Beyond gate counts: seating studies and observations to assess library space usage

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Abstract
Purpose – The purpose of this paper is to propose a method for the assessment of library space use and user experience by combining seating studies, surveys and observational data.
Design/methodology/approach – Seating usage studies (called seating sweeps), technology-assisted face-to-face surveys and observational data were used to assess library space usage and identify user behaviors.
Findings – Results from the study revealed higher library use than expected and provided insight into user behaviors and patterns.
Practical implications – The methods and study described aid in raising awareness of user experience within library spaces and provide valuable data for space redesign efforts.
Originality/value – The study builds upon methods described by Linn (2013) and combines traditional user experience methodologies to gain insight into library space use and user needs.
Keywords Academic libraries, Library usage, Library spaces, Seating studies, Space assessment, User experience
Paper type Research paper

Introduction
Despite increasing interest in library user experience (UX), the library literature on UX often focuses on methods to improve library website experience, rather than physical library experiences. While academic libraries serve an increasing number of students online, experiences of the physical library should not be forgotten. While circulation may be down across many institutions, library study spaces, computer labs and group study rooms continue to serve the needs of many, often providing the level of focus necessary for students to succeed.

Common space concerns become evident with increased interest in space usage and user behavior; observational studies and surveys can aid in producing a well-rounded understanding of library space use, encouraging library staff to learn from users and addressing limitations in existing library spaces. This paper proposes a simple, easy to design and implement strategy to assess library spaces and UX by combining seating usage studies (also known as “seating sweeps”), surveys, observations and photo diaries.

Background
Florida International University (FIU) is home to two very distinct libraries: the Green Library at the Modesto Maidique Campus (MMC), and the Hubert Library at the Biscayne Bay Campus (BBC). The Green Library, an eight-story building housing...
general and special collections, in addition to other university departments, is situated at the heart of MMC, the university’s primary campus, which serves a student population of around 50,000. In contrast, the Hubert Library, a three-story building featuring a general collection and study spaces, serves an estimated 8,000 students. Unlike the Green Library, the building is located outside the university commons, rather than in a central location. Unlike the Green Library, the Hubert Library’s lack of proximity to other academic units and student spaces makes it less likely that students will casually enter the building between classes. Moreover, except students whose major courses are taught at the BBC, potential library users are hampered by the need to travel across a busy city to visit the Hubert Library (a distance of just under 33 miles between each campus, or endure an hour-long journey on the inter-campus shuttle). Thus, there are concerns regarding space usage at each library. The series of methods described in this article were used to understand how users engage with each of these distinct library environments to address user needs and improve UX.

Purpose
Identifying the purpose and goal behind any library user study should always be the first step in bridging the gap between actual and perceived library use, helping librarians look beyond a vague, unquantified understanding of library use to identify patterns, behaviors and the innovative ways in which users adapt existing spaces. Starting with a clear purpose will facilitate the design and development process and provide a focus for research and data gathering from implementation to reporting.

The study presented in this paper was sparked by a casual remark regarding the student use of the then newly renovated student center at the FIU, BBC, Hubert Library, the question being: Will students abandon the library in favor of the new furniture and surroundings provided by the student center? A seating study was designed to learn about library users and measure the impact of the new center on library use by comparing use of a traditional study space versus a dynamic, open environment that served as a direct alternative to the library. Though small in scope, the study revealed greater use of the library and provided insights for further exploration. The pilot study also revealed issues related to observation schedules and data recording. For instance, it became evident that an hourly schedule was too onerous for a single researcher and showed little change in usage patterns. A longer gap between sweeps would prove more effective in noting changes.

Methodology and design
Seating “sweeps” rely on a combination of observation, a strong understanding of library spaces and a series of scheduled rounds (or sweeps) to gather qualitative and quantitative information on library user engagement within a particular space at a particular time to identify usage patterns and space needs. Simply put, seating sweeps are easy to design; observational studies reveal what users do in libraries and where they prefer to do it. In “Seating Sweeps: An Innovative Research Method to Learn about How Our Patrons Use the Library,” Linn (2013, p. 511) recommends that in designing new services and facilities, librarians first examine:

[…] what sections of the library their customers seem to prefer, what types of activities they engage in there, and what types of furniture they tend to use because a patron-oriented library takes this into account.
Seating sweeps, Linn notes, are an inexpensive way to gain information for library planners interested in making the most of the effective and efficient use of renovation budgets; however, they also provide an excellent opportunity to produce real data on user behaviors and identify areas of need. Sweeps are a low-budget, low-entry method through which valuable UX data are collected, requiring minimal effort and time to plan and implement, while avoiding the bias of subjective self-reporting.

*Given and Leckie (2003)* introduce seating sweeps as a method to collect data on UXs using ethnographic approaches similar to those employed by researchers engaged in geographic and social science to “investigate research questions relating to shopping malls and other social spaces” (p. 366). They rely on the concept of “spatial data analysis” to establish their own method for conducting seating sweeps in public libraries in two highly populated Canadian cities. *Given and Leckie (2003)* question “What uses do individuals actually make of the public space of central libraries?” The question – what do individuals do in the library – serves as the foundation for any seating sweep or user behavior study.

In its simplest form, a seating sweep is conducted through a series of scheduled headcounts. However, the real magic comes in the form of observations and data analysis. Sweep data can be used to identify information, such as:

- number of users in a space at given time;
- usage patterns by hour or time of day;
- areas of high and/or low use; and
- user behaviors (such as study habits and seating preferences).

Before initiating a seating or space study, researchers should take time to know their spaces. Conduct a few informal observations to formulate a research question and identify concerns that need addressing. The needs of the library will influence the design, planning, and implementation of the seating study; and the amount of staff involvement and reporting.

Several seating studies (*Given and Leckie, 2003; MacDonald and Haug, 2012; Linn, 2013; Parreta and Catalano, 2013*) document the number and variety of each user’s possessions, the activities they are engaged in and demographic information during the sweep process. For the purpose of the study described in this article, demographic information was gathered through a supplementary user survey in which students were asked to note their academic status and their behaviors were recorded through the use of observational notes and photographs.

The methods described in much of the literature on library seating sweeps or user behavior studies relies on lengthy, highly detailed records of individual user behaviors (e.g. Does the user have books? A mobile device? A backpack? Are they checking email? Are they browsing social media sites?). The pilot study described is a scaled-down version of the seating sweeps designed by Linn and the other researchers cited and serves as an introduction to user behavior research and library space use. This is not to say that recording such highly detailed information is irrelevant; rather, the level of detail and data recorded will vary based on the scope and goal of the study. In designing the study, the questions that the researcher first asked were as follows: What do we need to know and why do we need this information? What purpose will the data serve and how can it be used to inform decision-making and guide UX? For example, if a library’s
electrical capacity needs to be upgraded, then information such as the number of students powering mobile devices can serve as valid data points during sweeps. By targeting those elements that serve a purpose, the researcher can streamline the sweep process and still allow room for discovery. A pilot study can serve to identify questions to be explored and determine areas where students and other users gather, while also revealing unexpected usage patterns.

Implementation

Seating sweep study

An initial seating sweep study was conducted at the FIU, BBC, Hubert Library, during the summer of 2014. The study was proposed to identify areas of high volume within the building and the average of the number of users within the building during periods of low and high use to supplement existing gate count data. These periods were identified through an analysis of the reference transaction logs, and corresponded with observations made by library staff. The pilot was conducted between May 27, 2014 and June 3, 2014 with sweeps scheduled at 10 a.m., 2 p.m. and 4 p.m.

During the planning stages, a spreadsheet was designed to record data; columns listed available seating options: study carrels, computer work stations, study group tables (separate columns were used to identify the number of single student users vs groups), individual study tables and individual and group study rooms. A walkthrough was conducted to identify seating options and study spaces; the university’s academic planning office provided official seating numbers. A Google Form was initially created to record headcounts and notes, but it was rejected in favor of a simple tally sheet. The original survey tool was inspired by a similar method reported by MacDonald and Haug (2012) in their “Seating Sweeps Report” on the Edmonton Public Library. In this study, the researchers relied on a Survey Monkey form to document information on users and behaviors during sweeps. While the survey tool streamlined the data entry process (data was recorded instantly), it proved more time-consuming than paper and pen.

A counter was used to take an accurate count of the number of users in each zone based on seating type. These numbers were recorded on the paper spreadsheet and transferred to Excel after each sweep. After the first few trials, the researcher identified the best path to “sweep” through the various study zones without disturbing users.

Despite a decrease in library use during the summer months, the sweeps revealed an average of 57 to 85 users engaging in active study at the Hubert Library between 10 a.m. and 4 p.m. The study also revealed that 57 per cent of Hubert Library users showed a preference for individual rather group study, even when working in spaces intended for group study, such as tables with seating to accommodate four or more users. However, the greatest takeaway was learning that actual library use surpassed perceived library use despite factors affecting the overall student population on campus.

The success of the pilot study led to increased interest in the use of the Hubert Library’s facilities. As a follow-up, a second, formal study was designed to note changes in usage resulting from the addition of two new library spaces: the ASK! Center (a joint-use service point) and a Starbucks café situated inside the library. The second study focused on examining space use in the ASK! Center, a center that combines library services and academic support, and features a new computer lab and seating areas for individuals and groups. Given the data gathered during the pilot study, the second study posited a change in the use of the first floor study area and an increase in the use
of personal devices due to its proximity to the library Starbucks and increased availability of outlets, resulting after the removal of the first floor computer lab. Additionally, the study sought to inform future space design efforts by identifying the types of seating and spaces preferred by students to improve the feel of library “sticky” spaces (informal, flexible spaces where users can gather to learn and exchange information in a social setting).

A similar study was designed to identify areas of high use and overcrowding at the Green Library. Because the Green Library serves the university’s primary campus, the facility must stretch to meet the needs of a larger population, which results in higher demand for space and electrical capabilities. At the Green Library, there is no doubt that library space is in high demand – students crowd into spaces between stacks, or curl up on the floor wherever a spare power outlet is to be found. In this instance, the goal was to gather data on use patterns within the library’s quiet study areas to make changes to the library’s noise policy. At the time of the study, the library features three designated noise levels: quiet, conversation and whisper floors. Chat logs and reference transactions revealed concerns regarding noise levels in the designated quiet floors and whisper zones. As a result, a new sweep study was designed to address this concern. The study revealed that there was confusion regarding the difference between quiet, whisper and conversation areas, particularly what level of conversation constituted a whisper. It also became evident that the quiet floors were often the most overcrowded, especially in the weeks leading up to midterms or finals. As a result, changes were made to address confusion and meet student demand for more quiet zones. The types of seating and behaviors observed in each zone also played a role in determining the best areas for quiet study.

Surveys, observations and photo diaries
While sweeps tell a great story, relying on a single method will only reveal one piece of the UX puzzle. User surveys and observations add an extra layer of information to produce a rich, multi-dimensional understanding of library UX. While sweeps provide a valuable glimpse into library building use, they provide limited insight on user perception and concerns. To address this limitation, a simple three-question survey was designed, along with a diary of photographs.

The survey was created and distributed using Typeform (an online survey tool with a clean, interactive interface that works well across devices and platforms). Email blasts were sent to users through the university mailing list, but the majority of responses were gathered in person. An iPad was used in face-to-face surveying with respondents approached at random. Respondents included students from both campuses and library and non-library users. Survey participants were asked to note where they like to study on campus (respondents could select from a list of university study spaces or enter their own response); whether they do or do not like to study in the library; and why they do or do not like to study in the library. Simple, unambiguous language was used in designing the questionnaire. No personal information was recorded other than academic standing and campus affiliation. The first two questions served as “lead-in” questions, but it was the third question – why they do or do not like to study in the library – that encouraged students to voice opinions and make suggestions regarding library space policies, design and more (not surprising, they had a lot to say).
The survey was conducted at random intervals over a two-week period, in conjunction with the first formal study. According to survey metrics, respondents took a minute and a half to answer the questionnaire. Eighty-three responses were recorded during the two-week period. By conducting a face-to-face, technology-assisted survey, the researcher was able to establish rapport with students and noted that users were more likely to respond to the third question (when compared to surveys submitted by users online). Students often supplemented their responses through conversation, often providing detailed descriptions of their library experience (both positive and negative). During the analysis of the survey, each response was examined, bringing the data into conversation with findings from the observational study.

Some respondents noted the lack of available seating in the Green Library's quiet study floors, the need for library staff to enforce noise policies at both libraries, uncomfortable furniture and temperature control at both libraries and other inconveniences, such as the high demand for power outlets, unreliable WiFi and printing issues and library hours that do not match student needs. A number of respondents praised the library as the ideal place for long study sessions, noting that they feel “more productive in the library than anywhere else”. Another student noted: “it is the only place [where] other students are conscious of their noise level”, and that it is a “good environment to keep focused”. Users who noted that they prefer to study outside the library argued that the library is “too cold and [there are] too many people”, it is “too crowded, [and] not enough outlets to charge my computer” and that there are “too many distractions”. Several students noted that they simply prefer to study at home, perhaps suggesting that cozy, non-institutional seating may be preferable to library study areas.

In addition to the three-question survey, the researcher created a photo diary to record instances of “creative” library space use – students using floor space to create study nooks between shelves, power strips stretched between desks to accommodate multiple devices, step stools used as seating, etc. For the purpose of the study, students were approached and verbal consent sought before pictures were taken (based on university policy for studies involving students). The purpose of the study was explained, and students were informed that their images would not be shared in any public forum. Students were generally amenable and willing to participate once they got over the shock of being approached by a librarian (not surprisingly, many students assumed the researcher was going to reprimand them for their actions).

Photos were taken using the researcher’s iPhone or iPad and saved in a Google Drive folder where they could be organized and easily accessed. This also made it possible to append descriptive comments as needed. Photographs included both candid and close-up shots. The folder was shared with library administration to evaluate usage and rewrite the noise policy. This method is effective as a tool for observation and as a complement to the seating sweep study. A picture not only supplements observational notes and sweep data but also provides a visual impact when reporting findings.

Conclusion
In learning about our users, we learn about our spaces, our services and the role we play in student success. This was especially true when embarking on the second phase of the library study and planning for the subsequent sweeps and observations. Though a follow-up study was initially planned for the Spring 2015 semester, several factors resulted in a change of plan and the scheduled study was postponed until the Fall 2015
Fall semester. Chief among the decision to delay a second sweep study was the library’s participation in LibQUAL+® Lite during the Spring semester. To avoid survey overload among library users, the LibQUAL+® survey results and comments were used to glean information on library UX in lieu of an observational study and survey. An in-depth assessment of open comments was conducted to identify major themes and elements; these were used to report findings and produce a visual map based on UX data identified in the results. Construction at the Hubert Library also played a role in the decision to stall further research. Random sweeps and observations served as the primary methods to assess building use during the interim period; however, it should be noted that while there was a marked decline in building use during the construction period, sweeps revealed that library regulars continued to frequent the Hubert Library in spite of the noise and disruptions.

Though the scale of the study was small, the information produced provided the members of the library with a look at how users interact with facilities. It also provided useful insight on periods of high and low use on weekdays, supplementing gate count reports with real-time data. However, because the study was conducted by a single researcher, sweep data were limited to the researcher’s regularly scheduled hours. In future, a team approach may prove more effective in gathering data, particularly with regard to evening and weekend library use. This will require a cooperative approach to data gathering and recording, but the simplicity of the study design should facilitate the transition from a single researcher to a team-based study. A separate research team would also be ideal in coordinating a systematic study at the Green Library.

A year after the initial study, the library is returning to business as usual. Changes in the number of students within the building are expected, as well as new usage patterns and behaviors. Information gathered during the first set of seating sweeps and observational studies revealed user demands for flexible seating options and lounge-like furniture in the Hubert Library’s first floor study area, as well as areas for improvement at the Green Library, particularly with regard to the library’s noise policy. This data, combined with the results of the LibQUAL survey have now been cited as part of several proposed projects to enhance library spaces and UX, including plans to upgrade seating options on the first floor of the Hubert Library. These plans include the addition of flexible furniture, whiteboards, seating for collaborative study and increased power options. In addition, changes were made to the library’s noise policy and new designations made for silent and conversation zones. Most recently, bean bag chairs were purchased and added to the Hubert Library’s first floor common area based on demands for comfortable, flexible seating (as indicated in the library survey).

It is our goal to learn more about university library users to design spaces that better serve student needs and address existing shortfalls. By conducting seating sweeps and in-person surveys, a visible library presence is established among students, encouraging librarians to step forth from behind the service desk and put a friendly, interested face on library services. In designing a seating sweep or observational study, consider spaces, users and resources to develop a study that targets those areas that most effectively support library improvement efforts. Inform users and encourage them to voice their opinions and let them know that their thoughts can effect positive change in their library. Transparency goes a long way in eliciting constructive feedback so does a clear goal that users and library members alike can get behind.
References

Further reading

About the author
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