

Site

- a. Mann Library Bissett Collaborative Center
- b. Located on the second floor, Albert R. Mann Library, 260 Tower Road, Cornell University, Ithaca, NY 14853 USA
- c. Camille Andrews, Learning Technologies and Assessment Librarian, Albert R. Mann Library, email: ca92@cornell.edu
- d. After confirmation from Professor Gary Evans, I contacted Camille Andrews to confirm the location and that I am allowed to do a POE there and started a dialogue to begin to discuss the project and to meet in the near future.
- e. Floor Plan: (Refer to Site Floor Plan in Appendix)

Function

The Bissett Collaborative Center is a large, two-story room with seven entrances: two to the Reading Room, one to the administrative offices, two to the gallery space and two to the stacks of Mann Library. According to a document from Camille Andrews, the space was conceived on four bases:

- The space should support collaborative work.
- The space should feel different from the rest of the library
- It should be a transforming space.
- The furnishings and equipment should be very flexible, allowing people to see the possibilities and change the arrangement as needed.

According to the same document, the Bissett Collaborative Center was envisioned as a space:

- To see the space is to want to use it.
- The space should have a character that pulls you in to explore.
- The space should accommodate a wide range of individuals' and groups' work styles and functions.
- The space should project energy, even when unoccupied.
- The space is one that Cornellians' show off to visitors.

Possible activity areas are based on the types of technology and furniture used and include nine configurable workstations: two- 50" Panasonic built-ins, four- 40" NEC screens on portable "Lollypop" stands and three- 40" NEC screens on carts. Essentially, each workstation is the same general configuration with tables and chairs, either lounge chairs or plastic chairs. The only true differences are among the screens and whether the user has the ability to connect his or her laptop or not. With the 50" Panasonic screen built-ins and the 40" NEC screens, the user has the ability to connect his or her laptop while with the 40" NEC screens on carts; there are Mac Mini dual-boot computers, DVD/VCR players/recorders and directional speakers. The space is used as 1) a primary meeting location to work in groups and 2) an alternative study space. Those two uses actually contradict each other because the space was created to allow people to talk and interact in a clear manner but when people are studying, the noise could distract people.

Considering user differences among the space's users, the differences are very few and include age, visual and hearing implications and also, mobility. Differences among age groups change the effect of the space and its technologies on user experience on various, such as older adults would tend to use more common programs and college age adults would tend to use more advanced programs and most often, use the resources the way they should be used in

context to their project or group work. Considering that some people have visual and auditory implications, no matter the age group, the space can further hinder one from participating. If a user is blind or deaf, there are no available resources to allow the student to utilize the space. If a user has some limited auditory abilities, then the space can cause one to not hear others that he or she may be communicating with. Mobility is not as much an issue as one would think; differently-abled persons have room and opportunity to be interacting with their group in all areas of the space because of the extreme flexibility the space offers its users.

Other than students, library staff would be a major user group that could utilize the space. The main difference in roles between students and staff is the opportunity to fully utilize the technologies available in that space. Staff could use the space as an additional meeting space for meetings that would not fit in their conference room or current auxiliary meeting space. The space could also be used for informal activities between staff and staff or staff and students. Although that being considered, the above definition of “fully utilization of available technologies” would have to be defined or at least broadly outlined in some respects.

Other implications about the space are situational and affect the user experience, such as lighting, noise, privacy and other distractions. The amount of lighting in the space can cause glares and visual implications depending on the time of day. Noise is always an issue, since it is such a large space with limited examples of sound absorption materials and the only dividers between groups are metal, perforated partitions. Privacy may be an issue if the group is working on a topic that is controversial and there is no clear way to increase the amount of privacy one’s group has in the space. Other distractions can include other space users, library staff and objects and people outside the space.

Comparative Analysis

According to the Mann Library website, “The Bissett Collaborative Area...is a customizable space for students to work collaboratively on academic projects and assignments”. The space contains nine configurable work stations, with LCD screens with VGA connector cables, Mac Mini dual-boot computers, DVD/VCR Player/Recorder, directional speakers, whiteboards, partitions, chairs, and tables. Before the addition of the Bissett Collaborative Area, users of the space would work collaboratively in group study rooms, collections of table in libraries, computer labs, academic classrooms, dorm lounges, and in cafés.

Group study rooms are great places to work together as a group quietly and basically, study, however, when groups need to interact and engage each other, the rooms become a constraint upon their ability to do that. In most group study rooms, the physical item that enable a group to work collaboratively include a few tables or one large table, chairs and a whiteboard with markers. Thinking about how students interact and why they would need to meet in the first place, the absence of some form of technology that all can see and use and the constraint that one within the space cannot exceed a certain sound level.

In parallel to when group are using group study rooms, when groups work together in the library using a group of tables as their space, they have the same issues as if they were in a group study room with the addition of the boundary constraints and the lack of collaborative resources, such as a whiteboard. Libraries, whether in group study rooms or on a group of tables, are the most formal because one is expected to enter the defined space, take a seat,

take out your work and proceed to work on individual task but as a collective effort with limited conversation, which is allowable to a certain tolerance.

Computer labs are the preferred meeting locations across campus and that is a secondary use to them because most computer labs have movable furniture and the ability to collaborate between one another. However, many users do not know that computer labs can be used this way and others think the same rules as in libraries apply, such as no talking. Computer labs are, also, somewhat formal in the sense that people are expected to walk in, find a comfortable area to occupy and work within that section and if necessary, talk to someone in a lower than normal voice.

Academic classrooms present the same issues as libraries and computer labs, but they are sometimes flexible, have the necessary technological resources, such multimedia equipment and whiteboards. Classrooms are formal while a class is occupying the space but if a group is in the space alone, formality is not an issue because the space is then private. One issue that becomes very important is accessibility because most, if not all, academic classrooms are in academic buildings, which have normal operating hours. Some groups might meet during those hours and have access but other may not, which limits the productive of the group.

Dorm lounges are great for collaborative work but lack in flexibility of work space and lighting. The lounges offer a decent amount of sitting but lack in usable work space and technology that is usually available in academic buildings, such as libraries. Consequently, most dorm lounges have televisions and the means of incorporating some of the similar technology implemented in the Bissett Collaborative Center, but without the necessary cables or

connectors. Additionally, dorm lounges offer the opportunity to have food and offer a much more relaxed atmosphere than group study rooms, libraries and computer labs.

Cafes are among the top places where people go to work together because cafes work well as meeting places and are usually centralized. Cafes offer people the opportunity to work together in an atmosphere that is, at times, highly conducive to working because they are usually much more informal than libraries or computers and like dorm lounges, one has the option of incorporating food into their experience. Cafes do not allow for the use of technologies, other than wireless internet, which in some cases can be costly or difficult to access and utilize.

Informal User Interviews

For my informal interviews, I interviewed a total of 3 undergraduate students, 2 graduate students, 3 staff members that helped design the space, and 2 staff members that work near or with the space. During the interviews, I asked four main questions to help me narrow my interests within the Bissett Collaborative Center and they included:

- What activities have you seen occur within the space?
- What are the major strengths of the Bissett Collaborative Center?
- What major weaknesses of the Bissett Collaborative Center?
- If you had one thing you would ask the designer to do differently, what would it be?

Why?

For my first question about the types of activities that they have seen occur within the space, the students mentioned seeing students studying, alone and in groups, working collaboratively on projects, using the technology although in a limited capacity, conversations

and sleeping. Also, a few mentioned that they have had or are in the class that currently meets in the space. The students, both undergraduate and graduate, identified the strengths of the Bissett Collaborative Center as its flexibility, one of the only “true” collaborative spaces on campus, has great technology, although not always easiest to use like they wanted to, and it has a lot of great tools and resources that help facilitate group collaboration. The students identified the weaknesses of the space as limited privacy, limited instructions on how to use the technology and that the accessories for the space are at the circulation desk, limited signage, ok lighting and limited acoustical privacy. Some changes the students would recommend to the designer included more comfortable furniture although still moveable, better signage, better lighting, and better acoustical privacy and division within the space.

For my first question about the types of activities that they have seen occur within the space, the staff mentioned seeing students, studying, alone and in groups, not using the technology, working in groups, collaborative document/presentation creation, conversations, using the whiteboards, and sleeping. One staff member noted that the space is “busier towards the end of the semester” and “during that time I have actually had to bring in more equipment from elsewhere”. Also, that this semester, Mann Library is doing a pilot of the space by having a class use the space on a regular basis. The staff identified strengths of the Bissett Collaborative Center as its flexibility in terms of furniture and their arrangement options, LCD screens, whiteboards, and other technologies. Also, a staff member noted that the space is “it’s open yet secluded if you pick the right corner.” The staff identified weaknesses of the space as the metal partitions being impractical, industrial-like furniture, limited signage and instructions, location within Mann Library, transitional space, acoustics, and limited resources to use the

space, such as laptop cables and dry erase markers. Some changes that staff would recommend to the designer included “make it more inviting, less like a storage room”, placement within Mann Library, better acoustical reduction methods, better lighting and sturdier, high-quality and durable furniture.

Both students and staff identified a number of concepts in the Bissett Collaborative Center’s strengths, weaknesses and for their recommendations to the designer. Common strengths among the groups were the space’s flexibility and the technology and other resources and tools available to users. Common weaknesses included lighting, privacy, acoustics, signage, furniture and technology and its location within Mann Library. Common recommendations to the designer included better lighting, better furniture, reconfigure the spaces around the Bissett Collaborative Center and reconfigure the divisions between groups in the space.

Expanding upon the main concerns of the space, which included placement/location, acoustics, lighting and technology and other resources and tools, some interviewees, particularly staff, offered very specific approaches to solving some of the common issues among the groups. First, the concern over the space’s placement within Mann Library, staff recommended moving the Bissett Collaborative Center to the first floor closer to the entrance and the circulation desk and others recommended switching it with the Dean’s Reading Room, which is directly behind the Bissett Collaborative Center and closed off by two sets of glass doors and numerous windows. Second, the concern over the acoustics within the space, staff and students recommended adding more inclusive partitions which not only added privacy around a group but also some limited overhead privacy. Also, an improvement would be for the partitions to be made out of a thicker material that resists noise vibrations and be produced in a

durable set-up. Third, the concern over lighting, staff recommended moving the space to where the Dean's Reading Room is since that room has better natural lighting and also, to provide task lighting to each of the individual collaboration stations or set-ups. Lastly, the concern over the space's technology and other resources and tools, some interviewees recommended adding more comprehensive instructions to the stations for users and to somehow, find a way to put the whiteboard supplies and laptop cables closer to the space.

Unstructured Observation

When considering when and how to go about observing the space, I thought about the space and when the space's users would or would not be in the space and I decided to observe the Bissett Collaborative Center in seven 2-hour blocks. I decided to observe for a total of 14 hours because I am the only person working on the space and I wanted gather a fairly large amount of notes and information about what occurred in the space, what did not occur in the space and how was the space used when occupied. In the end, the six times I observed the space included Monday morning, Tuesday day and night, Thursday day, Saturday morning and afternoon, and Sunday afternoon.

While in the Bissett Collaborative Center space, I observed users, particularly students, studying, working together and using the technology, and casually talking. I did not observe staff in the space, other than the occasional few that walked through the space. Also, I observed students of surrounding spaces walking through the space; the area reminds me of more of a transitional space more than a place for collaboration. Expanding upon the students that were working and in studying in the space, they seemed to be working efficient and to be content with the work space and the area in generally. The only exception that I witnessed was

when I observed a group of students working to together on a project and discussing it among themselves, the noise created by those students seemed to disturb the processes of the students around them. Putting the acoustical issues in the context, the space is essentially a rectangle with very high ceilings and there are limited, if any, sound deadening materials being used to reduce acoustics. Reflecting on my informal interviews, I did not witness any one practicing a presentation in the space; however, the person who I interviewed could have a definition of that action could differ than my own. Although, I did see a few groups reviewing PowerPoint presentations, probably, in preparation for a preliminary exam.

The students tended to work among the lounge chair groupings and the gathered tables away from the monitors. My assumptions for that include easier to configure without worry about damaging the furniture, particularly the technology present, comfort-ability, convenience and the technology present were not needed for their current project. Comparing the furniture used in the space with the rest of the library, the space's furniture seems cold and utilitarian, not a place where one would want to work, considering other locations within the library and even, other locations on campus, such as cafes and academic building rooms. Also, a point that was mentioned in my interviews was the space "looked like a storage room," or an intermediate place for the furniture and technology. Some respects I agree with that point because of the abundant of furniture in the space is a little overwhelming and there are a few screens around the room and not in use at any given times. I disagree that that alone makes the space seem uninviting, the sheer volume of space along with the high ceilings contribute to that idea.

The setting with which the space is located causes users to experience confusion, apprehension, feelings attributed to being unwanted, unwelcome and uncomfortable, and in some ways, anxiety. All of these characteristics stem from the classic notion that when in the library, one is suppose to be quiet and work, generally, individually in their allocated space, whether it is a desk, a lounge chair or a study room. The Bissett Collaborative Center challenges that notion; however its users are somewhat reluctant to change because of their surroundings while in the space. Challenging notion presented confusion to all parties involved from the person trying to study in the space to the group discussion their project in a respectful manner. Apprehension comes from the limited signage through because users don't know the defined area where they can talk and discuss projects.

While observing the space, I noted that location of the space seems to be one of the main design issues. The space is located centrally between two primarily quiet study areas, administrative offices and the gallery. All of which are supposed to be quiet areas to work and study but that contradicts the notions that when one is working in the Bissett Collaborative Center; one can talk, work, collaborate with one another in a dynamic environment. Looking at the larger context of the space, there is a great deal of flow and relatedness between the Bissett Collaborative Center and its surrounding spaces.

Literature Review

The Bissett Collaborative Center is a unique space in the sense that it one of first of its type to integrate technology, collaborative resources and space into a place that encourages and fosters working collaboratively. The publication entitled "Designing Spaces for Effective Learning" best encompasses the idea of Bissett Collaborative Center in the quote "A learning

space should be able to motivate learners and promote learning as an activity, support collaborative as well as formal practice, provide a personalised and inclusive environment, and be flexible in the face of changing needs.” With that definition, a space can fulfill the needs of an educational building for the 21st century, which include being, flexible, future-proofed, bold, creative, supportive and enterprising.

The article, “Commons 2.0: Library Spaces Design for Collaborative Learning”, defines the collaborative space as a space that “brings together a wide range of elements to foster student learning in new and creative ways. It is not a static computer lab; rather, it incorporates the freedom of wireless communication, flexible workspace clusters that promote interaction and collaboration, and comfortable furnishings, art and design to make users feel relaxed, encourage creativity, and support peer-to-peer learning.” (Sinclair) That expressed concept is essentially what the designers and Mann Library staff had hoped for in the space. They hoped that the space would serve as a “one stop collaboratory for out-of-class assignments, writing, research, and group projects.” (Sinclair) Considering the space also as a classroom for some students and professors, the designers and Mann Library staff knew that “(students) value social experiences that blend communication and learning” and considering the faculty’s point of view, faculty develop projects for collaboration and for the benefit of their students because they know that in the future, collaboration will be a part of many of their career paths. (Sinclair) The Bissett Collaborative Center supports this and a constructivist philosophy, “a philosophy which asserts that real understanding and knowledge are constructed through personal experience and reflection rather than conveyed passively through a classroom lecture”. (Sinclair) In article, Bryan Sinclair identifies for the reader a room similar to the collaborative

space in Mann Library. He describes the space as, first utilizing “human-centered’ design” rather than being “hardware-center”, to “be flexible enough to meet changing student needs, have modular clusters, be open, have wireless networks, docking stations and have access to printers. Mann Library has employed many of these concepts in the collaborative space through slight different variations.

Looking at the collaborative space as a classroom, an article entitled “The Psychology of Learning Environments” by Ken A. Graetz identifies three fundamental ideas for learning environments. They include “all learning takes place in a physical environment with quantifiable and perceptible physical characteristics”, “students do not touch, see or hear passively, they feel, look, and listen actively”, and “the physical characteristics of learning environments can affect learners emotionally, with important cognitive and behavioral consequences.” In “Designing Collaborative Learning Places: Psychological Foundations and New Frontiers”, Graetz and Goliber explore collaborative learning through three environmental issue-pairs and further support the quote “(the) physical environment plays an important role in shaping human social interaction.” The three issue-pairs that they explored include attitudes and place attachment, lighting and temperature, and density and noise. For example, the section about lighting and temperature state points about “when working in groups versus watching a traditional lecture, students are often sitting closer to one another and are more active physically” and “exposure to traditional fluorescent lighting reduces student sociability.” (Graetz & Goliber)

In the journal article entitled “When Buildings Don’t Work: The Role of Architecture in Human Health”, Evans and McCoy identified five dimensions of the designed environment that potentially could affect human health by altering stress levels: stimulation, coherence,

affordances, control and restorative. Privacy is included under control. Further examining the article, Evans and McCoy define each of the five dimensions according to their respective interior design elements. For example, coherence encompasses a space's organization, its thematic structure, pathway configuration and circulation alignment while restorative encompasses the space's stimulus shelter and its fascination and solitude. Evaluating the space, I found that there is no spatial organization; the space has an open floor plan concept with no defined areas. Pathways and circulation tend to divide the space into three areas with the main area being with the technological resources are located. (Refer to Figure 1) Connecting concepts when considering the Bissett Collaborative Center, while researching collaborative learning environments, most, if not all, of their design guidelines match or overlap the five dimensions identified above. The overlap occurs because when designers conceptualize a collaborative space, they inevitably consider design elements, such as light, proximity to circulation, adjacencies, pathway configuration, feedback, boundaries, flexibility, and fascination, because they are all important concepts to consider when designing such a space. Users would not recognize them but they are very important to foster and promote the concept of collaboration. A concept from "Designing Spaces for Effective Learning" help further support the above five dimensions is defining the learning experiences, which could include any of the following: mobile, connected, visual and interactive, and supported. (Knight) A mobile space utilizes laptops and smartphones, while a visual and interactive space utilizes video conferencing and interactive whiteboards.

For example, in "Commons 2.0: Library Spaces Design for Collaborative Learning", design guidelines that were identified for future spaces include being open, free, comfortable,

inspiring and practical. (Sinclair) Expanding upon a few of the design guidelines, the guideline of health would encompass lighting and ergonomic considerations while the adaptable guideline contained adequate space and user ownership. In “When Buildings Don’t Work: The Role of Architecture in Human Health”, Evans and McCoy identified lighting in stimulation, ergonomic considerations and adequate space in control, and user ownership in coherence. Coherence, as defined by Evans and McCoy, in the Bissett space would be described as the space’s distinctiveness from other surrounding spaces, signage throughout the space to denote activities, and circulation alignment, which would encompass the circulation in, through and around the space. The Bissett Collaborative Center does not accomplish coherence because the space is very similar in appearance and tone to surrounding spaces, there is limited signage to denote and in some cases, clarify activities and the space is a high traffic space. (Refer to Figure 1)

1) Researching further because I felt those guidelines did not encompass all concepts, “Human-Centered Design Guidelines” in Learning Spaces, the author identified broader design guidelines for similar spaces including health, stimulating, balancing community and solitude, and adaptable. (Oblinger) Of the two sets of design guidelines, the later, in my opinion, take the spaces qualities more into account and can be applied to a variety of spaces whether existent or non-existent.

For example, Denison University developed a set of “guiding principles” for the planning and designing of their learning spaces. These “guiding principles” include:

- Learning spaces should support a diversity of learning styles,
- Learning spaces must be versatile,
- Learning spaces must be comfortable and attractive,

- Learning spaces are information rich and technologically reliable,
- Learning spaces must be maintained continuously,
- Learning spaces should be ubiquitous in space and time,
- Learning spaces should be used effectively, and
- Sufficient resources must be allocated for learning spaces. (Denison)

Through conversations with Camille Andrews, I was able to contact members of the design committee of the space and obtain what their objectives and goals for the Bissett Collaborative Center. (Refer to figures 6 & 7)

Methods

An initial questionnaire was developed to gain insight about the space and how it came to be. After the initial data was collected, a second set of questions were developed to answer concerns about the two major user groups. I interviewed 40 students and 8 staff members about the space. I interviewed students from all colleges and graduations years. I received a wide range of responses from the students user group, ranging from they had no idea such a space existed on campus to they have used the space on many occasions and have class there on a few days throughout the week. I interviewed staff members from various departments and units within Mann Library.

User Questionnaire

Interviewee:

Describe your role or relationship to the Bissett Collaborative Center.

(General information about user)

Objectives:

The space should support collaborative work.

The space should feel different from the rest of the library

It should be a transforming space.

The furnishings and equipment should be very flexible, allowing people to see the possibilities and change the arrangement as needed.

Based on the objectives defined by the designers, do you feel that the objectives were succeeded?

(Considered existing meaning/symbolism, site design, layout and circulation system, space utilization, boundaries/barriers, seating and furniture.)

Goals:

To see the space is to want to use it.

The space should have a character that pulls you in to explore.

The space should accommodate a wide range of individuals' and groups' work styles and functions.

The space should project energy, even when unoccupied.

The space is one that Cornellians 'show off' to visitors.

Based on the goals defined by the designers, do you feel that the goals were met?

(Considered meaning/symbolism, layout and circulation system, space utilization, technology support, boundaries/barriers, universal design.)

If you could rate the location of the space if it were to move, on a scale of 1 (best) to 10 (worst).

1st floor (front) ____ 1st floor (back) ____ 2nd floor(Reading's Room)____ 2nd floor
(current) ____

(Considered site design and layout and circulation system.)

How do you view the Bissett Collaborative Center growing in the coming years? Larger or smaller?

(Considered site design, technology support, universal design, and space utilization.)

Traditionally libraries have been quiet places to study, read, etc. Do you think the space goes against that? And how can libraries promote or demote this concept?

(Considered meaning/symbolism, site design, boundaries/barriers, acoustics and lighting.

Do you think the Collaborative Center concept could be applied to other spaces with the library? (optional)

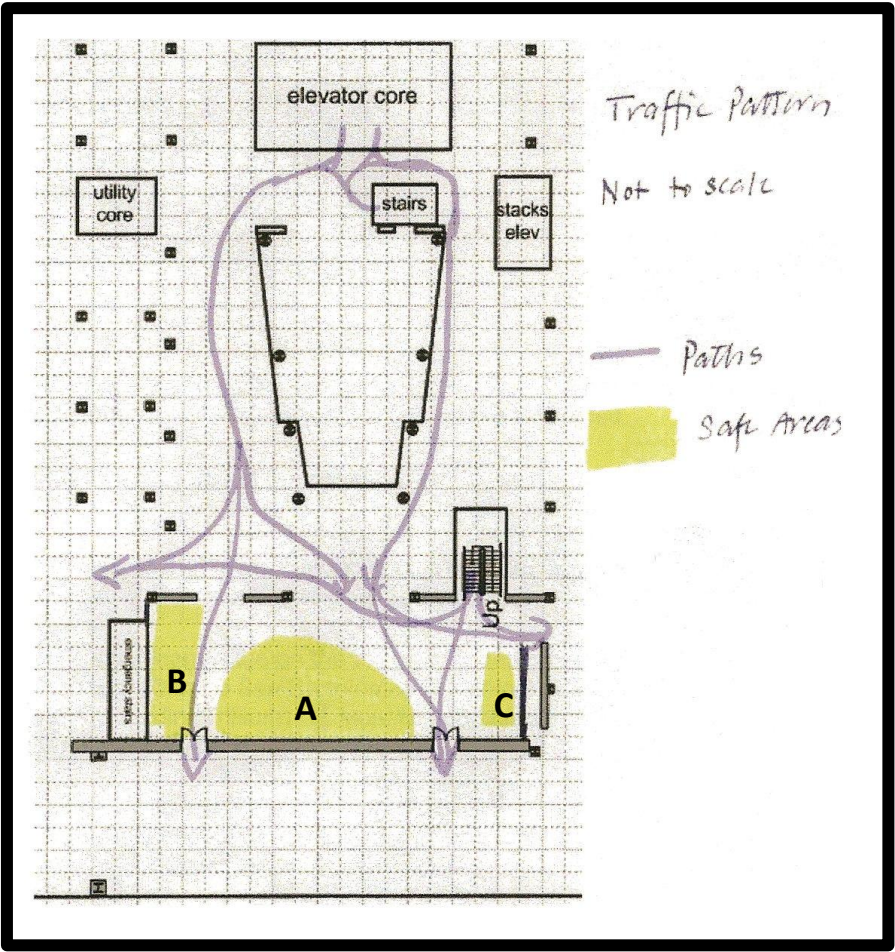
If there was one thing you could add to/subtract from the space, what would that be? (optional)

For a part of my evaluation, I divided the Bissett Collaborative Center into three areas of activity for analysis. I observed the number of people in each area, what user group each person belonged to and what they were doing. I found that most users used activity area A, with activity areas B and C following. I found that most persons in each area belonged to the student user group. I also found that most people tended to work collaboratively within the space.

Additionally, formal observations were conducted using behavioral mapping and behavioral traces to determine behavioral activities, traces and clues of behavior in the setting that was left behind.

Formal Observation

Activity Area A	
Number of people:	
Who they are:	
What they are doing:	



Activity Area B		Activity Area C	
Number of people:		Number of people:	
Who they are:		Who they are:	
What they are doing:		What they are doing:	

<u>Behavioral Traces</u>	
Erosions	<ul style="list-style-type: none"> • Very slight wearing of carpet in traffic paths
Leftovers	<ul style="list-style-type: none"> • Empty water bottles • Paper scraps
Missing Traces	<ul style="list-style-type: none"> • Unaltered furniture configurations • Signage
Props	<ul style="list-style-type: none"> • Partitions
Separations	<ul style="list-style-type: none"> • Coat hung on a partition
Connections	<ul style="list-style-type: none"> • None
Personalization	<ul style="list-style-type: none"> • Coat hung on partition
Identification	<ul style="list-style-type: none"> • None
Group Membership	<ul style="list-style-type: none"> • None
Official	<ul style="list-style-type: none"> • Mann Library signs and posters
Unofficial	<ul style="list-style-type: none"> • None
Illegitimate	<ul style="list-style-type: none"> • Writings on the white boards

Discussion

Each major activity area works well considering the space is a high traffic area. Major activity area A is the space where majority of the users occupy and use while activity areas B and C are often used as auxiliary spaces. (Refer to Figures 1 and 2) If the ranked in order of usage, the rank would A, B, C. Considering that area A is substantially larger than B and C. Also considering the physical items within each area, activity area A has most of the collaborative tools for space. Activity area B contains the lounge-type seating and tables with a few stacks of additional chairs for activity area A. Activity area C contains a table with a few chairs along with a few stacks of additional chairs and LCD lollipop stand or two for activity area A.

As shown in graph 3, the Bissett Collaborative Center enables all user groups to work collaboratively although individual work and other activities occur within the space. Noticing that collaborative work is a large percentage of the activities within the space, I further examined collaborative work by breaking the category into two sub-categories: 2-4 persons and 5 or more persons. Interestingly, collaborative work among groups of 5 or more persons is significantly less than groups between 2 and 4 persons, with the exception being during mornings through Monday through Friday while, if in session, a class would be utilizing the space. Although through observations, the space can allow for group collaboration for groups of 5 or more persons, user groups tended to divide themselves into smaller groups within the space to work effectively and efficiently. Also, note that user groups which divided themselves into smaller groups were included in both sub-categories of “collaborative work”. The space facilitates this action by allowing the small groups to work near their group members by moving and creating work areas from furniture throughout the space. Minority of the time activities in

the space included individual work and other activities. Individual work would describe work done by one person. The category of other included sleeping, eating, playing, and other leisure activities. Also, note that between some categories there are points of overlap and to delineate between categories, if a user was observed reading alone within the space for majority of time during the a specific time frame, then the user would be placed under the category of “individual work”.

As shown in graph 4, the Bissett Collaborative Center has a large percentage of activity from the student user group, while a minority of activity from staff, faculty, and other user groups. In the initial planning of the space, students were a main user group since the library is an academic building on a higher education campus with faculty and staff becoming increasingly involved in the space as time progressed. This is shown initially in graph 4 but the percentage of faculty and staff will increase as a result of increased marketability to academic departments in the College of Agriculture and Life Sciences and the College of Human Ecology, which are the two colleges which are served by the resources at Mann Library. The category of other includes visitors and staff, not employed by Mann Library, i.e. a Campus Life employee. Also, note that student staff members were included in the staff category while working during their respective shifts. I, also, considered gender but found that gender differences to be minimal. (Refer to graph 5)

The Bissett Collaborative Center is a unique space in the sense that it one of first of its type to integrate technology, collaborative resources and space into a place that encourages and fosters working collaboratively. (Refer to User Questionnaire) To first determine if the space was deemed a success, by definition of the designers, I begin each interview by asking

users to, upon hearing the space's objectives and goals created by the design team of library staff and designers, answer the question if those items were met with the existing Bissett Collaborative Center. I found that responses to those questions tended to differentiate among the two main user groups: students and staff. For the objectives, the two largest differences were among responses were from the statements: "the space should feel different from the rest of the library" and "it should be a transforming space". (Refer to figure 6) For the goals, the largest differences were among responses were from the statements: "the space should have a character that pulls you in to explore" and "the space should project energy, even when unoccupied". (Refer to figure 7)

It was surprising that staff felt the space felt different from the rest of the library while students felt the space and the library as a whole looked fairly uniform and newer, in comparison to other libraries on campus, i.e. John M. Olin Research Library and Harold D. Uris Library. Also, the staff saw the Bissett Collaborative Center as a transforming space but not one fully utilized as a space that can be created to fit the needs of its users while some students saw the space as another space/room within a library or as a transition space. The notion of a transition space is emphasized by the behavioral mapping data. (Refer to Figure 1)

Generally, the goal statements tended to be in agreement among both user groups with the only outliers being "the space should project energy, even when unoccupied" and "the space should have a character that pulls you in to explore". The outliers occurred because 1) students thought the space seem dim and inviting and 2) staff tended to agree with students but that the space was missing some key elements that would allow it to become point of interest.

In my initial interviews, a few users mentioned possibly moving the Bissett Collaborative Center to another location within Mann Library. I thought it would be interesting to see what users thought about alternative locations in Mann. (Refer to Figure 9 and Table 10) I chose four locations: two on the first floor and two on the second, including the current location of the space. In the end, the location that was chosen by users as the best was location B: first floor (back of Mann Library) and the worst was location C: second floor (Reading Room).

Referring to my preliminary interview questions, a staff member mentioned that the Bissett Collaborative Center looked like a “furniture warehouse”. While conducting an interview with a member of the student user group, they mentioned that the space resembled a collection of furniture. While conducting an observation for behavioral mapping and traces, missing traces confirmed the concept. Missing traces is defined as the notion with which we do not see; it details what people do not do. Although that notion was confirmed, it was contradicted by other behavioral traces, such as erosion and leftovers. Erosion and leftovers are described as the by-products of use of a space and show the occurrence of activities. Examples of erosion found in the space included a very slight wearing of the carpet along high traffic paths, along similar paths as in Table 8. Examples of leftovers included empty water bottles and paper scraps on tables.

Compiling the data from the user interviews, trends concerning the design components became very interesting. All user groups mentioned meaning and symbolism, site design, layout, spatial adjacencies, circulation systems, lighting, color, acoustics, technology support, surface materials, space utilization, boundaries, barriers, universal design, seating and furniture as important considerations within the space. Other design components mentioned included

sustainability issues, electricity, HVAC, security provisions, and health/safety provisions but those were not as directly implemented as the above group of design components. All user groups considered the above design components subconsciously in interviews and connected them to the five dimensions of the design environment: stimulation, coherence, affordances, control and restorative.

User groups described meaning and symbolism as the connection that one would make about the space and the intended activities that would occur within the space. All user groups identified a divergence between the space and the intended identity and mission/purpose of the space. One staff member interviewed identified a lack of signage throughout the space to denote the intended activities of the space. I also noted the lack of signage in my observations to delineate between the stacks, where quiet study can occur and the Bissett Collaborative Center, where group collaboration and interaction can occur. Connecting meaning and symbolism to site design, layout, spatial adjacencies, and circulation systems, the current location of the space contradicts the current identifier of an academic library as a place of quiet study and research although it does reflect the changing identifier of an academic library as a place of research, meeting and other technological-based activities.

The Bissett Collaborative Center is a unique space in a unique location. (Refer to site floor plan). The space is surrounded by two quiet zones, an office space and a gallery on the opposite wall. The space, also, has high ceilings which factor into the amount of lighting available, the color scheme used, the acoustic level when occupied and in related ways, the electricity usage in the space and the amount of usage of the HVAC. The amount of lighting is due to the light that passes through the windows from the Dean's Reading Room, behind the

Bissett Collaborative Center. The color scheme is consistent with the Dean's Reading Room and as a result, the rest of Mann Library. The acoustic level relates to the high ceilings but also, with the type of materials used throughout the space, such as wood, carpet and metal. Considering the existing state of the Bissett Collaborative Center, the technology support is a major component of the space. The article, "Commons 2.0: Library Spaces Design for Collaborative Learning", best defines the collaborative space as a space that "brings together a wide range of elements to foster student learning in new and creative ways. It is not a static computer lab; rather, it incorporates the freedom of wireless communication, flexible workspace clusters that promote interaction and collaboration, and comfortable furnishings, art and design to make users feel relaxed, encourage creativity, and support peer-to-peer learning." (Sinclair, 2007) The Bissett Collaborative Center does that along with providing a wealth of networked resources available to use by Cornell University.

In the journal article entitled "When Buildings Don't Work: The Role of Architecture in Human Health", Evans and McCoy identified five dimensions of the designed environment that potentially could affect human health by altering stress levels: stimulation, coherence, affordances, control and restorative. (Evans & McCoy, 1998) Further examining the article, Evans and McCoy define each of the five dimensions according to their respective interior design elements. The dimension of stimulation is described as how one would experience an element of the space, such as the natural lighting or the proximity to circulation paths. The dimension of coherence is described as mental connection between what is there and what is perceived to be there. The dimension of affordances is described as one's perception in a space and how the space reacts to the user. The dimension of control is described as how one feels in

relation to the amount of control one has about the space. The dimension of restorative is described as a how the space feeds into our emotions.

Upon reading through the information provided to me by the library, the design team created a list of possible design interventions that could be incorporated into the initial design of the Bissett Collaborative Center. The first design possibility involves changing the heights of exchanges within the space to floor, low, standard, counter or standing. This proposed change could be successful but my data about the Bissett Collaborative Center cannot confirm nor deny this. The second design possibility involved the concept of storing the technological tools needed for collaboration and as a user needed the tool, they would retrieve it from a cabinet where it would be easy-to-view. Also, a number of staff members mentioned the idea of disassembling the room each night and having the students ultimately responsible for configuring their work area to fit their needs. This idea of personalization would be interesting to study but seems feasible based on my knowledge if marketed effectively through signage and other methods around the Colleges of Agriculture and Life Sciences and the College of Human Ecology. The third design possibility incorporates the idea of noise cancellation zones with “active sound suppression” systems. Based on my research, this idea seems very feasible from a usability stand point; however, the technology and its usage must be conveyed effectively. The forth design possibility involves taking advantage of the vertical space although after interviewing members of the design team, the structure would not be able to handle the weight of an additional structures. The last design possibility involves the use of location aware technologies which would allow users to interface with the available technological tools for collaboration wirelessly.

In closing, this post-occupancy evaluation is based on data from about a 9 week long time frame; to consider further validation of the findings, conducting this evaluation over a semester (16 weeks), two semesters (32 weeks) or a full year (52 weeks).

Executive Summary

The Bissett Collaborative Center is located within Albert R. Mann Library and is one of first of its type to integrate technology, collaborative resources and space into a place that encourages and fosters working collaboratively. Mann Library staff wanted a space where multiple groups could meet and work together with appropriate innovative technology, comfortable and flexible furniture and encouragement of interaction. The space is used as 1) a primary meeting location to work in groups and 2) an alternative study space. The space is primarily directed toward the College of Agriculture and Life Sciences and the College of Human Ecology.

Major User Groups:

- **Students-** The students include undergraduate and graduate students from all of the Colleges and Schools at Cornell University.
- **Staff-** The staff includes all employees of Mann Library, with the exception of student workers when they are not working.

Methods

An initial questionnaire was developed to gain insight about the space and how it came to be. After the initial data was collected, a second set of questions were develop to answer concerns about the two major user groups.

Formal observations were conducted using behavioral mapping and behavioral traces to determine behavioral activities, traces and clues of behaviors in the setting that were left behind.

Results

- **Major Strengths:**
 - The furniture and seating in the space allow users to configure the area to their needs. Tables, chairs and partitions with wheels allow for a great degree of personalization and customization of a user's space. Also, space utilization becomes a key factor in allowing users to customize their space.
 - The technology support allows users to interact and collaborative in an environment that is conducive to learning and working as a whole. The space has LCD screens and white boards and additional collaboration tools are available through the Mann Library Circulation desk.
- **Major Weaknesses:**
 - The space's meaning and symbolism conflict with the surrounding areas and the space tends to be a high traffic area, with people moving from one area to area through the day. The space gives mixed signals to users because the space is between two "quiet study area" and there is delineation to separate the areas.
 - The acoustics in the space enable users to talk with their peers but also, disables others from using the space. The space has high ceilings and wood and metal accents which enables sound to bounce from one wall to another.

Resources

Dittoo, William. "Innovative Models of Learning Environments." *New Directions for Teaching and Learning*. 2002. 92 (2002): 81.

Evans, G. W., and J. M. McCoy. "When Buildings Don't Work: The Role of Architecture in Human Health." *JOURNAL OF ENVIRONMENTAL PSYCHOLOGY*. 18. 1 (1998): 85-94.

Graetz, Ken A., and Michael J. Goliber. "Designing Collaborative Learning Places: Psychological Foundations and New Frontiers." *New Directions for Teaching and Learning*. 92. 92 (2002): 13-22.

Graetz, K. A. "The Psychology of Learning Environments From Diana G. Oblinger, Ed., *Learning Spaces*." *EDUCAUSE Review*. 41. 6 (2006): 60-74.

Knight, Sarah. *Designing Spaces for Effective Learning* publication. *Designing Spaces for Effective Learning* publication. JISC e-Learning Programme. Web. 28 Oct. 2009. <<http://www.jisc.ac.uk/whatwedo/programmes/elearninginnovation/learningspaces.aspx>>.

Oblinger, Diana G. "Human-Centered Design Guidelines." *Learning Spaces*. Null: Educause, 2007. 10.1-0.13. Print.

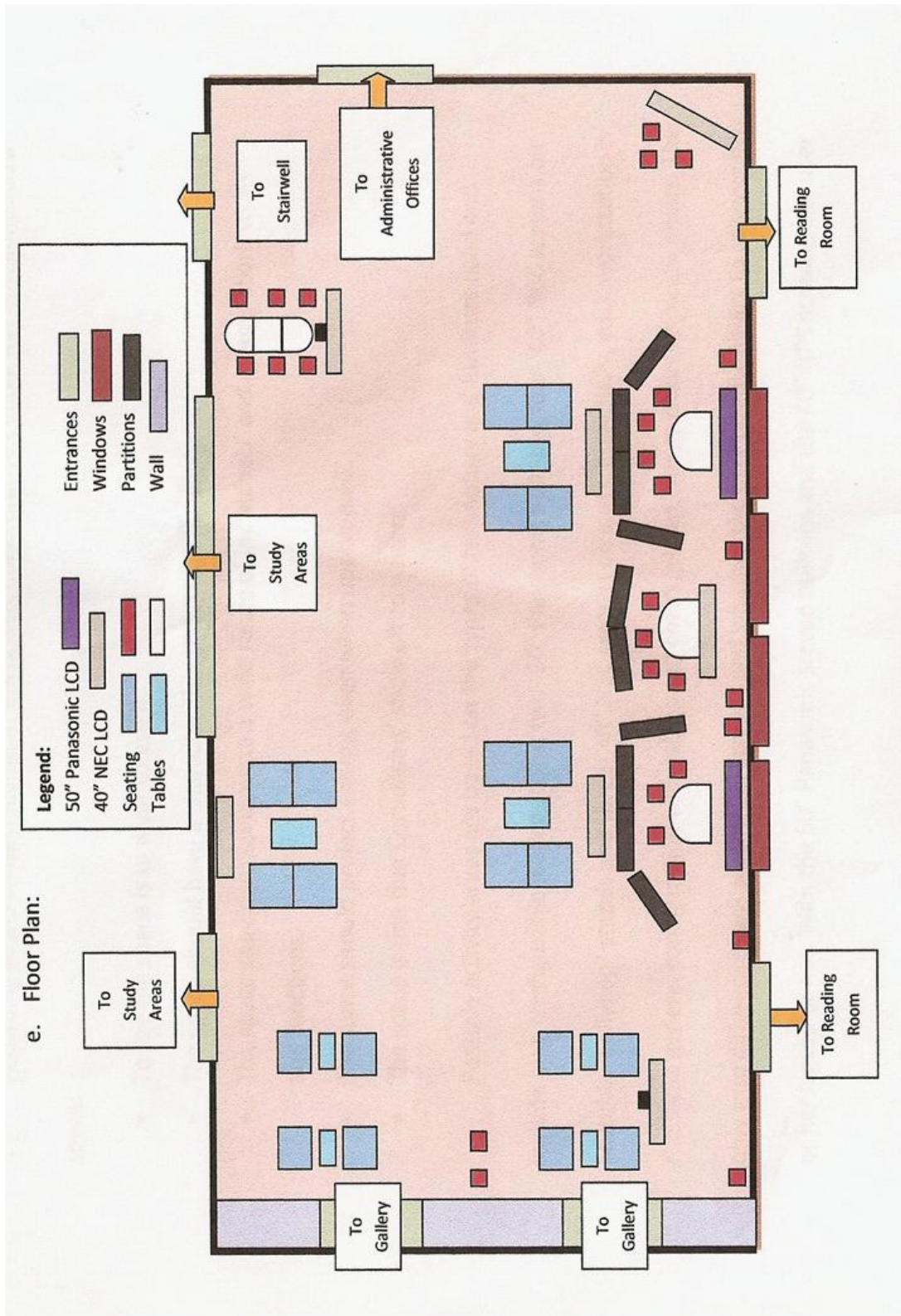
Sinclair, Bryan. "Commons 2.0: Library Spaces Designed for Collaborative Learning." *EDUCAUSE Quarterly*. 30. 4 (2007): 4-6.

"Guiding Principles." *Guiding Principles - Denison University*. Denison University. Web. 27 Oct. 2009. <http://www.denison.edu/academics/learningspaces/guiding_principles.html>.

Appendix

Kenneth J. Bissett
Collaborative Center

Site Floor Plan



User Questionnaire/Interview

Interviewee:

Describe your role or relationship to the Bissett Collaborative Center.

(General information about user)

Objectives:

The space should support collaborative work.

The space should feel different from the rest of the library

It should be a transforming space.

The furnishings and equipment should be very flexible, allowing people to see the possibilities and change the arrangement as needed.

Based on the objectives defined by the designers, do you feel that the objectives were succeeded?

(Considered existing meaning/symbolism, site design, layout and circulation system, space utilization, boundaries/barriers, seating and furniture.)

Goals:

To see the space is to want to use it.

The space should have a character that pulls you in to explore.

The space should accommodate a wide range of individuals' and groups' work styles and functions.

The space should project energy, even when unoccupied.

The space is one that Cornellians 'show off' to visitors.

Based on the goals defined by the designers, do you feel that the goals were met?

(Considered meaning/symbolism, layout and circulation system, space utilization, technology support, boundaries/barriers, universal design.)

If you could rate the location of the space if it were to move, on a scale of 1 (best) to 10 (worst).

1st floor (front) _____ 1st floor (back) _____ 2nd floor(Reading's Room)_____ 2nd floor
(current) _____

(Considered site design and layout and circulation system.)

How do you view the Bissett Collaborative Center growing in the coming years? Larger or smaller?

(Considered site design, technology support, universal design, and space utilization.)

Traditionally libraries have been quiet places to study, read, etc. Do you think the space goes against that? And how can libraries promote or demote this concept?

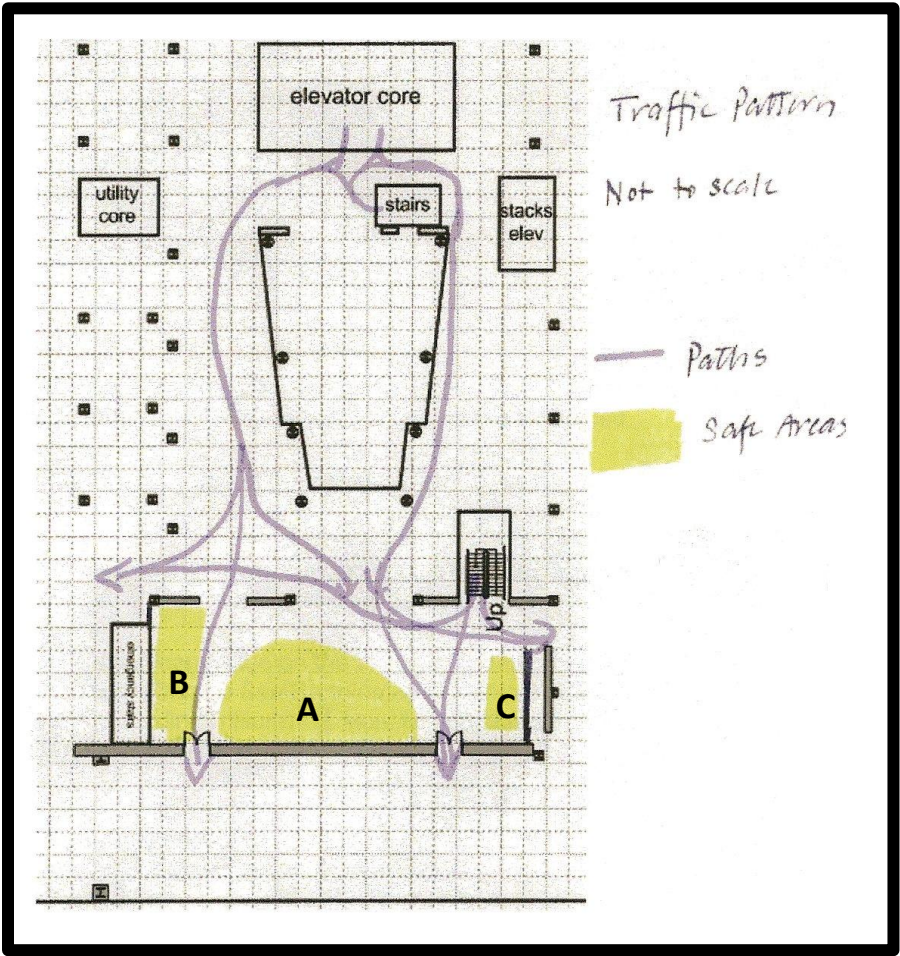
(Considered meaning/symbolism, site design, boundaries/barriers, acoustics and lighting.

Do you think the Collaborative Center concept could be applied to other spaces with the library? (optional)

If there was one thing you could add to/subtract from the space, what would that be? (optional)

Formal Observation Instrument

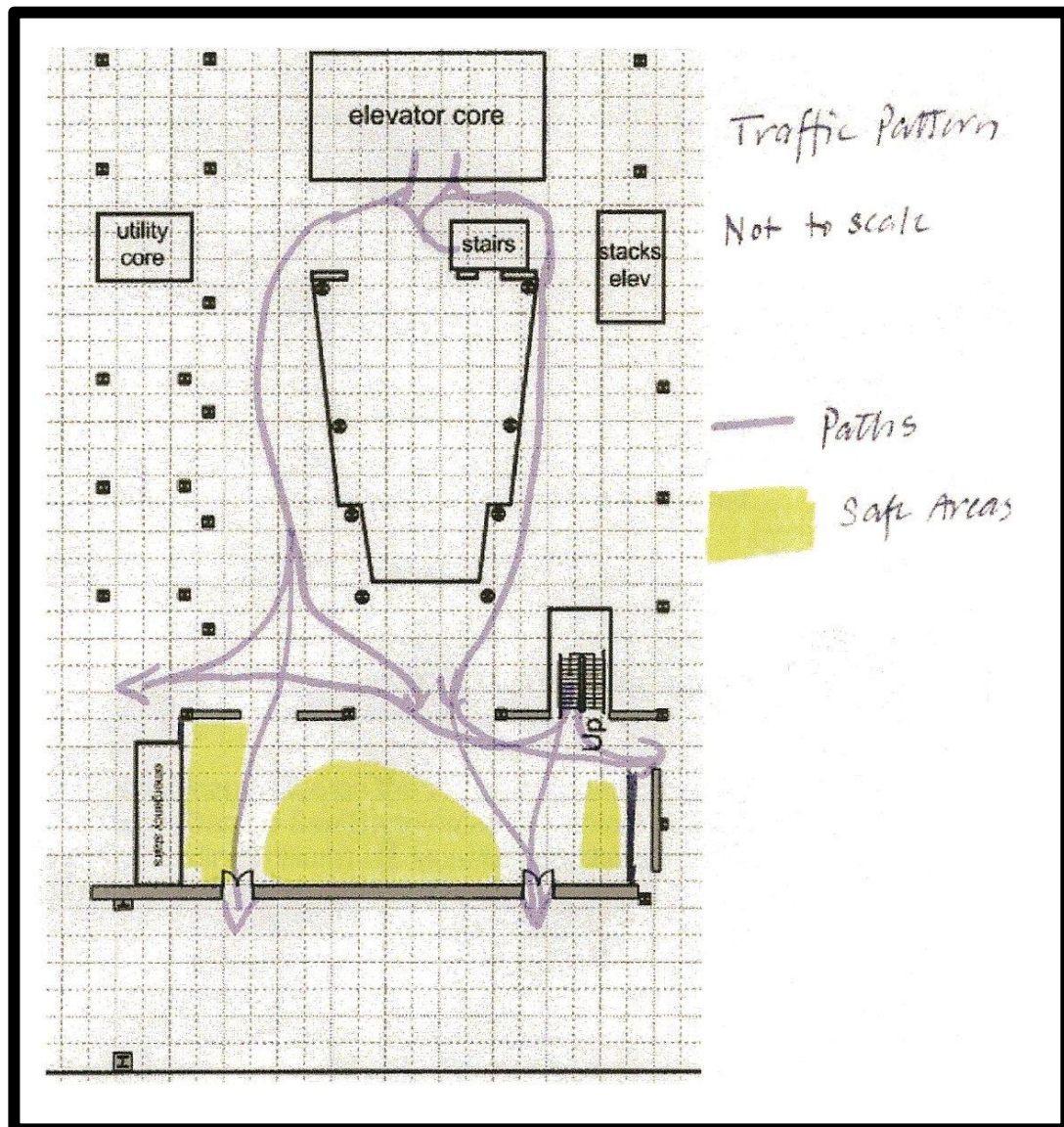
Activity Area A	
Number of people:	
Who they are:	
What they are doing:	



Activity Area B		Activity Area C	
Number of people:		Number of people:	
Who they are:		Who they are:	
What they are doing:		What they are doing:	

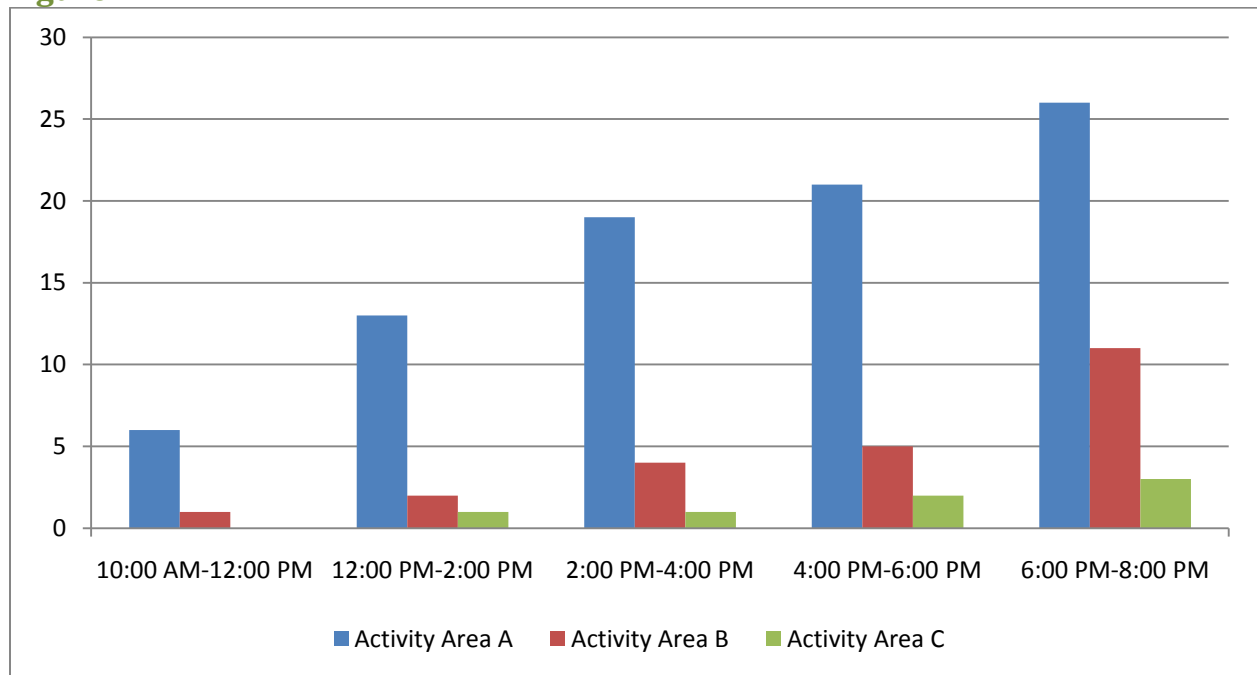
<u>Behavioral Traces</u>	
Erosions	<ul style="list-style-type: none"> • •
Leftovers	<ul style="list-style-type: none"> • •
Missing Traces	<ul style="list-style-type: none"> • •
Props	<ul style="list-style-type: none"> • •
Separations	<ul style="list-style-type: none"> • •
Connections	<ul style="list-style-type: none"> • •
Personalization	<ul style="list-style-type: none"> • •
Identification	<ul style="list-style-type: none"> • •
Group Membership	<ul style="list-style-type: none"> • •
Official	<ul style="list-style-type: none"> • •
Unofficial	<ul style="list-style-type: none"> • •
Illegitimate	<ul style="list-style-type: none"> • •

Figure 1

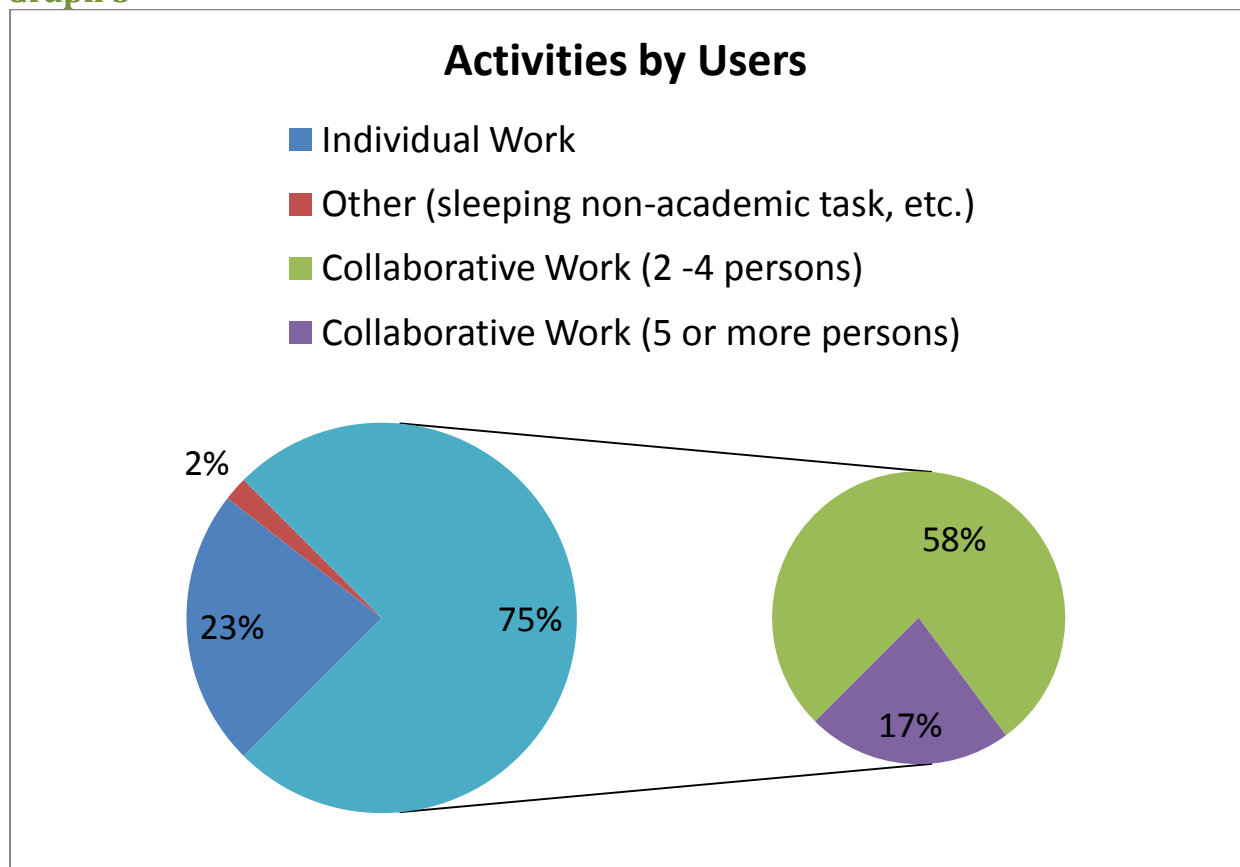


(provided by Kathy Chiang, Mann Library)

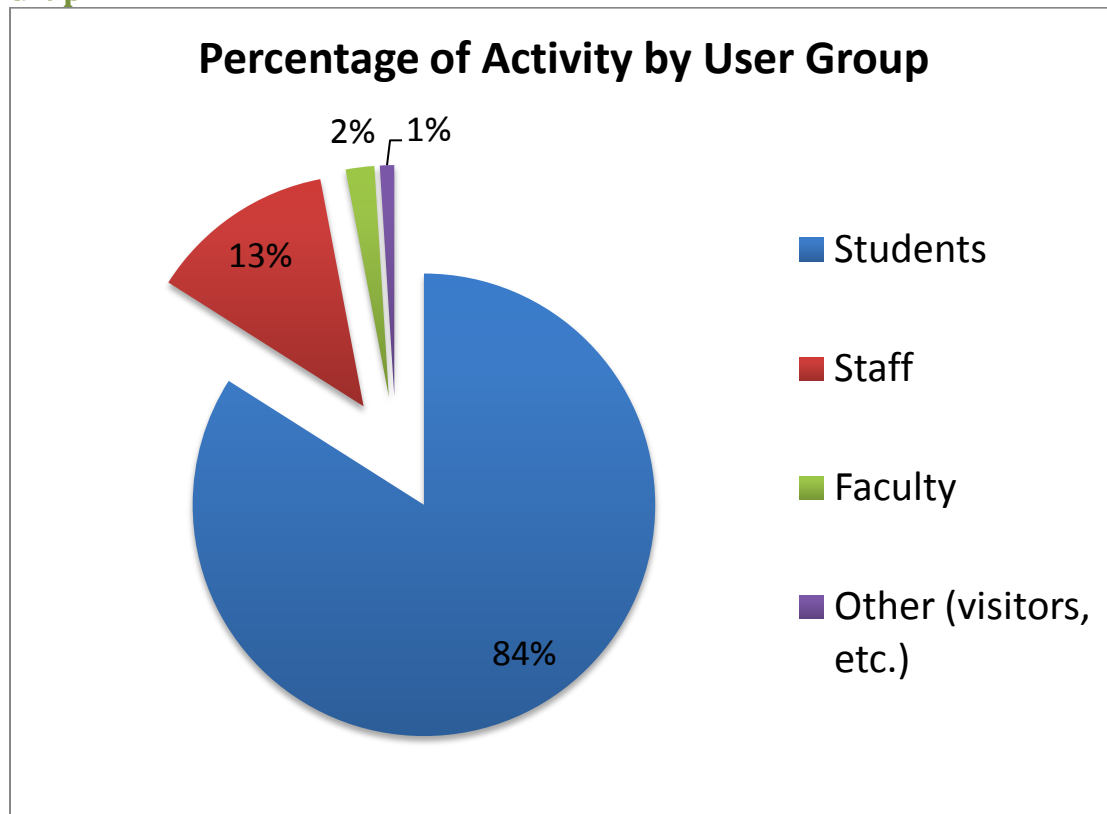
Figure 2



Graph 3



Graph 4



Graph 5

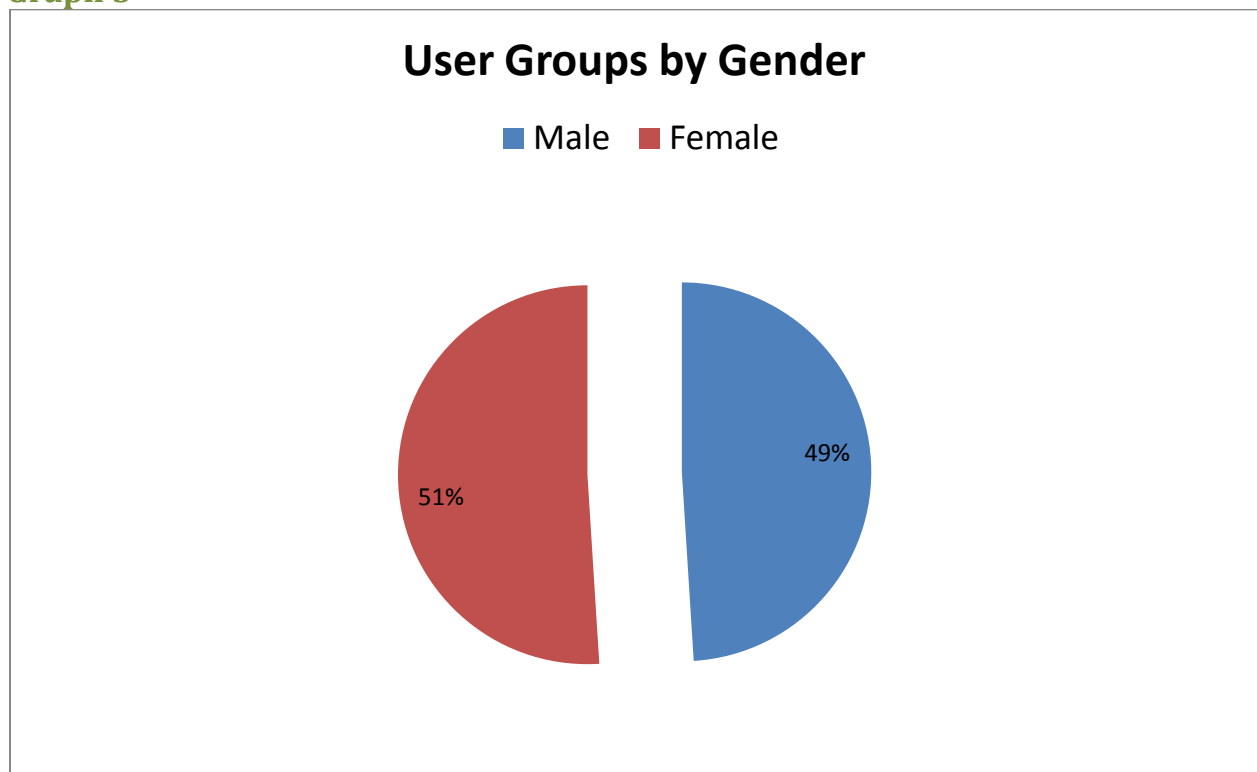


Figure 6

Objectives:

The space should support collaborative work.

The space should feel different from the rest of the library

It should be a transforming space.

The furnishings and equipment should be very flexible, allowing people to see the possibilities and change the arrangement as needed.

Comparison of User Groups Response for Objective Statements

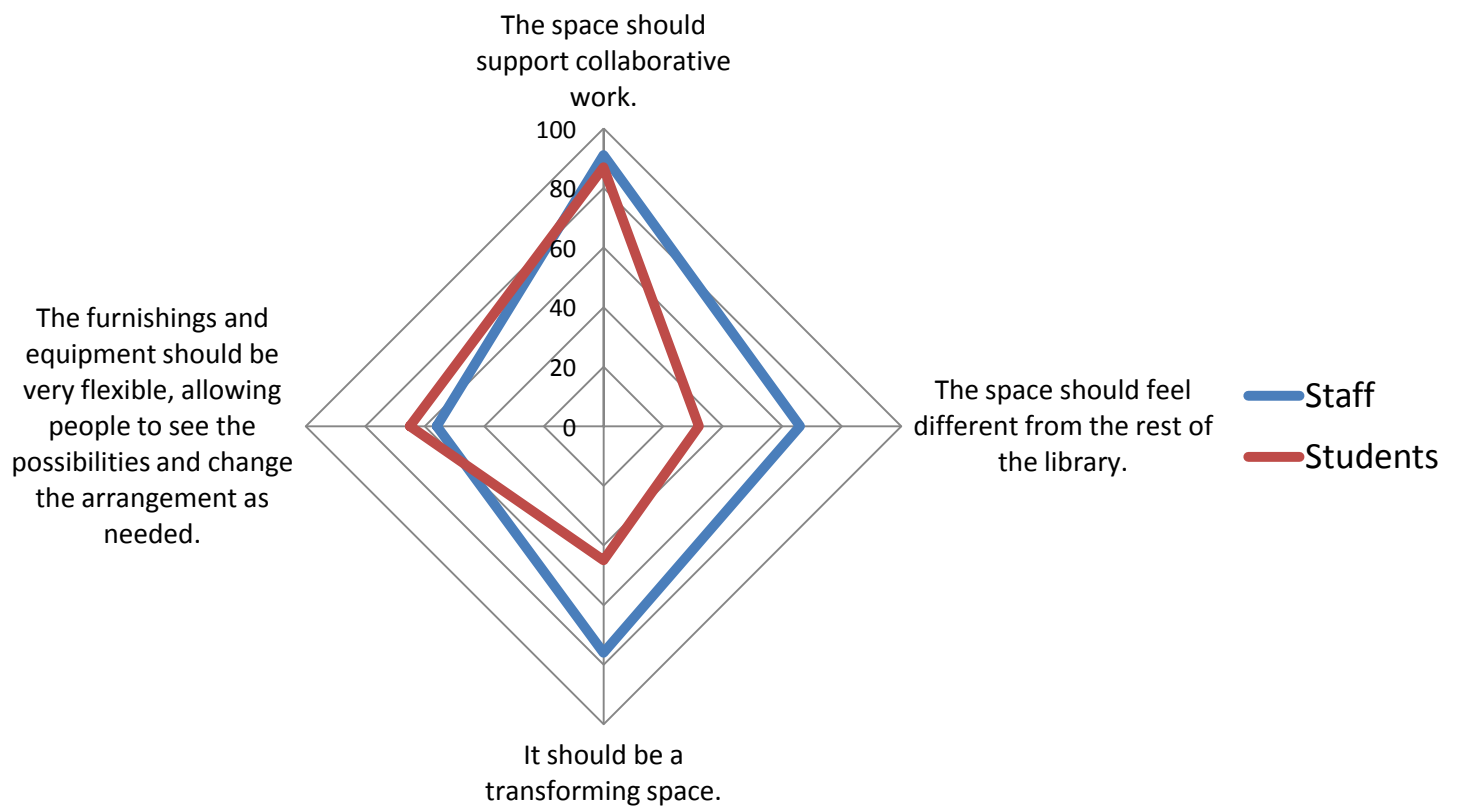


Figure 7

Goals:

To see the space is to want to use it.

The space should have a character that pulls you in to explore.

The space should accommodate a wide range of individuals' and groups' work styles and functions.

The space should project energy, even when unoccupied.

The space is one that Cornellians 'show off' to visitors.

Comparison of User Groups Response for Goal Statements

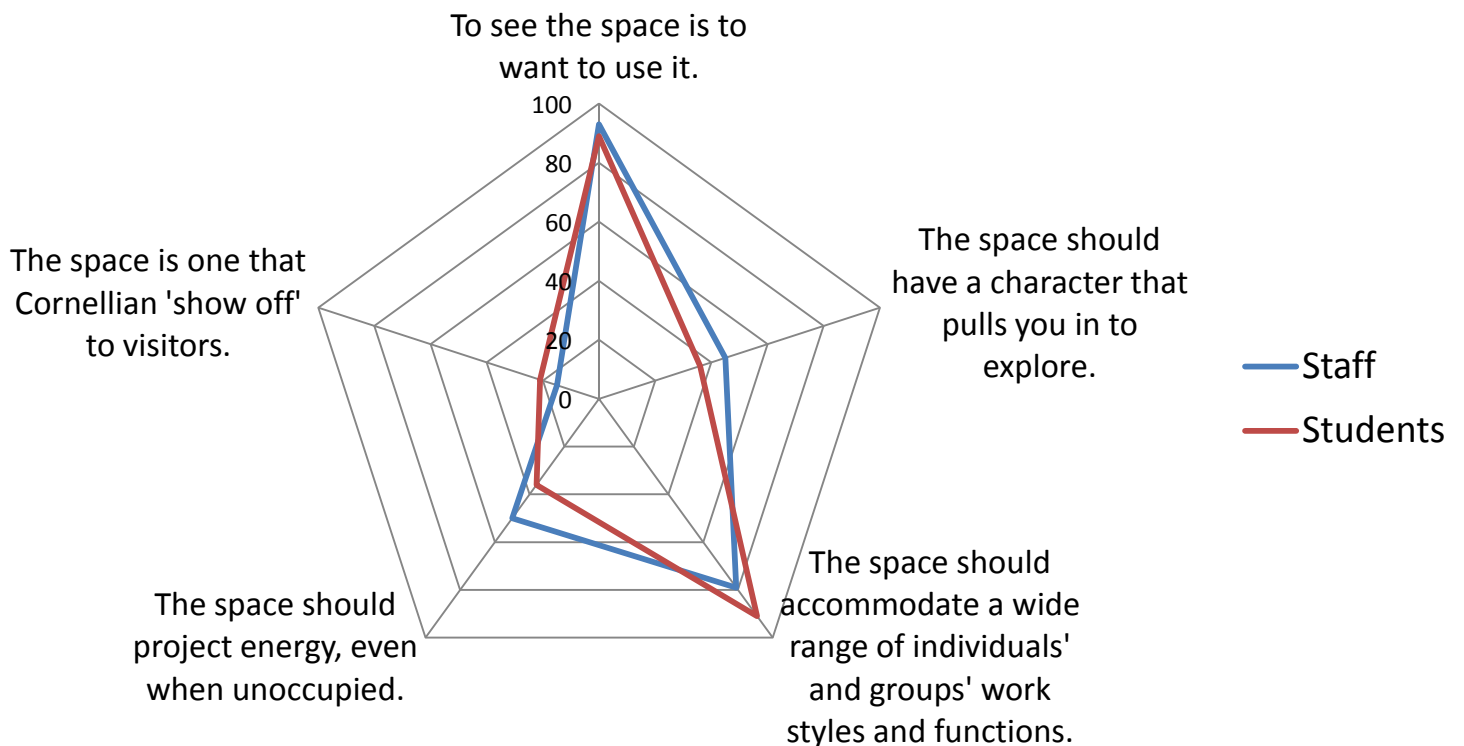
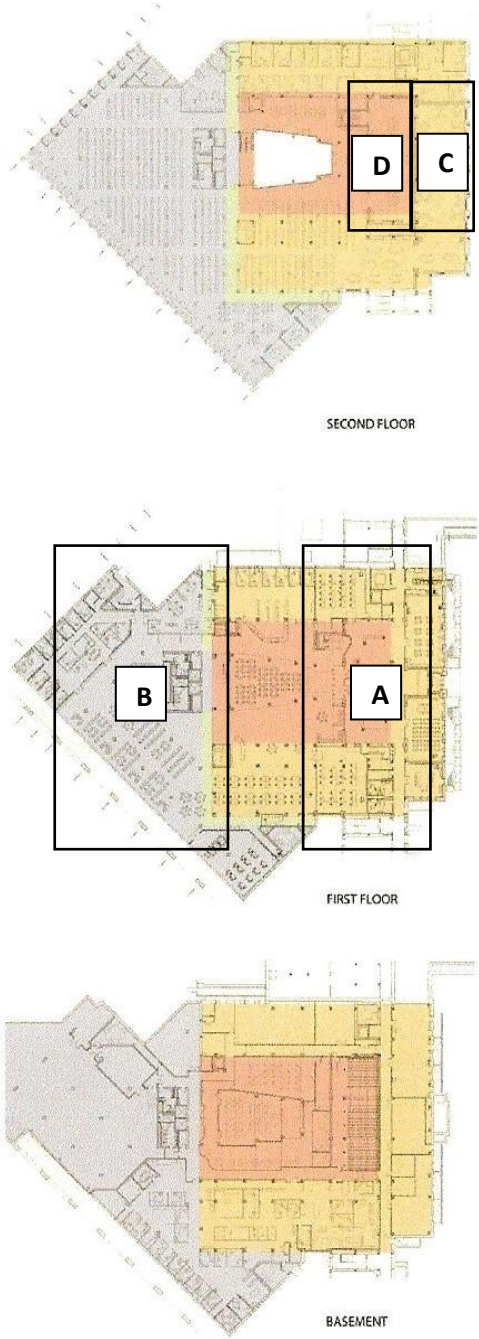


Table 8

<u>Behavioral Traces</u>	
Erosions	<ul style="list-style-type: none">• Very slight wearing of carpet in traffic paths
Leftovers	<ul style="list-style-type: none">• Empty water bottles• Paper scraps
Missing Traces	<ul style="list-style-type: none">• Unaltered furniture configurations• Signage
Props	<ul style="list-style-type: none">• Partitions
Separations	<ul style="list-style-type: none">• Coat hung on a partition
Connections	<ul style="list-style-type: none">• None
Personalization	<ul style="list-style-type: none">• Coat hung on partition
Identification	<ul style="list-style-type: none">• None
Group Membership	<ul style="list-style-type: none">• None
Official	<ul style="list-style-type: none">• Mann Library signs and posters
Unofficial	<ul style="list-style-type: none">• None
Illegitimate	<ul style="list-style-type: none">• Writings on the white boards

Figure 9 & Table 10



A: 1 st floor (front)	B: 1 st floor (back)	C: 2 nd floor (Reading Room)	D: 2 nd floor (current location)
2	1	8	5
8	3	10	2
3	1	7	6
5	4	9	4
5	6	7	4
4	3	7	1
7	7	6	1
2	2	3	2
1	1	7	6
7	5	9	3
9	7	10	3
6	4	2	5
2	2	7	5
61	46	92	47

ADDITION
RENOVATION
DEMO/NEW CONST.
NEW CONST.

Image 11

