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Involving Users in the Library Space Planning: a case study of a branch library in a research university

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Involving Users in the Library Space Planning: a case study of a branch library in a research university

Abstract

As library functions are evolving, many academic libraries are redesigning or renovating their library space to meet the changing needs of their users. This case study describes how a branch library in a Canadian research university reached out to students to identify their needs of the library space using two methods: survey and interview. The results indicate that the ideal library spaces would be a combination of group learning space, individual study space, and quiet space. The study also suggests that computer work stations continue to be in high demand for library users despite the increasing ownership of technological devices among students. This project can be easily implemented by other libraries, particularly a branch or small-sized library, when planning for the renovation or reconfiguration of library space. In addition, the process of conducting this study helped to build a stronger team work environment and to strengthen the library's relationship with its users.

Keywords: *Library Space, Library User, Branch Library, Space Planning, Survey, Interview*

Introduction

The Engineering Library of the University of Saskatchewan in Saskatchewan, Canada is one of the seven branch libraries in the University Library system. It is located in the center of the Engineering Building, and it mainly serves the College of Engineering. There were about 1750 undergraduate students, 350 graduate students, and 230 faculty and staff in the College for the academic year of 2014-2015 (University of Saskatchewan, 2016).

The space of the Engineering Library was originally designed as an atrium of the building, and later with the demand of library services, the space was converted into a branch library. For this reason, it is not ideally designed as a library space. The Engineering Library is a relatively small branch library with a total area of 723 m^2. About one fifth of the space was occupied by stacks, one eighth by staff's working area, and the rest of the space were for students' study space. There were 9 computer workstations, 29 study carrels, 16 tables with 67 seats for group study, and 8 soft seating. In the 2014/2015 academic year, the Engineering Library's staff team consisted of 2.6 support staff members, 0.8 FTE librarian, and a shared branch head.

Due to the strong demand for engineering graduates in the industry, the College of Engineering has intended to significantly increase its student enrollment over the next decade. As such, the College has started to plan for the renovation and expansion of the current building to create more space for learning and research. In the midst of the initial planning stage of the project, a catalyst emerged regarding the learning space needs of engineering students. In late 2014, while the undergraduate engineering programs of the College went through the accreditation process by the Canadian Engineering Accreditation Board, the lack of study space, particularly the group study space in the building was identified by the Board. Therefore, the College approached the Library to discuss ways to meet this requirement in a relatively short period of time. Because both time and funding were limited, it was important to identify the features that are most critical to our users and also meet the accreditation requirements. Like many other academic libraries, the University of Saskatchewan Library strives to transform itself to be a central hub of student learning and research activities. Therefore, we decided to survey our users to identify their needs for library space. Since most of the staff members of the Engineering Library were relatively new to the library, the survey would also allow us to have a better understanding of the space needs of our students.

Literature Review

In recent years, with the dramatic increase in online information resources, the advancement of information technology, the pedagogical improvement in higher education, and the shifting of users' expectations, the library space design has evolved to a learner-centered paradigm. The fundamental drive in this paradigm is that the library space is focused on supporting students' learning. Therefore it is important that learners be involved in the design process. As suggested by Bennett (2009), some of the core elements for designing a new library space include:

> treat students as intentional learners rather than consumers, view the library building as one of the chief places on campus where students take responsibility for and control over their own learning, and employ library staff to enact the learning mission of the university through being educators (p. 194).

As a result of the attention to library space, an increasing amount of literature has focused on the space design or renovation recently. The Journal of Medical Library Association published a special section on library space (Freiburger, 2010a), which included six case studies describing how their respective libraries responded to the requests for space changes and the lessons learned in the process (Freiburger, 2010b; Haynes, 2010; Persily & Butter, 2010; Thibodeau, 2010; Tobia & Feldman, 2010; Tooey, 2010). These studies suggest that it may be only a matter of when, not if, that academic libraries will need to reconsider the space because of the changing needs of library users.

Many of the studies on space planning involved library users to some extent. For example, Norton, Butson, Tennant, and Botero (2013) studied the user needs of library space at the Health Science Center Library of the University of Florida using an online survey and focus groups. They identified that their users needed a library space with enhanced technology and improved infrastructure, and the layout of the library should also foster group collaboration. At the Health Sciences Library of the University of Calgary, a user survey was conducted to determine the needs for the library renovation as a result of the request for library space from the Faculty of Medicine (Vaska, Chan, & Powelson, 2009). They discovered that their users wanted comfortable seating, windows, and places for both quiet study and group collaboration. The users in these studies included students, faculty, and staff served by the library.

There are examples of space activities in other types of academic libraries, in addition to those in health sciences libraries. For instance, Pierard and Lee (2011) reported a space planning project involving library users at the New Mexico State University Library using photo observation and survey methods. Similarly, Hobbs and Klare (2010) conducted their research on planning student study space at the Wesleyan University Library with photo observation and campus mapping techniques. Most recently, Cha and Kim (2015) explored the factors that affect students' choice of space functions in a university library in Netherland using a paper-based survey.

All these studies concluded that user feedback provided valuable information for library space planning, in addition to the traditional planning methods which mainly focused on library operations. However, the majority of the studies were based on the space planning projects in medium to large academic libraries, and required a significant amount of resource support and funding from their administration offices. To the best of our knowledge, very few published articles have focused on the space planning of a small branch/departmental library with limited budget and/or resources for a large scale study. This paper aims to fill the gap, presenting a case study on how the team of the Engineering Library worked collaboratively to identify users' space needs in the preparation for the library's future space planning.

Approach

As discussed in the Literature Review Section, a variety of methods have been used to study the public space of libraries, with the most commonly used approaches including mental mapping, observation, questionnaire/survey, and interviews (May, 2011). Each method has its advantages and limitations; therefore it is necessary to employ more

than one method in order to achieve a more comprehensive understanding of the library space needs. Among the four techniques, survey and interview are often used by library and information science (LIS) professionals, and are easier to implement than other two methods. When the two methods are used in combination, they can provide a great deal of detailed information for library space planning (May, 2011). For these reasons, in a small branch library setting without significant resources and supports, we decided to use questionnaire and interview to gather user feedback on the library space. Because most of the users of the physical space of the Engineering Library are undergraduate students, we targeted this group as the primary participants in our study.

Method 1: Survey

The team of the Engineering Library worked together to develop the survey questionnaire. Aiming to receive broad input from across the Engineering Library's user base, the questionnaire was designed for the simplicity of completion. It included three open-ended questions:

a) What do you want more of in the library?
b) What do you want less of in the library?
c) What do you love about the library?

The survey questionnaire was available online and in-print. The layout of the questionnaire and promotional materials of the survey were designed and implemented by the library assistants in the branch. The online questionnaire was designed using Google Forms. The print alternative was made available at the circulation desk. In order to increase the response rate, survey participants were eligible to receive a library bag, as well as an entry into a prize draw. Three prizes were made up from conference swag and donations from individuals within the library and within the College.

The logo used for promotional materials was indicative of the motivation behind the survey researchers were hoping to find out what the library's users thought about its space, collection and services. Posters (see Figure 1) were put up around the Engineering Library, along with tent cards on all of the learning commons computers in the branch. The survey was also promoted online through the University Library News and Events blog, the main University Library Facebook page, and the University's online bulletin.

Figure 1 Survey Poster

The survey ran during the last three weeks of the fall semester, November 17 until December 5, in 2014. We chose this period because it was the busiest time of the term in the library before final exams when the library was observably busy, helping to ensure a large population to participate in the survey. The timing was also ideal because student activities had not yet switched from homework completion to exam preparation as it would be indicated by a change from collaborative projects to individual study and the change of the noise level.

Results from the Survey

Forty-three users participated in the survey, of which 33 completed the questionnaire online and 10 filled out the print form. The responses to the three open-ended questions were grouped into thematic categories and sub-categories where appropriate. Because many users gave more than one answers to each of the questions, the total responses for each question were more than the number of participants, 43.

Question 1. What do you want more of in the library?

The thematic categories generated from the responses to the question "what do you want more of in the library" included: Space/Furniture, Technology, Hours, and Others. The Others category included

food, collection, workshop, plants, etc. Table 1 illustrates the number of responses in each category and sub-category.

The Space/Furniture category received the most attention, with 55 (47.4%) requests for more in this category. It is not surprising to find that students need more space. The Engineering Library is the only open study space in the building, and most of the time all the study spaces are occupied by students. Apparently, the current study space in the library is not enough. Of these 55 responses, nine specifically asked for more group study space, eight for more individual study space, and two for quiet study space. In this study, individual study space mainly refers to study carrels, while quiet study space is a designated area with low noise and distractions. Quiet study space may include carrels and study tables for students to work in the presence of others.

Table 1. Responses to the question "What do you want more of in the library?"

Category	**# of Responses to Question 1** (percentage of total responses)
Space/Furniture	**55 (47.4%)**
Group study space	9
Individual study space	8
Quiet space	2
Technology	**32 (27.6%)**
Computer	16
Power outlets / extension cord	14
Printer	1
Scanner	1
Opening Hours	**20 (17.2%)**
Others	**9 (7.8%)**
Total Responses	**116 (100%)**

Note: The sum of responses in sub-categories of Space/Furniture does not equal to the number of responses in that category because some of the responses only referred to the category, and did not specify any sub-category.

The category of Technology is another area of which the library users need more. There were 32 (27.6%) responses in this category. Sixteen users asked for more computers. Fourteen users asked for more power outlets. The lack of power outlets has been an outstanding problem in the Engineering Library. Because the library space was not originally designed for library use, there are only five power outlets on the walls, not including those for computer stations. This result indicates that a sufficient number of electrical power outlets should be considered a foundational element for our library's future space planning.

Question 2. What do you want less of in the library?

The responses to the "less" question were coded into five categories: Collection/Stacks, Nothing, Noise, Furniture, and Study Cubicles. Seventeen (40.4%) users wanted less Collection/Stack. This suggested that students needed more study space from another perspective. Ten (23.8%) users indicated an overall satisfaction with the library, by wanting nothing less. Six (14.3%) responses were for less furniture, i.e. study tables and chairs. Detailed responses are shown in Table 2.

Table 2. Responses to the question "What do you want less of in the library?"

Category	**# of Responses to Question 2** (percentage of total responses)
Collection/Stacks	17 (40.4%)
Nothing	10 (23.8%)
Noise	8 (19.0%)
Furniture	6 (14.3%)
Study Cubicle	1 (2.4%)
Total Responses	42 (100%)

Questions 3. What do you love about the library?

The results from the "love" question are listed in Table 3. The highest mentioned category is the environment of the library, which received 21 (30%)

responses, followed by an appreciation of the staff in the library and the library space. The students also loved the library collection. Interestingly, 7 responses about the noise level were split into two directions: 4 loved the library as a noisy place, and 3 loved it as a quiet place, confirming that both collaborative space and quiet space are needed. The students also loved the technology provided in the library, although some felt that we needed to provide more as indicated in the results from the "more" question.

Table 3. Responses to the question "What do you love about the library?"

Category	**# of Responses Question 3** (percentage of total responses)
Environment	**21 (29.6%)**
Shape	4
Location	3
Staff	**12 (16.9%)**
Space/Furniture	**12 (16.9%)**
Collection	**7 (9.9%)**
Noise Level	**7 (9.9%)**
Technology	**4 (5.6%)**
Others	**8 (4.2%)**
Total Responses	**71 (100%)**

As a result of the survey, the staff at the Engineering Library took an immediate action and completed a number of tasks. Two power towers with electrical plug-ins and USB charging ports were installed to solve the issues of lack of power outlets, and two study tables with 12 chairs were added to address student needs for group study space in the library in January 2015, the month following the survey.

Method 2: Interview

In the following semester, interviews of library users were conducted in the Engineering Library in order to get a more comprehensive understanding of the space needs of the users. In-person interviews with students gave us an opportunity to receive feedback from those who might have not participated in the first survey. It also allowed us to learn how serious some of the issues from the first survey might be, for example, the noise level in the library. Another purpose of the interviews was to ensure that students were aware that the library was responding to their feedback from the survey.

The interviews were conducted two weeks before final exams, that was, the week of March 23 – 27, 2015. This was a time of the semester similar to the previous survey in the fall of 2014 in terms of the traffic in the library, helping to ensure a large participant population. Aiming to have a snapshot of undergraduate users in different library spaces and at different times of the day, two staff members circulated the library at a variety of times during the week, seeking participants using different spaces for their individual or collaborative work (carrels, table, etc.). Treats were given to interviewees as a thank you for their participation in the interviews, which was the only direct cost incurred during the whole study.

The interview focused on the following four questions related to issues that were overlooked in the survey and we hoped to gather further qualitative information on the issues identified by the survey:

Question 1: How do you use the Engineering Library?

Four options were provided for this question: team projects, self studying, individual homework, and/or relaxing and socializing. Students were allowed to select all that apply.

Question 2: Do you prefer a collaborative study space or a quiet study space?

This question was designed with three options: collaborative space, quiet study space, or both.

Question 3: What do you think about the noise level in the library?

We were particularly concerned about this question as we had received complaints about noise in the library, and the feedback from the first survey also indicated this was a problem.

Question 4: Do you have any feedback on the library space that is occupied by print collection?

This was an open-ended question. If the student was not sure how to respond, a couple of examples were provided based on the suggestions provided by students that had answered this question previously, such as off-site storage, maintenance of a core collection, transition to online resources, etc. Again with this question, students were allowed to have multiple answers.

Results from Interviews

Seventy-one students were interviewed.

The majority of students interviewed used the library for team projects (n=63, 26.6%), self studying (n=65, 27.4%), and individual homework (n=66, 27.8%). There were fewer students who used the library to relax and/or socialize (n=43, 18.1%). See Figure 2.

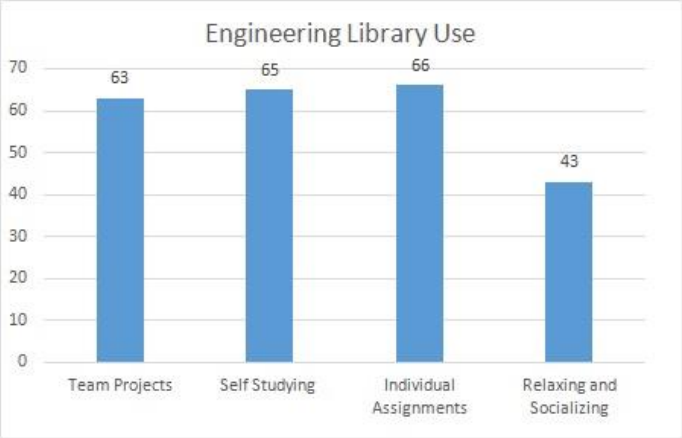

Figure 2 How engineering students use the library.

An overwhelming majority of students stated that they preferred collaborative spaces (n=61, 85.9%). Only a small number of students expressed their preference for quiet study spaces (n=6, 8.4%). Four (5.6%) students preferred both types of spaces. This result is somewhat different from the survey results, where almost equal numbers of responses asked for group study space and individual study space respectively. However, it is consistent with our observations of student use of the library space. Over the past five years, a large number of study carrels have been removed from the library to allow for an increased number of tables and chairs for group work. Library staff also observed that students sometimes used the carrels for a collaborative study space, when there were no group study tables available in the library.

Feedback was also sought regarding students' perception about the noise level. While none of the students thought it was quiet in the library, 40 (56%) thought the noise level varied depending on the time of day and student activities taking place. 11 (15%) students thought the noise level was just right, and 19 (28%) thought it was manageable. The results regarding students' perception of the noise level were also somewhat different from the survey, in which eight users (19%) stated there should be less noise in the library. The interviews also found that the students were comfortable at managing the noise by themselves, with almost half of students (n=32, 45%) simply wearing headphones when the library is too noisy, 8 students (11%) indicated that they would go to another branch, and 3(4%) would vary their hours in the library.

For Question 4 regarding how to best use the space for current print collection, eleven themes arose from the interviews. The most notable answers include 20 students (24%) who said they did not care, and 15 students (18%) who stated that only the core collection needs to be kept on site. Detailed responses can be found in Figure 3. There is a general agreement about reducing print collection for more study spaces. During the interviewing process, we were pleasantly surprised at how knowledgeable the students were about alternative solutions to stacks for the print collection, as many of them stated solutions such as retaining only a core collection, adding compact shelving or collapsible shelving, or transferring the print collection to either an on-site or off-site storage facilities.

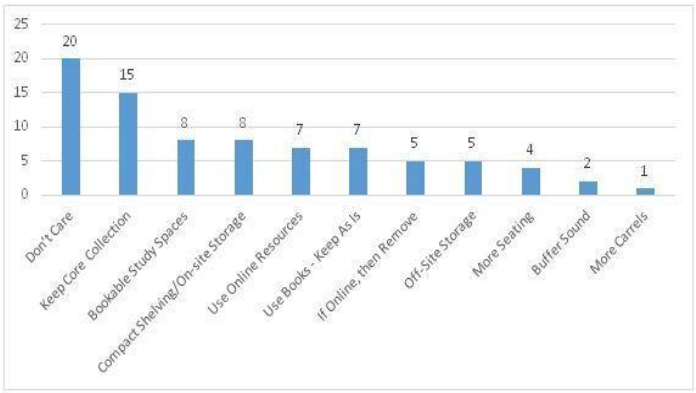

Figure 3 Solutions to the print collection.

Discussion

The way the space of academic libraries is used is evolving, and many academic libraries are responding to the changing requirements by redesigning, renovating, or reconfiguring their library spaces. Applying two methods: survey and interview, this case study describes how a branch library in a research university identified its users' needs in order to plan for the renovation of the library in the future.

The results show that library space is a concern to users as indicated by 47% of the responses in the survey asking for more study spaces in the library. This finding confirms that one of the most important functions of an academic library is to provide learning spaces to its users, which is in line with many of other studies on library space as cited in the Literature Review. This study also finds that students need a variety of spaces for collaborative and quiet studying, though the feedback regarding students' study space from the accreditation report of the College of Engineering mainly focused on increasing group study area. It was noted that while many participants were asking for more study space in the survey, 6 responses also indicated that they wanted less furniture in the library. As furniture is associated with study space, these responses can be viewed as a perspective of the crowdedness in the library. This finding implies that crowdedness is another element that our users care about, echoing the findings of the study by Cha and Kim (2015) which alerts library administrators of the need to balance the demand for more study space and the desire for an uncrowded space when planning for the renovation of the library.

One interesting finding is that students still want computer stations in the library although almost all university students have their own laptops (North Carolina State University, 2015). This is consistent with our observations that almost all the computers in the library are used all the times during the day. A few reasons may account for this. First, the majority of university students have smart phones (GlobeNewswire, 2013) to receive emails from their instructors, chat with their friends, go to social networks, or conduct simple internet searches. Second, because of the increasing usage of cloud storage, students can access and share their files from anywhere. Therefore, students may not feel that it is necessary to carry their laptops all the time. However, they do need to have computer stations to work on their assignments and conduct research when they are on campus, and the availability of computers in the library becomes their choice. In the planning for the library space, computer stations and other associated technologies, such as power outlets and printers, should be considered as one of the key factors.

Surprisingly, though technology is the second most wanted category, the specific technologies mentioned in this category are still more traditional types such as computers, power outlets, printers and scanners. None of the responses indicated a desire for newer technologies such as 3D printing or a maker space in the library. An increasing number of academic libraries have implemented these new technologies as part of library services, and have achieved success to various degrees. As engineering students are heavily involved in design projects, 3D printing has been recognized as an innovative way in engineering education to enhance student learning, enabling students to easily connect theoretical concepts with real world applications (University of Virginia, 2015). We had initially considered exploring the possibility to implement a 3D printing service as part of the library renovation project, and speculated that the reason for this result might be that the students were not aware that this new technology could be offered in the library. We also found that the College of Engineering already has such technology in place. As such, with the limited space available in the Engineering Library, offering 3D printing service is no longer a priority. While there are many common attributes for library space, each library has its own unique needs, and the library space design must consider the needs of its users rather than simply following a prescribed standard or trend (Vaska et al., 2009).

This project can also be seen as a team building exercise as the library assistants and librarians worked together on the entire process and gained a stronger sense of teamwork as a result. The library assistants in the Engineering Library played an instrumental role in the survey, being responsible for its design, promotion, and implementation. The

project also benefited from the individual talents of each team member which ultimately generated greater creativity. Because all the employees of the Engineering Library were relatively new either to the branch or to the University Library, this project allowed us to have a better understanding of the needs of our users, confirmed some of our assumptions, and also identified some gaps in our services that we would not have known otherwise. Finally, it gave us more confidence for the planning of the library space in the near future.

An additional benefit of the project was that it strengthened our relationship with library users. It was observed that students who participated in the first questionnaire survey were not as keen on receiving the incentive as they were to provide feedback, indicating that the students were interested in contributing to the improvement of the library. During the face-to-face interviews, staff members were delighted to see how willing the students were to participate in the interviews. This project provided our users with an opportunity to shape the future of the library, and further enhanced the sense of "my space" within the library.

This case study has several limitations. First, the survey and the interview targeted undergraduate students only. It is quite possible that faculty, staff, and graduate students may use the space and the collection differently. Therefore, it may be necessary to conduct a further survey to find out the specific needs of these users. Second, while we attempted to gather feedback from individuals in the College of Engineering who may not use the library space on a regular basis by placing a whiteboard outside the library entrance, it was not successful in terms of the responses received in this way. It is likely that the responses might be mostly provided by those who use and care about the library. This is particularly a concern for the second research method – interview. Interviewing users in the library would only reach the users who were physically in the library, and we missed the feedback from those who were not in the physical space. For example, those who thought the library was too noisy might have stopped using the library as a study place. Third, we acknowledge that the number of responses to the questionnaire was limited when compared to the number of students in the College of Engineering. Therefore, the responses were not necessarily representative of all the users of the library that we hoped to reach. Other approaches to promote the survey should have been explored. Nonetheless, the results have provided us important information for the planning of the future Engineering Library. In addition, the aim of this study was to find users' needs about library space, however, not all the questions, especially the three open-ended questions in the survey, were specifically designed for space issues, though most of the feedback we received were related to space. The questions could be more clearly defined if this method is applied in other similar settings.

Conclusion

As more and more libraries are reconsidering their library space, identifying the needs of users will be an essential step of the space planning. This case study describes how an engineering library reached out to students to identify their perception about the library space using two mechanisms: survey and interview. The authors found that the two methods were particularly useful within a small branch library. The survey with three open ended questions targeted to identify the users' perceptions of an ideal library and the gaps of the current library's space and services. Interviews further clarified some of the issues identified in the survey and provided more in depth data on our users' behaviors of using the library space, for example, how to manage noise in the library. The interview also provided opportunities to find information that was overlooked in the survey, e.g., how to better locate the current physical collection. The study found that ideal library spaces would include collaborative work space, individual space, and quiet space. It is important to balance the need for increased study space in a limited footprint with the demand for comfortable, spacious, and uncrowded space. The study also identified that computer work stations continue to be on high demand for library users despite the increasing ownership of technological devices among students.

This project could be easily implemented by other libraries, particularly in a branch/small library,

when planning for renovation or reconfiguration of their space. It did not cause a large strain on resources, such as personnel and operational resources, and has had additional benefits to the library. Furthermore, involving library users in the space planning helped to strengthen the relationship between the library and the users. Finally, by having every employee showcase their talents and creativities, the project received greater buy-in from the staff and has helped to build a stronger working team.

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CALA Occasional Paper Series

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