(1), 60-78.

Rogers, E. M. (2010). *Diffusion of innovations*. New York: Simon and Schuster.

Von Hippel, E. (1986). Lead users: a source of novel product concepts. *Management science*, *32*(7), 791-805.

Youtie, J., & **Shapira, P.** (2008). Building an innovation hub: A case study of the transformation of university roles in regional technological and economic development. *Research policy*, *37*(8), 1188-1204.

Third Time's the Charm: Finding a Permanent Home for the University of Maryland's John & Stella Graves MakerSpace

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Origins

Our journey started with the acquisition of a single MakerBot Replicator 2 3D printer early in the 2014 spring semester. This purchase was part of a plan to create a 3D printing request service in the Terrapin Learning Commons (TLC), an extremely popular, undergraduate-oriented service point located in the **University of Maryland's** main library which offers group study spaces, specialized printing services, and an equipment loan program. **Preston**, who was a member of the Libraries IT department at the time, was charged with learning everything he could about the printer.

The 3D printing request service was extremely popular with students right from the start. Initially, the overwhelming majority of requests we received were for novelty items and souvenirs such as shot glasses, but we soon started to see a rise in requests for more practical items such as smartphone cases and prints related to student projects. The first large-scale project we assisted with was student printing boxes to hold sensitive electronics for atmospheric data collection using a weather balloon. By late March, the success of the new service had led to an invitation to provide a 3D printing demonstration for the university's biggest donors at Maryland Day, an annual university-wide open house that offers a great

opportunity for marketing and outreach. Two of the attendees, **John** and **Stella Graves**, were so impressed that they decided to make a one-time donation of $30,000 to kick-start the launch of a dedicated space for maker technologies in the Libraries.

The money was used to repurpose a small (approximately 250 square feet) group study room in the TLC and fill it out with additional 3D printers and other maker equipment such as a vinyl cutter, an Arduino kit, small soldering learning kits, and a 3D scanner. Following a grand opening ceremony, the **John and Stella Graves MakerSpace** (as we decided to call it)