University of Maryland Libraries

McKeldin Library Reprogramming: Participatory Design Phase

Summary Report by Nancy Fried Foster

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Executive Summary

The current project is to develop a unified, coherent program for the McKeldin Library building, and to do this in a way that includes many stakeholders in the design process.

The building would benefit from overall updating and attention to obvious problems of lighting, heating, ventilation, the circulation of patrons, and so on. However, this project aims higher: toward the creation of a program for the building that understands and takes account of the needs of the students, faculty members and staff who use the library.

Beyond even this, the project acknowledges that the decision makers should give careful consideration to the "heart" and mission of the library. That is, of all the many activities that patrons may wish to conduct in the library, it is necessary to ask which ones align with the library's highest purposes, now and into the future.

Librarians and library staff worked with anthropologist Nancy Fried Foster to conduct participatory design activities concerning the use of the building and other spaces for academic work. They also offered their own expertise and knowledge of the library to the analysis and interpretation of the data.

Based on this work, we can provide the following list of activities that the library could support, if they fall within the library's mission.

- Work with materials that require that one can see one's work well and also shift to a distant focus from time to time
- Spread out a large number of materials and devices
- Use the library's physical collections
- Shift rapidly between serious work and breaks
- Retreat from noise and distraction, which may sometimes require a degree of solitude
- Meet, converse and do other activities that generate noise
- Use public workstations
- Meet up and work together
- Work for hours at a time
- Take a break to rest, socialize or do something relaxing before turning back to one's work
- Give and receive training and instruction
- Use such specialized, public equipment as copiers, printers, scanners and so on
- Get help for a range of needs, from where the restroom is, to where a section of books can be found, to some esoteric academic topic
- Fuel up with coffee and various comestibles

With the following additional need of faculty, staff and librarians:

- Complete staff tasks that require communication, collaboration and sharing with colleagues
- Be in one's own private space
- Use specialized, non-public equipment
- Hold work meetings
- Store work materials
- Do specialized work with library assets

Additionally, the building could be designed to support the following activities, if they are deemed to align with the library's "heart."

- Read, think, and write in a deep, sustained way
- Connect deeply with the collections, in a variety of formats
- Connect to the world of nature and culture
- Collaborate with colleagues; hold seminars
- Converse with colleagues and others and build community
- Explore through library work one's own identity as a scholar, a worker, or an emerging adult
- Develop a sense of connection to one's discipline
- "Settle in" – physically and psychically – so one can do demanding work and stay with it to the end

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Description of Project

Theodore R. McKeldin Library, the largest of the University of Maryland's libraries, was built in 1958 and has, since its construction, undergone numerous small and large renovations and additions. While every effort has been made to respond to the needs of library users, the work has been piecemeal and the result is a building that is impressive from the outside but hard to navigate and anything but grand on the inside.

The current project is to develop a unified, coherent program for the entire building, and to do this in a way that includes many stakeholders in the design process. To this end, the Dean of the library system has worked with the Dean of the School of Architecture, a principal from the architectural firm Ayers Saint Gross, an anthropologist who facilitates participatory design processes, a professor of anthropology, the senior administrative librarian, and other library and campus leaders to take a collaborative approach to the conceptualization and design work entailed in reprogramming the building.

The project is developing in stages, the first stage being the development of an informational basis for the quantitative program and qualitative requirements. The information developed in this stage will be delivered to a group of architecture students, working with Sandra Vicchio of Ayers Saint Gross, to prepare designs in the next stage of the project. Subsequent stages will entail gaining support for the project and then building it.

Architecture students have completed the quantitative work, reported elsewhere. Students in Prof. Michael Paolisso's graduate methods class in applied anthropology have completed an ethnographic study of the library, also reported elsewhere.

Librarians and library staff have worked with Nancy Fried Foster to conduct participatory design activities concerning the use of the building and other spaces for academic work; their reports are appended. This report summarizes their participatory design activities and findings.

Participatory Design

Participatory design refers to a process by which a wide range of users contribute their knowledge to a design and development project. Participatory design is based on the belief that every stakeholder is an expert, each in his or her own way. Architects have recognized expertise and a great deal of specialized knowledge related to designing buildings. Faculty members, students and librarians are also experts; their expertise lies in doing their academic work in, with and through the library. When all of them work with other experts – administrators, builders, and so on – in a collaborative,

participatory way, we can expect that the resulting building will come closer to meeting user needs than if it had been designed by one kind of expert working alone.

To conduct a participatory design process, a facilitator creates structured opportunities for a variety of experts to think through and communicate information about whatever is being designed and developed. The structured opportunities sometimes resemble research methods (for example, interviews) or creative sessions (for example, design workshops). In this project, there were three methods, used by three sub-teams:

- **Structured observations** in eight locations throughout McKeldin Library conducted three times a day over a seven-day period during the height of the Fall 2011 semester
- **On-the-spot interviews** in which 33 individuals were interviewed at on-campus locations about where they last studied for an exam, worked on a project or wrote a paper, and why
- **Design workshops** with a total of 87 undergraduates, graduate students, faculty members, and members of the library staff, in which participants created drawings of ideal library spaces

The library sub-teams collected, analyzed and interpreted the data. Additionally, all teams worked together to draw major themes out of the data and write final reports on the three activities. Those reports are appended to this summary.

The Context: The Purpose of an Academic Library and the Need for It

While McKeldin Library offers rich collections and a wide range of services to the academic community, and while its many successes are lauded by all, it is also easy to list its shortcomings. These are shortcomings that it has in common with almost any other academic library that was built in the 1950s and renovated or augmented in the 1970s or 80s. They include problems with lighting, noise, ventilation, the circulation of people and their ability to navigate the space; an overall lack of space and especially a lack of space to attract serious and mature scholars; infrastructure problems such as insufficient outlets, aging rest rooms, and challenges to providing adequate connectivity; and many other aesthetic and physical problems.

It would be easy to improve the building simply by updating it and addressing its obvious problems, a job that any good architect could do. But the challenge here is to program a building that meets the needs of real people who require a library to do their work. That is, it is not simply that people have to get where they are going in the building, find a comfortable seat and plug in a laptop. They have to be able to do complex and changing sets of work tasks in the building. And since different kinds of work require different environments, it is essential that we understand something of that work and design the building specifically to enable the sorts of activities and provide the sorts of supports that these individuals need.

Some of this information relates to the variety of activities in which people are engaged in libraries and entails information about tables and chairs, rooms and open spaces, offices, sound, lighting, contiguity, and so on.

However, some of the information relates more to the conditions that people require in order to realize the highest ideals of universities and libraries. These ideals include cultivating the full breadth and diversity of knowledge; using resources now while also preserving them for the future; ensuring the integrity of information; having access to more resources than any individual could own; being able to read and think anything and then being inspired to build on, improve and advance the state of our knowledge. That is, the library is the intellectual heart of the university and it should give heart to all who work in it.

What follows are findings related to both of these needs: the day-to-day needs for good accommodation and the need for something more: something that makes great work possible.

Summary of Findings: Support for Library-Based Activities

We interpret the participatory design data to mean that the Library is poised to meet a wide range of needs related to the physical qualities, equipment, staffing and contents of the building. In summary, we should consider whether and how the building might support of the following:

- Working with materials that require that one can see one's work well and also shift to a distant focus from time to time
- Spreading out a large number of materials and devices
- Using the library's physical collections
- Rapid shifting between serious work and breaks
- Retreating from noise and distraction, which may sometimes require a degree of solitude
- Meeting, conversing and doing other activities that generate noise
- Using public workstations
- Meeting up and working together
- Working for hours at a time
- Taking a break to rest, socialize or do something relaxing before turning back to one's work
- Giving and receiving training and instruction
- Using such specialized, public equipment as copiers, printers, scanners and so on
- Getting help for a range of needs, from where the restroom is, to where a section of books can be found, to some esoteric academic topic
- Fueling up with coffee and various comestibles

For faculty, staff and librarians, there are some additional needs:

- Completing staff tasks that require communication, collaboration and sharing with colleagues
- Being in one's own private space
- Using specialized, non-public equipment
- Holding work meetings
- Storing work materials
- Doing specialized work with library assets

At present, the people who use the library create, and so we infer that they need, a wide range of ambient qualities, from absolute quiet to a buzz to outright noise; from almost motionless attention to task to working amid eating, drinking and socializing; from complete solitude to collaboration; from close confinement to spreading out over a large surface. We call attention to our belief that the library is right to support this full range of conditions if possible, in such a way that one person's noise, motion and sociality will not destroy another person's quiet and solitude.

Summary of Findings: The Heart of the Library

What we call the "heart" of the library, discussed above, represents the ideals of the academic library, the inspiration that can be drawn from the library, and the rich assets of the library. In verbal statements, this may be expressed as follows: "When I see all the students studying, it encourages me, motivates me." In drawings it may appear as soaring spaces filled with art treasures, fine carpets and busts of famous thinkers.

These days, library users find reference works, journal articles and even whole books online, and they can use them from any location, at any hour of the day. While there are still many people who use the library's physical collections, special collections, and other unique assets, that number is declining. This raises serious questions about the use of library space. Should it still be devoted to stacks of books and bound periodicals that circulate less and less frequently? Should it be turned into office space for faculty members, librarians or library staff? Should the library be used mainly as a study hall? Or for workshops and seminars? Or for group work on assignments and projects?

Part of the answer to these questions comes from findings of this work related to what people seek in the library. According to the data, many people come to the library, or want to be in the library, to be inspired, to feel part of an academic endeavor that is bigger than themselves, to be in the presence of works of scholarship and, by extension, to be in the presence of great thinkers.

In support of this line of inference, respondents indicate a need to:

- Read, think, and write in a deep, sustained way
- Connect deeply with the collections, in a variety of formats
- Connect to the world of nature and culture
- Collaborate with colleagues; hold seminars

- Converse with colleagues and others and build community
- Explore through library work one's own identity as a scholar, a worker, or an emerging adult
- Develop a sense of connection to one's discipline
- "Settle in" – physically and psychically – so one can do demanding work and stay with it to the end

Next Questions

We engaged a variety of library patrons in participatory design activities and learned that they have a wide range of work habits and needs. One could make a case that the library should have more group work space, more individual workspace, more private office space, and so on, simply on the basis of the needs expressed in the data.

However, the decision about how to design the new McKeldin – what to give priority in a reprogrammed building – requires another consideration of the overall mission of the library and what it is that makes McKeldin, and academic libraries in general, special. There are many spaces, services and resources that are required in the course of an education – should the Library provide for all of them? If students simultaneously Tweet and work on research papers, does that mean that the Library should make a special effort to support multi-tasking? Where should the line be drawn? Which activities should be targeted for the most support?

As the Stakeholder Group reviews this report, it may wish to ask these questions as it selects from among a multitude of activities to support the ones that it deems most central to the mission and "heart" of the library.

Summary of Major Findings for the Three Activities

Note: complete reports from the three teams begin on page 12.

Observations

Observations conducted in McKeldin Library give a picture of how the building is being used now. The picture is partial because a) the observations were conducted during only one week of one semester and only at three different times of day; b) the observations were conducted only in eight spaces and these spaces are not fully representative of the entire building; and c) the observers found a degree of variation among themselves in how they used the observation codes. Observed spaces include only public spaces, not library offices or restricted work areas. Due to the limitations on the data, the findings should be taken as suggestive of how McKeldin is being used, not as a full and accurate accounting.

A large majority of the people observed at every time of day and in every location seemed to be young people working individually on academic tasks. Above eighty-five percent appeared to be doing academic work. More than two thirds were working alone with the remainder taking advantage of large tables and small rooms to work in groups. Observers reported seeing few people who seemed to be graduate students or faculty members.

One in five observed people was using only print materials of some kind and no electronic devices. The remainder were using a library-supplied computer, their own laptop or other device, or multiple devices. Most people observed in the library appeared to be deeply involved in reading and writing tasks, taking occasional breaks to relax with Facebook or socialize. With regard to physical materials, most appeared to be using their own books and papers, rather than library materials.

The ambiance of the library during observations was extremely varied, ranging from quiet to noisy, sometimes smelling of food, and seeing the gamut of behavior from sleeping to quiet intensity to an almost rowdy style of group work.

Perhaps the two most striking findings are:
- Few if any graduate students and faculty members appear to be using the public spaces of the library
- The vast majority of students are apparently engaged in academic work

Other significant findings are:
- The library's provision of different kinds of spaces and furniture supports both group and individual work and people were observed to take advantage of all configurations
- The library building is not evidently the primary site for the use of library materials

On-the-Spot Interviews

The interview sub-team, like the other teams, found that data collection entailed some confusion, especially over the wording of one of the questions. As in the other cases, here too the data are to be taken as suggestive. This understood, the sub-team reports the following:

When **studying for an exam**, respondents report that they work in increments under four hours, mainly in the afternoon or at night. They most commonly report studying for an exam in McKeldin Library or their bedrooms. They want a place that is quiet and free from distractions, which may sometimes mean the absence of other people. They say that they work well when they are in a place where others are seriously engaged. A few also report wanting to be in the library in order to gain access to library resources.

When **working on a lab or project**, respondents report that they work in increments of two hours or less. About half of them report working in the library, with the remainder divided equally between home and classroom. Respondents want to be in a place where others are seriously engaged. They prefer places that support meeting up and working together. A small but significant number report wanting to be in the library in order to gain access to library resources.

When respondents work on a **research paper**, they report working for one to four hours. Almost two thirds report working on a research paper at home, with others working mainly in the library. Respondents sometimes want the absence of other people and protection from distractions, and many want a small space where they can hunker down. Interestingly, only a small number of respondents report choosing a location in order to use books or other library resources.

In general, undergraduates want a quiet and convenient place with computer access in which to do their academic work. Convenience may require that the place be close to a bus stop or a parking lot, or to a particular classroom building. Some respondents indicate that they can only really be comfortable in their own dorms or bedrooms. Others seek public spaces where they are inspired to concentrate on their tasks.

Importantly, the sub-team reports, students want different sorts of space that offer different accouterments and conditions, depending on the activity at hand. Over the course of time – and sometimes even over the course of an hour or two – students may need quiet and noisy spaces, privacy and shared space, and so on.

Design Workshops

In a number of workshops, the sub-team solicited drawings of an ideal library space from 20 undergraduates, 17 graduate students, 20 faculty members and 20 members of the library staff. The sub-team reports that the constraints on recruitment skewed the results, so we must take the data as suggestive, rather than as reliably representative. That caveat understood, the data suggest that there are some shared themes across all groups. As the sub-team reports:

- McKeldin Library provides appropriate space for many undergraduates
- The library does not currently provide well for faculty or graduate student needs
- Faculty members care about the physical collections and want to interact with librarians and members of the library staff
- Students care about physical collections and interactions with librarians and library staff members, but less so than faculty members
- Staff members want spaces that are better laid out, that put staff who work together closer to each other, and that are set up to support the kind of work that is done in them
- All groups want some degree of noise control, cleanliness and light, and they want different kinds of furniture to support a variety of work activities

In addition, interpretation of the elements of the drawings indicates that the different groups need support for a range of activities.

Undergraduates do work that requires:

- Solitude and concentration
- Group interaction
- The containment of noise (that is, noise in some places cannot be heard by people who need quiet in other places)
- Equipment of some sort, such as copiers, whiteboards, or projectors
- A computer that belongs to the library
- A work surface on which they can spread out their materials
- A provider of some sort to assist them
- Furniture that allows them a degree of comfort
- The opportunity to be with others, whether socializing or just being together
- Frequent shifts among different courses and disciplines
- Sustained energy from rest, food, coffee and so on
- A degree of physical comfort and emotional security
- A sense of self and opportunities to experiment and build identity

Graduate students do work that requires:

- Ample light
- Solitude and intense concentration
- The containment of noise
- Equipment of some sort, such as copiers, whiteboards, or projectors
- Development of a sense of connection to one's discipline

- A focus on attaining one's degree
- Inspiration from the "heart of the library"
- Sustained energy from the occasional rest

Faculty members do work that requires:

- Use of library collections and deep connection to resources
- Deep, sustained thinking, reading and writing
- Connection to the world of nature and culture
- Solitary work
- Collaboration with colleagues; seminars
- Equipment of some sort, such as copiers, whiteboards, or projectors
- Conversation and community building
- Inspiration from the "heart of the library"
- Being in one's own space
- An occasional break
- Sustained energy from food and coffee

Librarians and members of the library staff do work that requires:

- Ample light
- The ability to see across the space
- Being in one's own space
- Meeting with others
- The use of technology in designated spaces
- Storage of materials
- Giving and receiving training and instruction
- Using specialized, non-public equipment
- Meeting
- Maintaining a sense of self

APPENDICES

In the following pages, the people who conducted the participatory design activities and worked through the data present the final reports that they wrote.

By Lutgarda Barnachea, Eric Bartheld, Patricia Cosco Cossard, Stacey Grijalva, Kevin Hammett, Cinthya Ippoliti, Carleton Jackson, Yelena Luckert, Trevor Munoz, Nedelina Tchangalova, Jane Williams, and Tanner Wray

Appendix I. Report of the Observation Sub-Team

1. Why this method was used

We used the observation method to find out why students come to the library, what kind of activities they are performing, and what time is most likely they are coming to the library to perform these activities. Our study was mainly focused on students as it is not possible to distinguish students from faculty members. We came across some library colleagues in the observed areas fullfilling their jobs, such as checking a book in the stacks, waiting for a meeting, killing time between meetings, moving between offices, etc. The identified library staff were not included in our observation data.

2. Information about the method

- *Identify spaces for observation.* Our main intention was to identify <u>manageable</u> spaces to see and observe students without moving around for a longer period of time, mainly with approximately 12-20 seats per area. We looked at <u>diversity</u> of some spaces in terms of availability of tables, chairs, study carrels, library computers, exterior and internal study/working spaces, and when it appears to be individual or group space. We looked at spaces that were previously pre-determined by function, e.g. quick stop for catalog search, cafe, quiet vs. loud spaces, 4th floor is different from 7th floor and 2nd floor is different from the cafe. We identified spaces <u>close</u> to the entrances (elevators and stairs) and others <u>in a proximity</u> from entrances and floors. We wanted to compare how the "New McKeldin" (Terrapin Learning Common - TLC) vs. "Old McKeldin" have been used especially after aggressive marketing efforts being done during the Fall semester promoting the TLC. We created maps for each area accompanied by pictures of the location and highlighting the area indicating the exact space to be observed on each floor. Below is a description of the identified areas:

Floors	Areas	Description
7th	**A**	Observe in the lobby areas with soft seating near the elevators—this floor has two of these areas, in both the old and new wing.
4th	**B**	4th floor reading room outside the PSD/CMSC office.
2nd	**C**	Observe the area on the southeast side of the TLC—just the tables with iMacs (not the row of tables with PCs). This is about half of the room lengthwise.

2nd	**D**	Observe the open area in front of room 2113. This area contains study tables without computers between the enclosed presentation room and the large study room at the end of the floor.
2nd	**E**	Six enclosed TLC group rooms along the north wall of the entire floor. Do not enter rooms. Do the best you can.
1st	**F**	Reference area computers with stools – 2nd aisle where you can look at activities on both sides of aisle. There are 6 PCs on each side of the aisle before the aisle narrows – total of 12 to observe.
1st	**G**	Periodicals seating area between stacks and copiers. Sets of carrels have 12 seats in them. Select first row of carrel units—both sides of the row (12-24 seats)
1st	**H**	Café. As you enter the Café, observe the first 4 tables on the right.

- *Identify time for observation*. Based on the observers' schedule and the time we anticipated most students will be studying for mid-semester exams, we decided to conduct our observations during the following week and times:
  - Week for observations: November 7-13, 2011
  - Times for observations: 10 am, 2 pm, and 10 pm
- *Set up a schedule*. To make sure that each observed area is being observed during the above specified times, we set up a schedule with observers. In case of emergency, we identified back up people to cover the shifts.

Time	Mon 7 Nov	Tue 8 Nov	Wed 9 Nov	Th 10 Nov	Fri 11 Nov	Sat 12 Nov	Sun 13 Nov
10 am	Trevor Charles	Carleton Charles	Carleton Nedelina	Cinthya Yelena Lulu	Trevor Nedelina	Trevor Nedelina	Library closed
2 pm	Trevor Nedelina	Carleton Nedelina	Trevor Nedelina	Carleton Lulu Jane	Trevor Nedelina	Trevor Nedelina	Trevor Nedelina Carleton
10 pm	Charles Pat	Charles Pat Nedelina	Carleton Nedelina	Carleton Jane Eric	Library closed	Library closed	Trevor Nedelina

- *Identify codes.* During the preparation time, we identified the following codes for the activities being observed:

A	Reading and/or working on an academic assignment
L	Using own productivity device as part of academic work
C	Using library computer as part of academic work
B	Taking a break alone
S	Socializing with others
X	Not engaged (sleeping, walking through, etc)

Note: (circle A's) = Doing academic work as a group

- *Practice session.* A week before the actual observations, the team met to test the codes and flesh out the forms we created (instructions, maps, codes, etc.).
- *Collecting and recording the data*. After the observations, we tabulated the data into a spreadsheet and made different formulas to analyze the data, such as adding up all A's (A, AL, AC, ALC) across locations, adding up all A's in one area, finding the ration between students working individually vs. in groups, etc.

3. Assessment of the Process

We had a pleasant experience in doing these observations and we had the opportunity to learn about students' activities in the library. Students were somehow surprised to be observed. One student inquired about the purpose of the study. He seemed very pleased with the fact that libraries are working tirelessly to offer services that students need.

Overall, the study went well. Some of the observers felt that they needed more training in coding the activities despite the practice session we conducted beforehand. During the observations, we had some difficult time with coding some specific activities. For example, the category 'B' was extended during the observations to BL & BC but in the final recording of the data in the spreadsheet, we recorded all BL & BC into the single code B (B code includes people using their laptops or a library computer during a break: BL & BC). Also, although we created a code for people using both their own personal laptop and a library computer (ALC)—an activity which appears to be common on the

second floor—we found it difficult to apply this code consistently and thus the numbers for this code largely under-report what we observed.

McKeldin library is a huge building and finding small areas for observations was a challenging task.

To keep the time for observation under control, we decided to deal with small areas consisting off 12-20 seats.

Some things happening during the observation week that may have affected the data:

- Maryland home football game
- Baltimore Ravens and Washington Redskins games this weekend
- The news of the Penn State scandal broke
- Nice weather (people may have been working outside/more people near windows)

What was surprising is that students were doing academic work, mostly individually, using their own materials and not library materials. The numbers for socializing were lower than expected. Students still regard the library as a work space not as a social space.

4. What We Learned

People using their laptops AND a library computer were under-reported.

Demographics

The age of patrons in McKeldin seemed to be uniformly young—older students or faculty were mostly not present as far as we could tell. However when they were present often away from young crowd and observed more than once.

Individual vs Group

In total, over the whole week, more than twice as many people were working alone as working in group.

Group work increases throughout the afternoon and evening.

People working in groups (especially on the 4th floor) seemed to prefer the tables between stacks. In this case, the stacks were being used as ad-hoc "group room" dividers.

19 % of students worked on their academic assignments without a tech device

47% of the students were reading and/or working on an academic assignment using their own laptops

18% of students were using library computer while doing academic work

8% of students were taking a break

3% of students were socializing either in person or checking their Facebook accounts

4% of students were sleeping, walking through the areas or engaged with any other activities

Less than 1% of students were using both personal devices (phones, laptops, etc.) and a library computer. (See note above about the questionable accuracy of this number).

Physical space

TLC (Mac's area) - we observed that the **form of spaces** had a great effect on the use of those spaces—on the 2nd floor, the section we observed had larger tables where there was room to spread out and work together. If we had observed the other row of computers, we would have found individual work because there was no space to do anything else.

People appeared to be working with their personal materials—they didn't appear to have collected library materials to work with.

Catalog computers

Reference area computers: We observed that people were doing work and staying for lengthy periods on the computers near the reference desk, it is unclear that we need computers dedicated to "checking the catalog" in this first floor area. Late at night saw more non-academic uses.

Food and drinks

Distinct food odors on the second floor — often in combination with warm, stuffy air

There appear to be "micro-climates" within the larger spaces—consider how subdividing these spaces might reflect this social reality

5. What This Says About McKeldin Library in 2011

Students are coming to the library to do academic work not to socialize. They are using mostly their own personal materials such as textbooks, laptops, iPads, etc. and were not very engaged with library materials. Students were working mostly alone, deeply concentrated in reading or writing. Faculty and graduate students appear to use the physical library building less than undergraduates—perhaps to avoid the crowds, noise, food odors, and trash caused by the undergraduates. Students have adapted to many of the current spaces even though organization and type of furniture provided there does not appear to match their common patterns of work.

6. What This Says About McKeldin Library in 2020

Students will need different spaces with different level of noise and functions. More space to work with personal materials and furniture that is easily movable to design spaces according to the type of study students are doing: individual vs. group. However, when they were in group rooms, often sense of community, that they met to study together but not necessarily as a group. The creation of impromptu group study rooms in places like the 4th floor suggests that book storage on open stacks may be in decline in order to create more room for students to work with their own materials. However, the creation of an alternate space on campus that provided this kind of flexible work space might allow faculty and graduate students to better utilize McKeldin Library and the book stacks (as in the example of the Georgia Tech learning commons).

7. How This Relates to the Project of Programming McKeldin

The more data is available, the more convincing the case for applying for funds needed for renovation. The observation data clearly indicates that students need different spaces for various level of work: quiet for individual work, other with higher level of noise for group work, comfortable for meeting between classes, spaces with more light and food allowance, others with controllable light and no food at all, etc.

It is worth bearing in mind that this method of observation captured student activity in the library almost exclusively. So, the findings in this report represent only one fraction of the community of library users. The programming of McKeldin must also reflect the needs of advanced graduate students and faculty.

Appendix II. Report of the On-the-Spot Interview Sub-Team

1. Why this method was used

We wanted to learn the study habits of undergraduates relating to where they did their academic work, and why. What was it about a particular location that made it best for a specific type of work? Of the three data-gathering techniques that were part of this project, only this method asked open-ended questions of students.

From the data we hoped to learn about the characteristics students value. This knowledge we hoped would, in turn, inform the way we think about services and spaces. We also asked students when they did this work -- to learn what time of day and for how long they were engaged in their activity.

2. Information about the method

Seeking input from students beyond the walls of McKeldin Library was an important goal of this methodology. After defining the questions, we intercepted students at 4 outdoor locations on campus: in front of McKeldin Library, at Eppley Recreation Center, at Hornbake Plaza, and in front of the Stamp Student Union. Working in teams of 2 or 3 (in which the certified interviewer administered and collected the consent forms) we asked undergraduates a brief series of questions and wrote their answers on forms we created for this purpose. A goal in this process was to drill down to a level of specificity that made the answers as meaningful as possible.

We tabulated the results first in SurveyMonkey, but found that the automated process and need to create categories for qualitative data at the beginning of the input process complicated rather than simplified the analysis. We instead tabulated by hand, which allowed us to identify categories and trends as the analysis grew. This interpretation required a great deal of manual input and a fair amount of negotiation and synthesis. We reported data in tables, provided analysis of major trends, and identified supporting anecdotal quotes.

3. Assessment of the Process

This was a positive experience for participants and interviewers. Students were very cooperative and gave thoughtful answers. Originally, we did not anticipate the ease with which we could recruit participants. We had a number of $5 copy cards to use as incentive, but found that it was unnecessary. Overall, we were surprised by the ease of collecting data. By comparison we found the data entry and analysis to be much harder and time consuming.

We found that the final question: "last time you worked on a full-blown research paper?" did not get the data we wanted. Due to the timing of the interviews often the last time was, a previous semester, where the last time would be the final stages. The question as formulated (last time you worked...) led students to report on editing or printing. Thus, the need for printers and computers may be overstated. The work on a paper is a process. We were really interested in the data on earlier steps in the process (discovery, reading, analysis, synthesis). A better question may be "last time you did research for a full-blown paper."

After completing the analysis, we learned that the importance of sophisticated interview skills. We could have drilled down further with follow-up questions and gotten more descriptive data of the individual meaning to conceptual term such as comfortable, noise, etc. A second open-ended question could have been "What does this space enable you to do?"

4. What We Learned

We learned that students have strong preferences for the environment in which they choose to work. Some of this preference is driven by the type of activity (group study versus individual reading, writing or study). It can also be impacted by where they live and ease of commuting to and from campus. For example, if someone is relying on public transportation such as Shuttle UM to get them to their off-campus residence, and the last shuttle leaves at 9pm, then they are unable to use the library beyond that time. Some students however, showed a strong preference to studying and writing in their room, where the environment was most to their satisfaction and under their control. Students mentioned the comfort of their bed, music, and food as elements which helped them do what they need to do. However, we also heard from some students that they go to the library to be inspired by the environment of study and scholasticism - much in the same way that people go to gyms and health clubs to be inspired to work out by others doing the same activity. We also learned that these preferences are not static, but can vary depending on the activity. For example, they may want total silence for one activity, whereas with another they may want some background noise or buzz to stimulate them.

5. What This Says About McKeldin Library in 2011

The data shows that the renovation of the Terrapin Learning Commons is on target as far as it goes, but the data also supports the understanding that students have a strong desire/need to perform different tasks in different environments. While the TLC satisfies some of the demand for group/noisy space, a complementary need for quiet also exists. Students can be extremely resourceful and flexible, but they also know what they want and what works best for them at any given time.

The Terrapin Learning Commons can change its function over the course of a day--and in a matter of hours--based on the students there and their activities. For example, the TLC can be quiet in the morning but considerably active in the afternoon and beyond. Students seem to learn from experience that they can go to the space in the morning for quiet work; others know that they can go to the same space later in the day for a different environment.

(Note that the Terrapin Learning Commons is only one component of a building that supports the work of undergraduates.)

Comfort is a key issue. Efforts to satisfy this need should not be perceived as diluting the academic workspace but rather by supporting it in a fundamental way.

6. What This Says About McKeldin Library in 2020

McKeldin Library in 2020 should be a far different place. Technology will have changed the way students interrelate with each other, with professors, and with collections and resources. But despite these changes, we should anticipate that students will still want a library that provides a motivational space (away from the distractions of home) in which other students are similarly working and motivated. The need for community may increase as technology makes us all more self-sufficient, mobile and less location-dependent.

7. How This Relates to the Project of Programming McKeldin

This offers current data on how undergraduates as a population do academic work and the environment, spaces, and qualities they need. We learned that students want a range of options, and McKeldin should be programmed today to offer as many as possible, including additional quiet areas. This exercise can be built upon and re-administered as data is needed.

Appendix III. Report of the Design Workshop Sub-Team

1. Why this method was used

This method was used to gain direct knowledge from library users and potential users to hear directly what they perceive as their needs in a library. We wanted a way to get the "user's story" to envision the spaces through drawing, as yet another way of expressing their vision for the ideal library space. This method was approved by the IRB.

2. Information about the method

- We set up different email reflectors to maintain anonymity
- We used the IRB approved language to send a letter to all groups of participants detailing the project
- We added an IRB amendment to provide more flexibility for our methodology
- We provided each participant with the following directions:
  Imagine that we could create a new space inside the library that would be exactly as you want it. Imagine that we ask you to design it and then we get a team of people to come in and build it. You walk into the space and it's perfect. It meets your needs and enables you to take full advantage of your academic opportunities. And you can tell that you and your friends are going to love being in it. Now, using these art materials, please make a drawing of this new space.

Questionnaire

- Year you expect to graduate
- Major
- What is your favorite place to study?
- Where is the last place you studied?
- Where do you like to work on a paper?
- Where is the last place you worked on a paper?
- What's the best place for you to do homework or class assignments?
- Where is the last place you did homework or a class assignment?
- When was the last time you were in the library? What did you do?
- When was the time before that? What did you do?
- When is the last time you used the library website?

Recruitment:
- Undergraduates. We worked with the Writing Center to identify a group of writing tutors. We also worked with the Library Dean's student advisory group

and we recruited students who were in the building at the time of the session. We also sent an invitation to participate via a general e-mail message which included the letter mentioned above. We had over 20 students and we randomly selected 20 student drawings to analyze.

- Graduates. We worked with the Graduate School who referred us to the Registrar's office who gave us a list of 203 randomly selected students. Only 2 responded. We had also recruited one from the Dean's student advisory group and the other 14 students were recruited in McKeldin the day of the study. We analyzed a total of 17.
- Faculty. We reached out to the University Library Council and went through the subject liaisons to recruit faculty through their departments
- Library Staff. Invited up to 20 staff located in McKeldin to provide input for their desired work space.

Study Methodology:

- Library staff came during the training day of the ethnographic study group
- We went to the undergraduate writing center tutor's class in Tawes
- We held a session with the Dean's student advisory group for undergraduates and one graduate
- We held a day-long session for the graduate students and the faculty members and all others who were not available during the other sessions
- We held a final session for faculty from the University Library Council and for those faculty who were not available to attend the day-long session
- We provided snacks for all the participants and copy cards for all students

Analysis:

- We had a series of meetings to analyze the drawings which involved creating categories, counting number of occurrences in each category, merging categories and making sure we captured all the elements in each drawing
- We worked on each group's drawings separately

3. Assessment of the Process

- Email is not effective in inviting participants in the design workshop
- Concerned that the methods used to get desired number of participants skewed the results (inviting grad students at the grad student lounge in Mckeldin; using the students in the writing tutors group)
- The data amassed is mind-boggling and categorization is quite difficult
- Developing the categories was difficult-it was hard to determine what each drawing contained during the first pass-we did not have time to go back to see if we missed anything

- Time constraints forced us to think quickly which may not have necessarily helped
- It seemed that during the last meetings (11/29-11/30) the entire ethnographic study group was re-doing our work. We strongly suggest that our results and analysis of the workshops and the original drawings are included in the report for the architects

4. What We Learned

- A project of this magnitude requires more time and training to execute properly
- There are a lot of similarities as well as a number of differences in how libraries are used among various populations tested
- It's difficult to stay unbiased during the analysis/interpretation
- There were some assumptions that were de-bunked-we need to stay open to the data
- Please see data for results of analysis
- It would be good to look at the data across all the groups and all methodologies and identify overarching trends and issues

5. What This Says About McKeldin Library in 2011

- We are providing some of the services and spaces students need through spaces like the TLC, but we have more work to do
- We are probably not meeting needs of every student
- The library does not meet faculty needs as a physical space
- Noise problems are pervasive
- Light, atmosphere, cleanliness need to be improved
- Faculty cared the most about physical collections, but students cared about them to a greater degree than anticipated
- Faculty drawings indicated a greater degree of desired interactions with librarians and staff on a variety of levels
- Staff spaces are inadequate and disjointed
- Better furniture from all groups

6. What This Says About McKeldin Library in 2020

- Functional, flexible, attractive, full of natural light, efficient, green

- Spaces for graduate students and faculty-meet their needs for scholarship, learning and teaching and dissertation work
- Different types of study environments
- Different types of learning environments
- Provide enhanced academic, convenience (food etc.) services
- Better staff areas-privacy, communal and creating community and ongoing training/development
- Public vs private integrated spaces
- Safety and security for all-for belongings but also personal safety
- Grand spaces that make people want to "do" academic work-art, skylights, grand stairs
- Pervasive technology and areas to plug in and support services and equipment
- Books and other tangible information sources
- Preserve academic mission of the library
- Centrality of the library-a destination for...connecting, community, academic endeavors

7. How This Relates to the Project of Programming McKeldin

- Making sure we secure funding for this project
- Continue to test assumptions
- Provides views from all stakeholders-users, faculty, librarians, staff, administrators, students. Important to listen to them all.
- The other methodologies did not sample faculty and library staff and had a limited sampling of graduate students