Collaboration in design: a study of James B. Hunt Jr. Library

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ABSTRACT: Collaborative design is a complex process that differs from the conventional system of sequential design by means of personal interaction, communication, and timing of design decisions. The complexity of the collaborative system, however, gives way to reduced cost and risk, increased project delivery speed, and improved building performance. As building projects become more complicated through technological advancements, and the architecture, engineering, and construction (AEC) practice embraces more integrated processes, it is important to understand the dynamics of collaborative design. Through the study of previous projects, intimate knowledge can be gained regarding partner interaction, oversights, team dynamics, processes, and benefits that are not always a part of a standardized list of collaborative benefits. This study will provide this insight by framing the design and construction of the James B. Hunt Jr. Library using a narrative case study format, beginning with designer selection and focusing on the collaborative aspects of the process. This transformative library is an example of innovation and success through collaboration. At many stages, the study of this project allows observes to gain insight into the the personal interaction between Snøhetta and NCSU that enabled the project to be successful. This insight is provided through the review of construction and design documents, interviews of stakeholders and design professionals, and literature. The summary of the process will provide reviewers an example into how a collaborative process may differ from traditional methods, potential conflicts and understanding required for solution, and how collaborative design can benefit innovation and project success.

KEYWORDS: Integrated Design; Collaborative Design; Innovation; Professional Practice

INTRODUCTION

Positioned on the southwest corner of North Carolina State University's (NCSU) Centennial Campus oval, the Snøhetta designed James B. Hunt Jr. Library (Hunt) rises out of the landscape. Its form resists familiar library iconography and is inspired by the power looms of North Carolina's textile industry, even as the lawn begs for a grand Jeffersonian gesture. Completed in 2013, the exterior of the 221,000 square foot iconic building invokes the modernist tradition while providing little indication of its intended purpose. The grounds are a crossroad of academic and social interaction, aiding the library in its role as a magnet, grounding the rest of the campus. Embodying NCSU's commitment to innovation and research, the library was intended to be a destination point that allows people to feel welcomed and inspired by the social spectacle of academic work.

While architecturally significant, much of Hunt's renown comes from its adaptation of the traditional notion of a library by incorporating fast-changing technologies and placing an emphasis on collaborative spaces. Demonstrating that "libraries were never about books" (Webber 2013, 77), Hunt proves that even with the implications of the digital age, libraries are still relevant. Attesting this commitment, the grand electric-yellow staircase runs diagonally through the building guiding visitors past a plethora of technological advancements and collaborative spaces. Upon entry, guests are greeted by a fishbowl of technology and an unconventional circulation desk. At this desk, students and visitors can borrow iPads and make queries via a computer. Checkouts are done without the assistance of a librarian using a kiosk. Further, into the space users will find a selection of furniture, representing both modernist and NC designers. This furniture can be freely rearranged for singular or

collaborative study session and is as much utilitarian as it is another layer of education and information.

With almost 100 group study rooms and tech-equipped spaces, Hunt is not sparse in its inclusion of technology. Hunt even boasts immersive visual spaces that are used for the display of content ranging from the historical recreations of 17th-century architecture to simulated maneuvers for the NCSU's Navy ROTC. In embracing this technology, one would be remised to notice during a tour the limited physical space allocated for bookshelves. Partially a casualty of budget cuts during design and construction, technology and collaboration was always intended to take center stage. To assist with this, and to make accommodations for the removal of a 6th floor, the library included one of its most innovative features. Prominently displayed through a glass curtain wall at the west entrance, a 50'x160'x50' bookBot is submerged 20' below grade. This companion to the library can hold up to 2 million volumes and is controlled by an application that has virtualized the bookshelves, allowing users to browse the "shelves" similar to a traditional library.

Costing $115.2 million to build, Hunt is as much a testament to the achievement of its mission as it is to the collaborative process that was undertaken during its construction. At a time when the architecture, engineering, and construction (AEC) practice is increasingly embracing collaborative delivery methods, it is important to understand how collaboration changes the design process and generates benefits pertaining to innovation and overall project performance. Hunt is a prevalent, early example of the integrated design process and can be used to understand how it differs from traditional methods. This study will look at the design process associated with this forward-looking library and evaluate how it changed the process and perspective of both NCSU and Snøhetta, overcame resistance to its design and financial obstacles, and resulted in a high performing library that centers on collaborative study. The design process will be framed in a narrative format, beginning with designer selection and focusing on the collaborative aspects of the process. This case study gained insight into the process through review of construction and design documents, interviews of stakeholders and design professionals, and literature. This information was used to create the summary of the process to provide insight into how a collaborative process differs from traditional methods, how collaboration can benefit innovation and project success, and allow individuals to reflect upon the information contained in this study to better evaluate their perspectives on the process.

1.0. NCSU AND DESIGNER SELECTION

NCSU was founded in 1887 as a land grant institute for agriculture and engineering studies. Opened in 1889 with 72 students, 6 faculty, and one building the university has grown into a pre-eminent research enterprise with 34,000 students spread over 65 departments in 12 colleges. This 130-year expansion resulted in the surrounding urban environment constricting the main campus. To access additional resources, the expansion of the campus required the use of nearby but noncontiguous undeveloped area.

In 1987 Centennial Campus was established on one of these locations. This campus is located approximately 1 mile from the historical main campus on 1,334 acres. Centennial Campus consists of residential housing, research centers, and recreational amenities. Eventually slated to hold all NCSU's engineering departments, the site was envisioned as a collaborative research center where local businesses and students could interact.

One issue with the campus is that it is located too far from the main campus for students to walk between the two. Even with connecting bus routes, students residing on this campus have difficulty using D.H. Hill Library that is positioned at the head of the "Brickyard" on the main campus. As a result, the university realized this issue of convenience provided the opportunity to create an iconic structure that would not only provide support for Centennial Campus but aid in establishing NCSU as a top research university.

With the support of Susan Nutter, vice provost and director of NCSU Libraries, Mike Harwood, the university architect, and Marvin Malecha, the dean of the College of Design, created a design competition to select the Hunt design team. This method was atypical of the university's selection process and originated from Malecha's push to change the process due to his disappointment with earlier work. (StoryCorps 2017) Historically, NCSU used a long process that included interviewing design teams and the review of large packages of materials composed of resumes, recommendations, design proposals, and previous work. (Chung 2014) A competition-style selection process had never been done at NCSU but would be critical in establishing the collaborative nature of the project.

Six firms were shortlisted for the competition from a larger list of interested parties. These firms included Snøhetta and Pearce, Brinkley, Cease, and Lee (PBCL), now Clark Nexsen, who would later be selected by Snøhetta to be the "executive architect" for Hunt. The firms were invited to NCSU for a weekend of introductions and competition. On the first day, the firms introduced themselves and presented previous work. At the beginning of the second day, the firms were assigned two students and given a design problem. The firms would be sequestered to rooms with the selection committee members wondering between the rooms. (Ferris 2015c; StoryCorps 2017) Elaine Molinar of Snøhetta recalled, "We were basically locked in a room and told to design our way out of it by the end of the day." (StoryCorps 2017) This process was intended to allow NCSU to observe the team's reactions, process, and willingness to collaborate. Malecha and his fellow committee members were looking for a team that had "..the wisdom to work patiently with the library staff to really come up with ideas that hadn't been done before." (StoryCorps 2017)

Snøhetta's collaborative spirit was recognized by Susan Nutter and the other members from the beginning in Molinar's and Craig Dykers' team breakdown and their demeanor. Dykers, a principle of Snøhetta and Molinar's husband, is a well-known star architect but he did not act that way towards the NCSU community. He was inclusive and open to their inquiries. (StoryCorps 2017) This openness and willingness to include others extended to the competition. Snøhetta, counter to the rules, used Skype to connect the people at the charette with the entire NYC office. (Hill 2013) This was not viewed as a disqualifier as Snøhetta brought their wider resources to bear on the competition but their inclusion of the students in the process did pique the jury's interest. (StoryCorps 2017)

On the final day of the competition, Snøhetta presented their work. The results was an "awkward brick tower" that did not gain the praise of the Susan Nutter or the committee. (Hill 2013; StoryCorps 2017) This did not deter NCSU from selecting them as their designer. As Moliner stated, it was "clear that [NCSU was] not selecting a final product … [they] were selecting a partner." (StoryCorps 2017) Snøhetta had been the only team to incorporate the students into their presentation and this impressed the selection committee. This indicated to Nutter and the committee that Snøhetta was a firm that was willing to listen to the community and collaborate. In reflecting on the process with Moliner, Nutter elaborated on her disappointment in the charette design and her desire to work with Snøhetta: "So to heck with the drawing or whatever, the model, I did hate it, … But it didn't mean we weren't going to work with the firm." (StoryCorps 2017) Through the process, NCSU had found a partner in Snøhetta and together they would attempt to create an iconic building that realized NCSU's vision.

2.0 SNØHETTA

Snøhetta was familiar with design competitions. The firm was founded for the sole purpose of entering a competition. In 1989, five architects joined together to win the commission of the Library of Alexandria, in Alexandria Egypt. This competition was a result of Richard Nixon's visit to Egypt in the 1970s. His desire to see the Alexandria Library, which had not existed for several thousand years, caused his host some embarrassment but would eventually lead to the U.S. donating money for its reconstruction. In 1988, UNESCO would take over the management of the project and establish the competition. (Merkel 2009) This would eventually

lead to the establishment of this group of designers, all in their 20s, and their company as world players in architectural design.

A year prior to the competition, in 1987, Kjetil Trædal Thorsen and Øyvind Mo, both of Oslo, Norway joined with a landscape architecture firm to incorporate architecture and landscape architecture into one design process. This concept of a combined process would later continue as a principal component of Snøhetta's designs. The firm was situated above a beer hall in Oslo called Doverehallen, named after the Dovrefjell mountain range in which Snøhetta is its highest peak. (Merkel 2009) This name would be adopted by Thorsen and Mo for this joint venture and later by the firm that is now known as Snøhetta.

Early in 1989, Thorsen independently discussed collaborating with Dykers, living in Los Angeles, California at the time, about entering the library competition. They would be joined by a mutual colleague, Christoph Kappeller. Kappeller was originally from Austria but was currently living in Los Angeles. Snøhetta would register in the summer of 1989 for the competition and would round out the team with Mo and his friend Per Morten Josefson. They would add others to aid in the competition and after five weeks they delivered a package that eventually won the commission.

Winning this competition led to the official establishment of Snøhetta towards the end of 1989. The firm would have eight equal partners. Kappeller, Dykers, and Molinar, Dykers girlfriend at the time, would move to Oslo and join their colleagues in the office space over Doverhallen. Molinar and Dykers, who met at the University of Texas at Austin, would eventually marry and spend significant time in Alexandria managing the library project. This husband and wife team would eventually arrive in Raleigh, NC to manage the Hunt project.

Today, Snøhetta has offices in Oslo and New York and work as an integrated architecture, landscape, interior, branding, and design firm. They have 130 employees from 20 different nations with an approximately 50/50 composition of male and female employees. The corporate makeup has changed since the Alexander Library competition but Thorson and Dykers remain as principles. They are democratically organized through an internally unionized structure in which there are no private offices and open work areas. Since their establishment, they have won a number of competitions and commissions including the National Opera of Norway and the Pavilion at the World Trade Center Memorial.

Over time, Snøhetta has become known for its "exquisite, thoughtful public work that grows out of its landscape context." (Merkel 2009, 98) This focus on the built form integrating with the landscape is key to bringing depth to Hunt but also created a unique portfolio for the company. Their work stresses the relationship between nature, landscape, and architecture. This is achieved through buildings that are particularly sensitive to their surroundings. (Webber 2013) As a result, Snøhetta's work does not have a particular unifying quality across their projects. Each of their buildings are unique as they have never been about directing a particular behavior but providing options. This sensitivity to the environment and the users of a building would provide Snøhetta with the foundation to create Hunt and provide NCSU with their visionary building.

3.0 DESIGN PROCESS

Snøhetta knew this would not be an easy project. "The university wanted something that showed NC State was forward-thinking in keeping up with the pace of technology and providing an opportunity not only to the students, but to the whole state." declared Nicholas Rader, a Snøhetta project manager. (Madsen 2013) NCSU wanted an iconic library but as Dykers explained: "a library can mean anything to anybody" (Webber 2013, 76).

> When you say "think of a library" you can't, there isn't one image necessarily that comes to mind. They're all very different. …[Today] libraries demand much more space, a much wider variety of space, [more] spatial needs than they had previously. At one time libraries were seen simply as a resource but now they're seen as a place of activity. (Morgan 2008)

Snøhetta's other libraries embodied this understanding. According to Dykers, "Our libraries have always been about creating a place where people can feel good about themselves. Where it makes you feel alive, because what the hell use is knowledge if you don't want to be alive?" (Webber 2013, 81) This did not mean that NCSU would hold the same understanding or vision for the project.

To help understand a client's vision, Snøhetta takes a more deliberate approach to the design process and does not believe in jumping into a design and immediately drawing. It is essential to Dykers and Molinar's team to explore and understand the future and present needs of the site and occupants. "We like to say that you can't know what it's going to look like until you know what it's going to do first."(Morgan 2008) The Hunt library would be a special case in which people were even more likely to not know exactly what they wanted their building to do. NCSU would have a general notion. Hunt was to be a library, it needed to function as a library and needed to have books and seats. This general notion would not be enough. There are numerous things inside of a program that need to be detailed and these items will eventually produce the look of the building. Hunt is an example of where a building's initial conception does not form in reality. Clymer Cease, a principle of PBCL, explained this paradox between the perception of a library and what Hunt would come to embody.

> You know, the tendency in libraries, particularly academic libraries, up to that time, you put a couple of floors of common space in, they're stacked, maybe you've got a hole cut in a couple of places, so you can see up, and then you stack books on top of that. People come in, get in an elevator, and go hide up in the stacks somewhere where they won't be bothered, come down maybe once to the snack bar and go back up, and that's it. The whole notion behind [Hunt] is that we want people to interact, incidentally or structurally..(Ferris 2015a)

Hunt's form would come to reflect this change in notion. The final product has much fewer books on display and as noted became more about the activity than the traditional concept of a library. To Dykers, this change influenced the look of the building; "There are books available…but actually what's being provided more than anything else are variation of spaces for collaboration and that's creating the look." (Morgan 2008)

This outcome was a culmination of the exploration and collaboration that was brought to the project by Snøhetta and NCSU. Beginning with a six-month programming process, Snøhetta looked to understand the wish list of the stakeholders and the site. The goal of the programming stage was to understand the needs and aspirations for the building and how they translate into space. (Snohetta et al. 2008) Treating this endeavor more like a research project, they worked with the programming consultant DEGW to better refine the needs and priorities of NCSU.

A total of 6 rounds of workshops were used to meet with the Institute of Emerging Issues, a think and do tank that occupies part of the library, the College of Humanities and Social Sciences, and other stakeholders. These stakeholders were led by Susan Nutter and included the board of trustees, library staff, students, and faculty. The workshops focused on open-ended, creative thinking and used interviews and discussion. The participants engaged in exercises and activities to articulate their visions of the building; including imagining key spaces, creating staffing organization and developing key adjacencies. DEGW and Snøhetta would use this information to create a space attribute index and through discussion with NCSU map the spaces. This iterative process could gradually move towards specific reviews of key issues such as access, services, image and identity, growth, technology, and design. It would be used to provide input and refinement into the design and eventually result in Snøhetta better understanding the needs, wants and hopes of the client. It would also aid in reducing the size of the initial building by half.

With programing coming to an end, Snøhetta would traditionally work with the client through workshops but for Hunt, they would undertake a more collaborative approach for its design and construction. There would be hundreds of meetings about every aspect of the project. (Ferris 2015d) During the schematic design, they invited NCSU and the user groups into the

process on day two. Typically, they would have worked more in developing ideas and concepts prior to discussing them with the client but Molinar expressed a found value in NCSU joining earlier, "…this process starting out simultaneously has worked well and the result was a little bit surprising I think and it was a very positive and I think it gave us more strength to move forward." (Morgan 2008)

Their process became more "..like a contemporary collegiate education, than a top-down handoff of a single idea." (Hill 2013) The feedback helped in the design and development of the building. When expert input was needed on either side the appropriate individuals were consulted, such as the computer science faculty provided input regarding the game lab. Gwen Emery, the director of library environments, was brought in later in the process to aid in the interior design and furniture selection but was still required to familiarize herself with the needs of the users. Following a similar structure to the design process, she met with the stakeholders, including interior designers from PBCL, every two weeks to discuss the interior plans. In the end, the user's needs or requirements were always the root of the decisions and provided the direction for the project.

As design progressed, the entire team was operating as a singular entity, without boundaries. However, even the most well-organized programs find resistance. The involvement of a number of stakeholders would result in its own conflicts. As Molinar explains, "We all experience architecture every day in a very real and tactile way. So, we know it the way we know it, in the way we experience it." (StoryCorps 2017) This experience results in the formation of opinions. This experience is not comparable to training and design expertise of design professionals. "As a design professional, though, you have to be a little bit removed and objective from that process."(StoryCorps 2017)

This understanding of the difference between the knowledge of a designer and a user's experience was not held by all parties involved with Hunt. Malecha recalled an issue with the color of the prominent staircase. Snøhetta had designed the stairs as bright yellow to promote movement but some stakeholders felt they should represent the campus in Wolfpack red. A viable request from a branding perspective, this ran counter to Snøhetta's design expertise. Malecha took it upon himself to help relate this proficiency in design and the trust associated with collaborative design. Using an impressive narrative, he explained to some of the stakeholders:

> So, we invite a world-class chemist to campus. We invite him to sit down with us so that the vice chancellor responsible for facilities is going to teach him how to mix sugar into water? (StoryCorps 2017)

This helped instill a level of trust, leading the stakeholders to agree to the color choice, but would not be the only type of resistance that would be experienced with the design. A downturn of the economy resulted in a budget cut of $10 million dollars. This created significant hardship with planning as it impacted the vision of the building. With the project out of programming and schematic design, this revelation had the potential to sidetrack Hunt's design and success.

Susan Nutter and the staff of the library were aware of the importance of collaborative spaces. This was an issue that had plagued them with the D.H. Hill Library on the main campus. They were against the removal of the study areas, but this new budget cut had the potential to eliminate them due to the need for book stacks and a reduction in floor area. Being aware of a potential innovative solution, they brought the inclusion of an automated shelving system to the attention of Snøhetta.

This system would later become known affectionately as the bookBot but even with the library's support, it faced opposition. Lisa Johnson, the university architect, reflected:

> At first, I think a lot of the faculty were not onboard with not being able to walk the stacks and browse the book stacks. So there was a lot of discussion about this and the library, being as forward-thinking as they are, decided well, we can develop a virtual browser. (Ferris 2015c)

By understanding the concerns of the community, a solution was created. This collaborative process addressed the issue with the budget and provided for a better experience in using the bookBot. As a result, the system allowed for the creation of more space and for a smarter and less expensive building.

4.0 CONSTRUCTION

After almost two years, the design process came to a close, but this would not end the collaborative process. Skanska, the construction manager, would continue the interactive relationship established by Snøhetta, PBCL, and NCSU. They would also experience the benefits of the collaborative design and the relationships it established.

One of the most productive benefits of the design process would be the use of Building Information Modelling (BIM). Skanska would be able to leverage this tool as a communication platform, enabling the project to be better understood and remain on schedule. Not originally considered for the project, BIM was implemented by Snøhetta at the request of PBCL. PBCL had used BIM for a few years but Snøhetta had not. This change in process would allow for better communication during the design phase and create an understanding of the project that is not possible with traditional plans and elevations. This use of the model as a means of communication and design deliberation would extend into construction.

Skanska made the model part of the onsite Mobile Resource Center. In this center, they had renderings of the model and the model itself, accessible on what they called the toolbox. The toolbox was a flat screen panel that allowed people on the site to look at the space they were about to work on. They were able to sketch on the BIM model directly using smart boards and even able to access it on site through iPads and Vela, now BIM 360.

The workers took quickly to this system and it was considered the most beneficial and widely accepted high tech tool used on the job according to Will Senner, the assistant project manager. In an example of its use, Senner recalled in one situation a superintendent used a drawing from the kiosk to help a subcontractor understand the finish detail for a stairwell. “He just navigated to that detail on the model, did a screenshot, printed it out and just handed the picture to the drywall sub who went and built it off of that picture.” (Judy 2012, 3) This access to resources and the sense of increased collaboration was embraced by the design and construction teams. It kept everyone informed of changes and facilitated their coordination and discussion.

This ability to quickly and easily communicate would be critical in keeping the project focused and able to adjust to unforeseen conditions. This would be especially true with the complicated systems associated with the library. Many of these systems, such as the chilled beams used for the conditioning of the space, found their execution made possible because of steps taken during the collaborative design process. Chilled beams are unusual for the Southeast due to the region’s humidity. As Senner, explained: “The humidity is a big concern… [with the wrong conditions] those chilled beams can start to sweat, which can be a huge problem.” (Judy 2012, 1) To address this issue, the project would use Computation Fluid Dynamics (CFD) analysis during design to investigate the operation of the chilled system, especially concentrating on operating temperatures for occupied and unoccupied times. (Aksamija 2016) This would allow the specialty contractor to properly install the system and its electronic monitors that constantly sample the library’s air and measure its conditions to prevent condensation.

Skanska would not experience this ease with all systems, however. The exterior curtain wall would present them with both small and potentially project damaging issues. Snøhetta’s design concept aimed to create a sense of movement along the wall. This required each of the approximately 800 curtain wall units to vary in size, shape, position, and color. This would result in the mullions along the wall to not line up horizontally and require modifications to the typical gutter system. Mo Arani, president of DEC, the curtain wall detailer, “..had to work with the architect to find an ideal place to have a continuous horizontal to make the gutter system

work." (Judy 2012, 1) The solution was to use a two-story-high gutter system that was heavier and harder to handle but able to maintain the aesthetics of the building.

This would not be the only obstacle that the curtain walls would present. The wall incorporates approximately 2,500 vertical solar blades that vary from 2 to 18 inches wide. As Senner described, "It's just a beast of a system" (Judy 2012, 2). With over 4,000 pages of fabrication drawings, the system was to be designed, fabricated and installed within 13 months. This deadline was seen as almost impossible to meet by the majority of the subcontractors and would require the collaborative work of Skanska, DEC, Snøhetta, and Trainor, the manufacturer. Snøhetta's project architect Nic Rader recalled, "We locked ourselves in a room for two weeks and went through every single drawing." (Judy 2012, 2) At the end their sketches were incorporated into the design and, along with innovative asset tracking technologies, would allow Skanska to meet the deadline even with the closing of Trainor during the final stages of manufacturing.

In the end, the collaborative process resulted in the best ideas rising to the surface and for the alignment of expectations, design intent, and ambitions during construction. After almost 5 years, Hunt would be completed in 2013. The building would attain LEED Silver status and become an iconic structure, inspiring other institutions. It would also win several awards for its architecture and staff, however, the most cherished awards would come from its users and the experience gained by those involved.

5.0 RECEPTION

Hunt was shaped by the interaction between the design team, library staff, and others. Dykers recalled:

> when we first looked at this commission we really did image it to be a library like many other libraries. …the librarian, the director and also their staff were enormously forward thinking and in fact I would say that it's turned out that the program for this library is so surprisingly modern and forward thinking we didn't anticipate that when we started. (Morgan 2008)

The Institute for Emerging Issues, the library staff, and all the stakeholders provided opinions. These opinions did not always coincide. This can be daunting but according to Gwen Emery: "…when you disagree you always get another idea, a better idea..". (Ferris 2015b) In the end, this back and forth makes for a better product.

This project has influenced both NCSU and Snøhetta. For Snøhetta, Hunt changed how they use the collaborative process in their offices. Since the completion of the project, Molinar states: "It's, I think, a model that we've practically insisted on ever since."(StoryCorps 2017) The process has allowed them to work toward a higher level of understanding and communication among the design and construction teams. The experience proved that the most successful architecture can be achieved when all the team members are aligned in the ambition and expectations of the project. (Hill 2013)

The Hunt project was made better through this alignment of stakeholders. For both sides, this point of collaboration made the project stronger. Lisa Johnson expressed:

> Sometimes there was some compromise from some of the stakeholders that were required, but all in all, it was a wonderful effort and one of the best projects I've ever been involved with here on campus. (Ferris 2015c)

This was an experience that was not lost on Snøhetta. Dykers found the experience and process strengthen the overall design.

> It's definitely improved the building. I mean, there's one thing you can say, that architects, for better or worse, often aren't able to transcend many of the notions of design that are implicit in your education and so forth, and the user groups and the people that design the library from a user perspective aren't interested in design in the same way that an architect is. … they've pushed us to be more colorful, more informal, less hindered by straight lines and the kind of rational thinking that architects often have to have.

While there was accomplishment in the process, for NCSU true success would always be measured by the user's reception. Throughout the project, the designers and committees

wondered if the space would be accepted or rejected. The library went against conventional thought but brought to campus what individuals involved in the process felt was needed. On the first day of operations, overwhelming enjoyment was felt by Emery and others. “The students walked in and they just started using the space, you know, just as we’d imagined, and I sat there, and I just started crying.” (Ferris 2015b) The students quickly adopted the space to the enjoyment of the design staff. Cease recalled his excitement in seeing this process:

> Yeah, it was fun to come in when it was first open and see the people just coming in and moving through the building and walking and talking about it and how quickly it got adopted by the students. I mean they were here right away in droves, and to come over here and see them actually using the building and enjoying the building was a lot of fun, very much like going to a town square on a Saturday. [Laughs] So it was a lot of fun to see that, and then see the faculty come and embrace the building, and then everybody, the public.

“Every corner of the Hunt Library is designed to be memorable and stunning”(Schwartz 2013), so there should be little surprise that students found intrigue and enjoyment in unexpected areas. As use continued, a selection of students even found pleasure in learning about the furniture. These students would establish a blog about the pieces so that they could share their delight with others. This enthusiastic reception would not mean that there was no need for adjustment.

The staff constantly monitors the use of the space and seeks feedback. As people used the spaces furniture has been added or adjusted. The mezzanine needed more tables. ADA tables were requested, as expected, and stand up desk were added upon their request. This is not an indication of an issue, however, simply an extension of the collaborative process and the continued evolution of Hunt Library. As Susan Nutter explains,

> I believe it’s fully realized, the vision. And even more so, I think, for faculty and students. Now as we get through generations of students, they’re not going to really know the difference between what they had and what they have now. But faculty really do know… What a difference this has made (StoryCorps 2017)

CONCLUSION

Hunt was achieved through the willingness of NCSU and Snøhetta to attempt a process was not intimately familiar to either party. The outcome was a revolutionary library that uniquely services the students, faculty, and community. While this outcome may have been achievable through other methods, this case study demonstrates how the collaborative process became an integral part of the design and operation of Hunt.

The narrative format of this case study allows individuals to formulate their own takeaways dependent on their perspective and tendencies towards design and collaboration. That is the intention of this study. Collaborative design is very personal and interactive. For this reason, it is important for individuals to evaluate their perspectives on the process. The review of the design and construction of Hunt provides this opportunity.

This study also provides evidence of key components of collaborative design. While common principles, the case study gives depth and insight into their application and value within the process. These include:

1. **Collaboration begins with trust.** All parties involved must trust the decisions and expertise of those involved in the project.
2. **Expectations must be managed and addressed.** Social norms, terminology, and experiences differ between disciplines. All parties must be aware of these differences and communicate to minimize any adverse impacts of misunderstandings or conflicting expectations.
3. **Goals must be shared.** The project must have shared goals and all parties must accept and support these goals. All efforts should be directed by the achievement of these goals and compromise must only come at a consensus.

4. **Measurements are needed to determine success.** Success can be subjective. A project is aided by a metric of success and this should be managed at both the project and individual levels.

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