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We're All in This Together: An Examination of Seating and Space Usage in a Renovated Academic Library

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Abstract

After a recent renovation in which a variety of new and more functional tables, chairs and other furniture were purchased and distributed, four of the librarians from Bradley University's Cullom-Davis Library performed a study of how the new furnishings were being used. This paper describes the process, issues and results of this study. In the end, conclusions were made with regard to student study groups, preferred furniture type and time-of-day/time-of-semester occupancy.

Keywords: *Seating study, seating sweep, library furnishings, library renovations, library usage, physical space, seating (furniture), whiteboards.*

Introduction

The Cullom-Davis Library at Bradley University underwent a renovation of its first and second floors in 2016. As part of the renovation, space was re-allocated and subdivided with the use of newly purchased furniture designed to appeal to a variety of study modes. The aims of the renovation were to provide space and furniture conducive to the way current students prefer to use the library, and to increase the total amount of space students could utilize for study by reducing the total footprint of the serials, government documents, and reference collections. To gather data on how well these goals were met, as well as how individuals were using the renovated space and furniture, four librarians at the Cullom-Davis Library undertook an observational 'seating sweep' study of selected areas of the first and second floors in the Fall 2016 and Spring 2017 semesters. This article will analyze the data of how and where library patrons are using the newly-renovated spaces and furniture.

University and Library Description

Founded in 1897 by Lydia Moss Bradley, Bradley University is a medium-sized private university located in Peoria, Illinois with a student population of approximately 5,400, comprising about 4,500 undergraduates and 900 graduate students who come from the United States and 33 additional countries. Bradley offers more than 185 undergraduate academic programs from five colleges as well as 30 additional graduate programs, including MBAs and a Doctorate in Physical Therapy. The campus is relatively compact, housing 77 buildings on an 84-acre campus. The average class size is 21 students, with more than 350 faculty members providing instruction, resulting in a 12-1 student – faculty ratio.

The Cullom-Davis Library serves all faculty, staff, and students at Bradley University, in-person and virtually, as well as guests from the surrounding community. It consists of four floors and houses Special Collections, Academic Success Center, a Technology Helpdesk, and a café as well as over 440,525 materials. The original library building opened in 1950 and has been expanded twice, once in 1966, adding 23,000 thousand feet, and a second time in 1989, adding a further 53,000 thousand feet for a total of 107,000 square feet. The library is open during the fall and spring semesters from 7:30 am to 4:00 am for approximately $\frac{3}{4}$ of each semester, with slightly shorter hours for the first 10 days and 24/7 access for the last two weeks.

Prior to the renovation of the first and second floors, the majority of the space on the east side of the building was devoted to the reference collection with some space for group study at tables. On the second floor, the east side chiefly housed the bound serials collection, while the west side was devoted mainly to government documents and other periodicals, with a small browsing area and a Curriculum Materials Center which held some study tables as well as materials supporting teacher education.

The renovation of the first floor included a large reduction in the number of reference materials which opened the space for more and varied types of seating, and technology for student use. Among the items added were booth-type seating, individual study ‘pods’ with head-high walls, various types of soft seating, and technology tables that included TV monitors mounted on the wall with facing seating that could be used with laptops. The renovation of the second floor reflected a shift to heavier use of online serials, allowing the de-selection of many print journals and the consequent opening of much space for long tables, ‘pods,’ technology tables, and more soft seating. Study carrels, the library’s only previous option for solo study, were retained in selected areas on the second floor. Since two aims of the renovation were to increase space available to students for study, as well as to provide furniture conducive to the way students prefer to study, we undertook an observational ‘sweep study’ in 2016-2017 designed to record how the students were using the newly-reclaimed spaces, and to determine which of the furniture on the first and second floors was most in demand for student use.

Literature Review

Given and Leckie (2003), in one of the first articles to promote the use of the ‘sweep study’ as an analytical tool for how libraries, and the spaces within them, published the results of mixed-methods research, including seating studies, performed in 1999 in central public libraries in Toronto and Vancouver. This ground-breaking study established the basic methodology and parameters used for library sweep studies thereafter, including a checklist for patron characteristics, patron activities, library locations, and possessions in evidence.

A potential model for the Cullom-Davis study was provided by a sweep study undertaken at Clark University’s Goddard Library in 2004. In the Goddard experiment, sweep studies were performed at set times of day, always with the same pattern of walking through the spaces, and

conducted on a variety of days to ensure the most consistent collection methods (Linn 2013). Furthermore, this study collected quantitative data on the numbers and groupings of patrons who used specific kinds of seating within the library. Therefore, this methodology demonstrated several useful parameters and methods for the Cullom-Davis study to follow.

Bedwell and Banks (2013) performed a similar observational study at Dalhousie University's Killam Library in 2010, although their research was undertaken by a group of Sociology and Social Anthropology majors intent on qualitative observation of existing spaces (though one area did undergo rearrangement toward the end of the one-semester study period). Their results included a floor map coded with 'patterns of use' to advise library redesign for greater usability of space.

Bryant, Matthews and Walton (2009) chronicled the use of a dual qualitative-and-quantitative library sweep study / field diary at Loughborough University's Pilkington Library in the United Kingdom to investigate how users were employing a newly-designed 'open plan' space within the library. As such, the researcher took careful note of what activities users pursued within the new space, including what these users were doing within their individual study, or the groupings as well as to what extent they were interacting with one another. At Loughborough, they found that "undergraduates show signs of learning and being social simultaneously" (Bryant, Matthews & Walton 2009, p. 16).

May and Swabey (2015) performed seating sweeps and administered student questionnaires in five Canadian libraries in 2009-2010 to examine "the actual use of physical space" in several types of academic libraries, including "community colleges, undergraduate libraries, and a technical institute" (p. 773). These researchers inventoried users' visible possessions and their resulting implications for how individuals employed the library space both

individually and in co-working groups. They were also able to draw useful conclusions about the importance of various library design features and furniture types among the five institutions studied.

Khoo et al. (2016) used a mix of surveys and sweep studies to analyze how patrons used the library at their private, not-for-profit university. By counting the number of individuals present in each of 76 library 'zones' chiefly divided by furniture / technology groupings of varying sizes, they produced heat maps to indicate areas of high and low library usage / seating occupation. The study revealed, among other conclusions, that the perception of a space as 'crowded' or 'full' might have more to do with how groups or individuals are using an area than with how many seats are still available. This proved particularly true in the case of large tables, which might be viewed as more occupied based on the number of possessions in view belonging to each person seated there.

As Dominguez (2016) noted, during her sweep studies at Florida International University, that sweep studies can be usefully combined with other instruments,. She suggested the use of informal, approach-at-random surveys combined with a photo diary on 'creative use of library space' in order to glean maximum information on how users are interacting with furniture and spaces. Although, we did not employ surveys or photo diaries for this sweep study, such instruments may provide useful analogues if we repeat our experiments in future.

Data Collection Design and Implementation

Before the seating sweep process began, the researchers reviewed the literature and considered the local library environment to formulate the best way to gather the data wanted. Because use of security camera footage was not an option, it was decided that the form created by Given and Leckie (2003) best suited data collection at this library. Since their study was

published in the beginning of the 21st century, types of technology needed to be updated. Terms such as “Walkman,” for example, were exchanged for “headphones/earbuds” (see appendix A for blank form). A line was added to the form to indicate users of “smartphones.” The users of their library varied much more than Bradley’s. Lines distinguishing between the various ages of users or if they had a baby with them were removed. The vast majority of Bradley library users were in their late teens or early twenties, and it was rare to see a child in the building. At first, the librarians involved wanted to differentiate between the genders but part-way through the process decided that it was not relevant, so marking that on the forms ceased. Differentiating between different types of furniture and the locations within the library was deemed critical. Lastly, there were several study rooms bordering the space we studied which users can reserve and use in groups or alone. Initially, the plan was to include these but decided they were too difficult to observe without entering the rooms and interrupting work and, therefore, left out this sweep.

Basic portable whiteboards had been provided for these users, but after the renovation, upmarket mobile whiteboards, “white” walls and “white” tabletops were added to the mix. In addition, monitors were mounted on walls. The librarians involved wanted to monitor the usage of these new features.

For years, the librarians of Bradley witnessed large numbers of users sitting in groups before the renovation occurred. So, many of the updates were designed to accommodate collaborative work. Data collection needed to account for groups versus individuals in the sweep, and Given and Leckie’s form did not. However, May and Swabey (2015) provided a good solution. Like their form, users sitting within a group were designated using double-sided arrows (<--->).

To get a good snapshot of usage of the space throughout the year, two different time periods were chosen to complete the sweeps: a ‘busy’ week, fall 2016 finals, and a ‘regular’ week (February 2017). Data collection in the fall semester worked out well, but in the spring a couple of librarians were out with illness, therefore some of the spring sweeps had to be rescheduled, but the days of the week and times were kept consistent.

Before the actual ‘sweeps’ were performed, the researchers discussed ways to ensure uniformity amongst the sweepers. To this end, a path through the building was agreed upon that would be followed in the process of gathering data. It began in the computer lab area on the main floor and ended at the new single-person study carrels upstairs. It was felt that this would ensure uniformity in the way the data was recorded, thereby making it easier to transpose into the online spreadsheet.

To increase consistency in data collection, the researchers walked around together filling in the form and ironed out details that would have been answered differently by two different researchers. To reduce bias, a schedule was created so that no one researcher did the same time or same day. Also, a different researcher entered the data than the one who collected it into the online spreadsheets as to reduce input error.

Initially the data was going to be collected from both renovated floors. However, on the Thursday of finals week, it took the person collecting the 2:30 PM data over an hour for just the first floor. It was then agreed upon that both the data collection and data analysis for both floors would be too overwhelming for this project, and the research was limited to the first floor and the study carrels on the second floor as there are none on the first floor.

Description of types of furniture (with pictures)

Seating falls into two general categories: individual seats and those meant to accommodate groups. Seating specifically designed for individual study included the traditional study carrels (not pictured), pods and individual plush seats with a laptop stand and footstool (Figures 1a & b). Seating that could accommodate groups include: rectangular 4-tops with wheels, circular tables that fit 4-6 chairs, high-top tables with four chairs (some with electricity), booth seating (open and closed), table with mounted media center, two types of couches (not pictured), and plush chairs most with wheels (Figures 1c-i).



Figure 1: a. Two of the individual plush seats with laptop stand and footstool, b. a pod with wraparound wall, c. rectangular table with four chairs per individual table, d. circular table, e. tall table with electricity, f. closed booth with mobile whiteboard setup like a ‘door’, g. media center, h. plush chairs set up around a low whiteboard table with a circular whiteboard table in the background, i. open booth with plush chair set up around another low whiteboard table.

Issues during the Sweeps

The sweeps were mostly well-received by users. However, some were visibly uncomfortable with adult personnel staring at them and writing on clipboards. In these cases, sweeping librarians explained the study and the reasons behind it. This placated most if not all of the users who were unnerved. Besides the study not quite being as unobtrusive as hoped, the librarians involved had a few minor difficulties of their own. Numerous users had smartphones on their tables, laps or chairs but it was difficult at times to determine how and if they were being used. Communication, research, games or listening to music are all probable assumptions. When earbuds or headphones were involved, the assumption was that music was the reason, but users could have been gaming or talking to people. Also, among the new furniture were pods with wrap-around walls allowing users to build inaccessible nests, occasionally even using one of the wheeled whiteboards as a 'door.' In some cases, librarians marked the form that the furniture was being used but did not attempt to determine the activities within.

Results

Relative Occupancy

There are two different ways of looking at occupancy: a total count for each individual seat or by seating groups. Studies have shown that people have a tendency to spread out when occupying space meant for groups and do not regularly choose to sit with strangers at group seating (İmamoğlu & Gürel 2016). So, relative occupancy by seats does not give one a complete picture of how filled a space is seen to be by its occupants. Therefore, to determine the fill rate of grouped furniture in a particular area, one must determine what constitutes a group seating. Some furniture like the booth seating or tables with multiple chairs is easily determined. In this newly renovated space, plush seating was the most difficult to designate. When the renovation was complete, and the furniture was laid out as it was envisioned with much of the plush seating was

grouped around low tables. However, like most of the new furniture, the plush seating pieces have wheels and some of these pieces did not stay in their original location for very long. So, the occupancy rates for both individual seats and group seating can be only a rough estimate but still gives an overall picture.

Overall, the only time the first floor was completely empty during both sweep times was at 10 am on the Sunday of Finals Week. The library is only open that early on a Sunday during the two weeks each semester when the building is open 24/7 for finals.

Occupancy by total seat numbers does show some interesting results (Table 1). Firstly, the Final Exam period appeared to have no effect on the use of the space in the mornings. In fact, percent occupancy at 10 am was lower on December dates (during Finals) than on February dates. As for the other times, December was busier than February. However, the busiest time in December was 2:30 pm, while 9 pm was the busiest time in February.

Table 1. Relative occupancy by number of seats.

Time of Day	February	December
10 AM	15.5%	8.8%
2:30 PM	24.4%	38.8%
9 PM	28.8%	30.3%

The differences between occupancy of space between February and December are even more apparent when looking at seating groups (Table 2). February's rates at 10 am are almost twice as high December's. The library was closed Saturday and Sunday at this time in February.

So, to make sure the data was not skewed, just the averages of Monday and Thursday 10 am were compared. The average for those dates in December was only 28.9%, quite a bit lower than February's 10 am average of 42.6%. A difference between the two types of relative occupancy can be seen in that December's 9 pm time now has the highest percentage of all the times.

Table 2. Relative occupancy of seating groups by time of day. *Library was closed on Saturday and Sunday at 10 am. So, data is only for Monday and Thursday.

Time of Day	February	December
10 AM	42.6%*	23.3%
2:30 PM	33.5%	43.2%
9 PM	32.4%	46.3%

Relative occupancy can also give one a picture of furniture preference. Students were never seen sitting on a buoy which is particularly interesting since when faculty and staff toured the library before school started many of them tried out this new and unusual seating type. The two large couches were not used often. The pods and the closed booth in the Atrium were the two pieces of furniture consistently in use. Ever since the renovation people working the desk can sometimes hear people say they are glad that a booth is available when they find one empty.

Groups

Groups were more common during Finals. The number of students in groups averaged 75.3% and never dropped below 50% while the overall average during February was only 52.9% with the lowest number at 30.6%. In February, there was a preference by groups for the type of

seating that had tabletops (booths, rectangular, circular, tall tables with and without electricity). So, more groups were found in the Atrium and Reference sections of the library.

The next question becomes: what exactly were these groups doing? Was it collaborative study as some expect or something else? During Finals week 41% and February 35% of the groups were not talking. They appeared to be studying quietly. In fact, 29.5% and 24.5% of groups in December and February respectively also had at least one individual in the groups wearing headphones.

Individuals Seated Alone

Pods represented the single-seating furniture type with the highest relative occupancy (76.7% in December and 43.4% in February). However, the largest total number of individuals sitting alone were found in the seating with tabletops, in particular booths, rectangular, and circular tables.

As stated above, traditional-style study carrels were the only seating type on the second floor that underwent sweep study. There are no traditional-style study carrels on the first floor; on the second floor, there are two separate sets of them, differing in location and what is behind each set. The difference is what is to one's back when seated at a carrel. The carrels with nothing behind them rarely had any occupancy. The carrels with shelving units behind them never had a relative occupancy above 50%, and the figure in December and February was typically much lower.

Conclusions

This study, like others, stresses the need for flexible diverse furniture choices, preferably mobile since the students do arrange them to meet their needs (Tewell et al., 2017; Dominguez, 2016). The students seem to prefer spaces with tabletop space in which they can spread out

while still giving themselves the feeling of some privacy. The two favorite pieces of furniture in the Cullom-Davis Library, the closed booth and the pod, both having defined space. Students even further delineated the space by using the mobile whiteboards as a 'door'. Several other studies have found that students would stack books at the end of tables to give them a sense of privacy (Andrews, Wright, & Raskin, 2016; Applegate, 2009).

As for groups, this study adds to the growing evidence that there are multiple types of group study. Crook and Mitchell (2012) described four different types of social engagement in collaborative study. The groups in this study who were not talking could have been participating in either what the researchers termed "intermittent exchange: whereby students convene for independent study that permits an occasional and improvised to-and-fro of questioning or commentary" or "ambient sociality: students identify the importance of simply 'being there' as participants in a studying community" (Crook & Mitchell, 2012, p. 23). Other researchers have called refer to it as studying 'alone together' (Andrews et al., 2016). In a news article about the use of the Agora Learning Centre at the University of Leuven, a student is quoted that she "needs the peer pressure" to keep studying and to stay off of social media (a., 2013).

While the enclosed space of the pods seems to be very popular, a number of individuals appear to like having the ability to spread out solo at tables that are designed for four-person or greater seating. Since usage of the study carrels is low, either the desire for increased space or privacy appears to drive the choice for pods or solo-occupied tables. One can only get a rough picture of preferred seating by individuals because there are only five pods on the first floor, and there are so many more rectangular and circular tables. Also, unanswered question is about individuals is whether or not the seating choice is made by seat location instead of furniture type.

This observational study gave a broad picture of the usage of the newly installed furniture. However, as mentioned above, there were some data collection issues. Since students noticed the researchers walking around with a clipboard, they could stop doing things once they knew they were being observed. Students could stop doing things just because they know they are being observed. So, the conclusions inferred from the examination of the groups may be inaccurate. However, it should be noted that a number of groups had individuals wearing headphones who may not have been as attentive to researcher presence. The issues which came up during this study would have had no effect on the furniture choice or the act of using a whiteboard for an extra sense of privacy.

In conclusion, the Cullom-Davis Library still requires a renovation of its lowest level, currently used for quiet study. When the renovation of this floor is planned, the conclusions of this seating study should be kept in mind. Based on this research, it should be filled with furniture with the space for students to spread out and a lot of mobile whiteboards.

Recommendations

In this study, it appears that students' preference is for space to spread out and a sense of seclusion over the comfortability of the furniture. Mehta and Cox (2019) also found that the comfort of the space should not take away from the 'academic atmosphere' and that 'individual retreat' is still regarded highly by students (p. 24). With finite furniture budgets, libraries should look into furniture that provides partially-enclosed spaces like the booths and pods that are among the most-used furniture in Cullom-Davis Library.

References

- a, a. (2013, June 12). Study alone, together | Flanders Today [Newspaper]. Retrieved March 18, 2019, from Flanders Today website: /current-affairs/study-alone-together
- Andrews, C., Wright, S. E., & Raskin, H. (2016). Library Learning Spaces: Investigating Libraries and Investing in Student Feedback. *Journal of Library Administration, 56*(6), 647–672. <https://doi.org/10.1080/01930826.2015.1105556>
- Applegate, R. (2009). The library is for studying: Student preferences for study space. *The Journal of Academic Librarianship, 35*(4), 341–346.
- Bedwell, L., & Banks, C. (2013). Seeing through the eyes of students: Participant observation in an academic library. *Partnership: The Canadian Journal of Library & Information Practice & Research.*
- Bryant, J., Matthews, G., & Walton, G. (2009). Academic libraries and social and learning space: A case study of Loughborough University Library, UK. *Journal of Librarianship and Information Science, 41*(1), 7–18.
- Crook, C., & Mitchell, G. (2012). Ambience in social learning: Student engagement with new designs for learning spaces. *Cambridge Journal of Education, 42*(2), 121–139. <https://doi.org/10.1080/0305764X.2012.676627>
- Dominguez, G. (2016). Beyond gate counts: Seating studies and observations to assess library space usage. *New Library World, 117*(5/6), 321–328. <https://doi.org/10.1108/NLW-08-2015-0058>
- Given, L. M., & Leckie, G. J. (2003). “Sweeping” the library: Mapping the social activity space of the public library. *Library & Information Science Research, 25*(4), 365–385.

- İmamoğlu, Ç., & Gürel, M. Ö. (2016). “Good fences make good neighbors”: Territorial dividers increase user satisfaction and efficiency in library study spaces. *The Journal of Academic Librarianship*, 42(1), 65–73.
- Khoo, M. J., Rozaklis, L., Hall, C., & Kusunoki, D. (2016). “A really nice spot”: Evaluating place, space, and technology in academic libraries. *College & Research Libraries*, 77(1), 51–70.
- Linn, M. (2013). *Seating Sweeps: An Innovative Research Method to Learn About How Our Patrons Use the Library*. 7.
- May, F., & Swabey, A. (2015). Using and experiencing the academic library: A multisite observational study of space and place. *College & Research Libraries*, 76(6), 771–795.
- Mehta, P., & Cox, A. (2019). At Home in the Academic Library? A Study of Student Feelings of “Homeness.” *New Review of Academic Librarianship*, 1–34.
- <https://doi.org/10.1080/13614533.2018.1547774>

Appendix A

Time, Date

	1	2	3	4	5	6	7	8	9	10	11	12
Groups (double-headed arrow)												
Location (see below)												
Furniture Type (see below)												
Sex (M/F/I)												
<u>Possessions</u>												
Bag, purse, laptop case												
Laptop												
Reading Materials (print)												
Writing Materials (pen, pencil, paper)												
Cell phone/Smart Phone												
Headphones/earbuds												
Calculator												
Food												
Drink												
<u>Activities</u>												
Using laptop												
Using Smartphone												
Using library computer												
Using wall display												
Conversing, Communicating in Person												
Talking on Phone												
Reading (in print)												
Writing (in print)												
Writing on whiteboard/walls												
Listening to headphones/earbuds												
Sleeping												
Sitting/Watching												

<p>Location</p> <p>AT = Atrium Seats CA = Cafe/Lab Side, 1st Floor REF = Reference Side, 1st Floor 1RM = 1st Floor Study Rooms CMC = CMC/Gov't Docs Side, 2nd Floor SER = Serials Side, 2nd Floor 2RM = 2nd Floor Study Rooms</p>	<p>Furniture Types</p> <p>T = Table SS = Soft Seating C = Carrel WD = Wall display table TT = Tall table B = Atrium Booth P = Pod</p>
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