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LIBRARY SPACES DESIGNED WITH STUDENTS IN MIND: AN EVALUATION STUDY OF UNIVERSITY OF QUEENSLAND LIBRARIES AT ST LUCIA CAMPUS

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Abstract

Abstract: This paper identifies the design qualities of library spaces that matter the most for university students. Drawing upon the data from an online survey made available to students from the University of Queensland, Australia, a number of design-related considerations are examined including: acoustics, furniture, interior architecture, lighting, and thermal comfort. 1505 students completed the survey, which aimed to assess how effective and responsive library spaces are in meeting students' needs and supporting their learning experiences. The survey included 'Likert scale questions' requiring students to rate their levels of satisfaction with different aspects of library spaces and 'open-ended questions' asking students to elucidate their ratings. Findings revealed that the qualities of physical spaces were ranked as the third most significant category of reasons accounting for students' preference for certain library buildings over others, and for their frequency of visit (behind "location" of the library building and then "access to books and course-related materials or resources"). Design-related themes which emerged from qualitative analysis highlighted students' awareness of the impacts that the design of spaces and furniture can have on their learning experiences. The study concludes with recommendations informed by students' expectations, needs and preferences in relation to the qualities and features of library spaces.

Keywords

Academic Library Spaces, Building Design, Student Experience, Post Occupancy Evaluation

1. Introduction

Libraries within academic institutions have faced major pedagogical, social and technological changes. These changes have required libraries to revisit the provision of services and facilities to accommodate students' changing needs, learning styles and preferences. Library development and refurbishment projects have been completed to create a variety of learning spaces for individual study and group work as well as a range of social and informal spaces. For many institutions, a key question is; what is the right balance of different learning settings or space types in a library building?

Existing research and post-occupancy evaluation of new and refurbished libraries provide important insights into different learning spaces, design standards and considerations for academic libraries. Nevertheless, determining the right balance of different space types in an academic library depends on the educational context of that library, students' demographics and their patterns of library use. Identifying this balance requires ongoing evaluation of library spaces and, in particular, of students' experiences of these spaces and how they utilise existing learning settings in a library.

This paper reports on part of the findings of a major evaluation study of physical spaces, in different branches of the University of Queensland (UQ) Library. The evaluation was carried out in 2013 via two survey instruments – one made available to students and one to library staff – and a walk-through observational study. The focus was on perceptions and experiences of library spaces and the positive features of these spaces. The findings from the student survey indicated that “design-related factors” were the third most significant category of reasons impacting students' frequency of visits (“location” of the library building, i.e. proximity to other major buildings and bus stops, was the most significant reason followed by “access to books and course-related materials or resources”). The importance of library spaces was further highlighted in students' responses to open-ended questions.

The paper starts with a brief description of the context of the evaluation study i.e. the aims and expected outcomes, followed by a summary of the study methods including the survey instruments and participants. A detailed discussion is then presented on the positive features of physical library spaces identified from the qualitative analysis of 1127 students' responses to one open-ended question of the survey. Finally, drawing upon the findings of the qualitative data, a number of recommendations are made for designing library spaces that best support students' needs and learning styles.

2. Background and Context

A review of some of the major findings of the UQ Library Client Survey, carried out by insyncsurveys in 2012, identified the need to conduct a further evaluation of library spaces. The results of that survey suggested “facilities and equipment” as among the three highest priority categories for the library users after “information resources” and “library staff.”

This evaluation project therefore had three primary aims:

1. Determine if the library spaces are effective and responsive to students' and faculty's learning and teaching needs;
2. Identify areas of weakness and strength in relation to library spaces; and
3. Develop recommendations for future improvements to spaces.

While the study looked at the quality of physical spaces in all UQ Library Branches, three libraries at St Lucia campus were selected for an in-depth investigation of students' pattern and frequency of space use, satisfaction with the quality of spaces and preference for certain spaces.

3. Methods

The evaluation study was guided by a theoretical framework identifying six key factors to be considered in the planning and design of library spaces; highlighting that library spaces should: (1) be functional; (2) be learner-centred; (3) be environmentally sustainable; (4) be socially inclusive; (5) effectively integrate technology; and (6) foster inspiration and student engagement. The data was collected through three methods: (1) walk-through observational study; (2) student survey; and (3) library staff survey. In this paper, we draw upon the data from the student survey.

3.1 Survey Instrument

The online survey of “Students’ Experiences and Perceptions of Library Physical Spaces” included three sections: (1) library user’s characteristics and patterns of library use; (2) quality and function of library spaces; and (3) survey sections focusing on three case studies of Social Sciences and Humanities Library (SSHL), Biological Sciences Library (BSL), and Walter Harrison Law Library (WHL). To examine the quality of existing spaces in the library and students’ experiences of these, the survey asked questions about students’ satisfaction with the overall quality of library spaces as well as specific factors: lighting, furniture, acoustics, thermal comfort, and wayfinding. To determine the areas of weakness and strength in relation to physical library spaces, students were asked to provide comments on the positive or negative factors affecting their preferences for certain library spaces.

3.2 Participants

2440 students started the survey (only 1505 students completed the survey). 77% of the survey respondents (n=1873) were aged between 18-24, with 78% studying for an undergraduate degree (n=1905). Given this, it can be said that the data largely reflects undergraduate students’ perceptions and experiences of library spaces. This paper focuses on what students considered as positive features of the library spaces; examined in one Likert scale question and an open-ended question. Students were asked to rate the importance of five statements in relation to library spaces: (1) ‘The library is a quiet place to study and work’; (2) ‘The library has a pleasant ambience to relax’; (3) ‘There is a quick access to information including printed and electronic materials’; (4) ‘I can meet my friends’; and (5) ‘seeing other students studying encourages me to study’. This question was followed by asking students to list other reasons, in relation to spaces/buildings/physical environment, why they choose to come to the library. 1127 students’ responses were recorded and coded according to 16 major themes.

4. Results & Discussion

The design, including interior design - comfortable chairs, stylish environment, open spaces, unique styles and variation in every library and area, variation in social interactions around the place (noisy and crowded to extremely quiet and isolated), and the view from the windows is inspiring (Female undergraduate student).

Students’ responses to the question of the relative importance of certain qualities for library spaces identified as most important ‘the library as quiet places,’ followed by ‘quick access to information’ (*There is a quick access to information including printed and electronic materials.*) and ‘pleasant ambience’ (*The library has a pleasant ambience to relax.*). 1127 students’ responses to the open-ended question about positive features of physical library spaces were coded under 16 themes, presented in Table 1 in order of the number of references by students. As the analysis was restricted to comments addressing aspects related to the design of physical spaces, comments relating to the proximity of the library to other buildings, parking or bus stops at the campus were excluded from the data. A detailed description of each of the 16 features of library spaces is presented in the following sections.

4.1 Quiet and Peaceful Environments

75% of the students (n=1650) thought that it “very important” that “the library is a quiet place.” The significance of this quality was further supported through the qualitative analysis of students’ responses to the survey open-ended questions. Students’ use of the word “quiet” and related terms were found in 532 references throughout the survey. Students’ responses suggested that the importance of “quiet” is not only in terms of providing a space to concentrate or study in. Many comments suggested that students choose to visit the library as a place to reflect, de-stress, and relax:

Solitude ... The library is perfect for peace of mind, meditation and relaxation during a hectic day on campus (Male postgraduate coursework student).

Positive Features of Library Spaces	No of Ref
1 Quiet and peaceful environments	242
2 Good library furniture	224
3 Nice atmosphere / Pleasant ambience / Interior architecture / Clean	200
4 Conducive environments for motivation and concentration	194
5 Air conditioned environments / Pleasant indoor temperature	160
6 Group spaces / Spaces for collaboration	133
7 Individual study spaces	128
8 Access to power points to charge laptops and phones	107
9 Comfortable places in the library	93
10 Good lighting	58
11 Access to amenities, food, drink and café	55
12 Privacy needs i.e. not overcrowded and supporting visual privacy	38
13 Variety of learning spaces in the library	29
14 Proximity of books and journals to study spaces	24

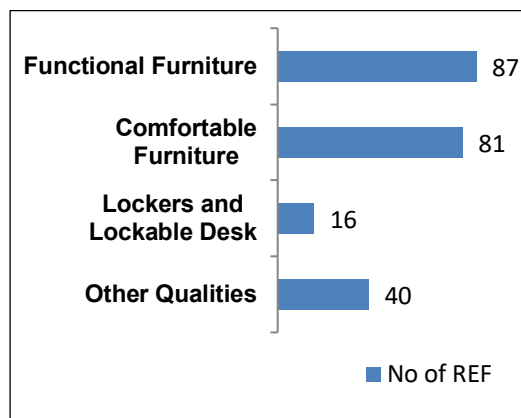
Table 1: Key positive features of physical library spaces, UQ libraries

4.2 Good Library Furniture

The second most cited positive feature of the library spaces was the quality of furniture. In particular, ‘functionality’ and ‘comfort’ were highlighted above ‘aesthetic qualities’ such as an attractive and colourful design. Students were critical of couches and ottomans placed in some libraries which have taken up spaces at the expense of individual study desks or group work spaces.



Figure 1: New Journals Lounge known as the Hive in SSSL, “Nice comfy Hive furniture makes it a lot easier to chill out after studying for a few hours non-stop.”



Specific functional considerations identified within students’ comments included: (1) ergonomic considerations in the design of tables and chairs i.e. adjustability of heights; (2) dimension of tables or useable working areas; and (3) particular design consideration i.e. ‘moveability’ of

chairs and tables to accommodate different arrangements and group sizes, 'shelving' for arranging textbooks in individual study desks or carrels, and 'ample size of computer desks' to allow for multiple modes of study. Lockers or lockable desks were also suggested by 16 students as positive features of the library that they had visited.

4.3 Nice Atmosphere / Pleasant Ambience / Interior Architecture / Clean

The third most cited positive quality of the library identified nice atmosphere and pleasant ambience. Students described such spaces as having "a vibe and sense of the learning environment without the stress and hassle," "familiarity of home away from home" as well as being "inviting," "welcoming," "cosy" and giving "a sense of personal space" (75 Ref). Having a connection to the outside and being able to look through a window appear to contribute to a pleasant ambience (24 Ref).

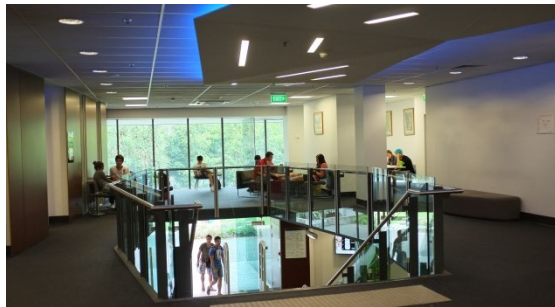
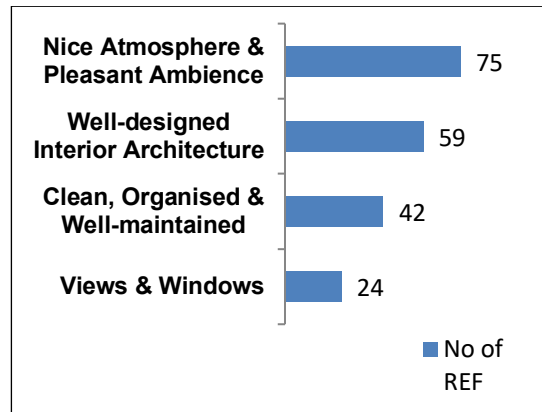


Figure 2: A view of the first level of BSL, *"I particularly enjoy having a view of ovals, people walking past, trees, etc. when I study ... When I'm just looking at other buildings, I find it depressing."*



Descriptions of these qualities included aspects of interior architecture including spaciousness, choice of colour themes, and lighting design (59 Ref):

I like to study in the X library because the colour i.e. neutral brown I find is more relaxing than the fluoro white of the Y library individual study space area - it's a bit off putting.

Comments coded under the theme of "interior architecture" also highlighted the importance of open plan layout, zoning and grouping of different space types of study settings:

The lay out of the library is very convenient in terms of researching for books, printing and using computer ... I prefer open spaces. Being cramped into a booth makes me stressed.



Figure 3: The indoor Garden in Ipswich library of the University of Queensland

An example of good interior design repeatedly mentioned by students is that of the library at Ipswich Campus, which has an indoor garden with a stream running through trees and plants:

The beautiful, relaxed, happy, stress free environment at Ipswich library always helps me during times of stress. The trees block much of the noise too.

Finally, 42 students addressed the importance of "clean, well-maintained and organised environments" in contributing to a nice atmosphere and pleasant ambience in UQ libraries.

4.4 Conducive Environments for Motivation and Concentration

Ambience: The formal ambience of the library is the perfect motivation for hard work and productivity. I get more done in the library than I do anywhere else.

Students' comments highlight the role of library as a place conducive to study; fostering motivation for study and supporting concentration on the task. Comments under this theme included references to an environment that: (1) imposes little or no distraction; (2) offers environmental comfort i.e. lighting and temperature; and (3) has positive psychological impacts of being in a community of learners when compared with students' homes. This particularly appeared to be important for international students whom, it might be deduced, may not have had access to living spaces with quality lighting and indoor environmental comfort.

It's a quiet, comfortable place to spend time in, and it is harder to get distracted ... Main important thing for me is that seeing other students studying encourages me to study and finish my assignment on time ... and generates a sense of community and support.

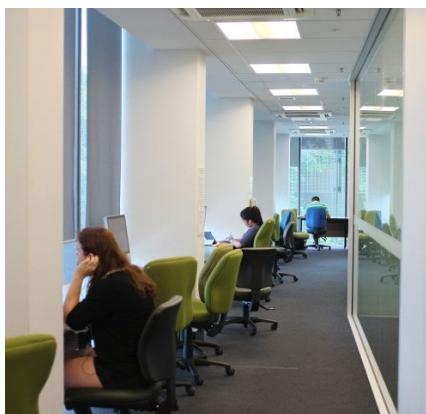


Figure 4: Two different spaces in BSL, "In BSL, I really appreciate the quiet and serious of attitude. The white walls and lights really help when studying, it has that psychological effect that you need to do serious work."

4.5 Air Conditioned Environments / Pleasant Indoor Temperature

160 students mentioned comfortable indoor temperature, especially on hot days, as a factor that encourages them to visit one of UQ libraries. There were also occasional complaints about air-conditioning being too cold in some areas.

4.6 Group Spaces / Spaces for Collaboration

133 students stated that a positive feature of UQ libraries is the provision of spaces where discussion is allowed and they can collaborate with peers. From this number, 70 references were made to rooms where groups could work without disturbing students studying individually. Students' comments also highlighted a number of considerations to support collaborative activities in these spaces; including equipment for displaying information in a group setting e.g. projectors and screens, whiteboards and large tables. The issue of noise was mentioned in relation to some group rooms with poor acoustic isolation.

4.7 Individual Study Spaces

Clearly, for many students the library remains a place for studying individually in private and quiet spaces. 128 students' comments referred to having spaces to study individually as a positive feature of UQ libraries. From this number, 39 references were made to 'individual study carrels' (terms used included individual study desks, boxes, cubicles and booths) and 27 comments specifically addressed the usefulness of 'individual study rooms' in UQ libraries:

The individual study desks offer a lot of room and privacy to assist with my quiet studies.

I really like the individual study rooms on the top floor of Dorothy hill because they are closed off and free from distractions so I can work efficiently and effectively.

4.8 Access to Power Points to Charge Laptops and Phones

This feature was referred by 107 students, with some comments highlighting access to power point as a key consideration for the study desks and tables.

4.9 Comfortable Places in the Library

Comfort was mentioned by students throughout the survey 1154 times, and 93 references were made specifically to comfort in the open-ended question on positive design features.

References to comfort were made in relation to the furniture, indoor temperature and generally comfortable environments. For students, comfortable places in the library are “generally clean and tidy,” “with little distraction and noise,” “without being too packed with many students,” and “providing a comfortable condition to study and relax.”

4.10 Good Lighting

Good lighting which creates a calm atmosphere without an “oppressive feel,” was suggested as a positive feature of library spaces by 58 students. References were also made to having a degree of control over lighting i.e. desk lamps in some individual study spaces.

4.11 Access to Amenities, Food, Drink and Café

29 students referred to easy access to clean bathrooms and water fountains as a positive feature of the library spaces they visited. In addition, being allowed to consume food and drink in the library spaces and proximity of a café were also mentioned as positive features (26 Ref).

4.12 Privacy Needs

38 references were made to the issue of privacy, with 21 students directly referring to ‘visual privacy’ (“*viewing other students or movement of people passing is distracting and hinders concentration*”) and 17 comments addressing the positive feature of library spaces as ‘not being overcrowded’:

The cubicles are good so that you can keep whatever you are doing privately and away from prying eyes if you feel self-conscious about it. It also gives you your own space which I feel is thoroughly important.

4.13 Variety of Learning Spaces in the Library

If I want to concentrate, I can access a study booth or a quiet study area. If I want to collaborate, I can book a group room. Whatever the case, there is an area/resource to suit my need at the time.

29 participants suggested that a positive feature was the availability of a variety of spaces giving them the flexibility of spatial choice e.g. quiet individual desks, large group tables, informal group seating, private rooms, and short-term quick access computers.

I like the variety of spaces. If I get bored of sitting in a silent area, I can move somewhere more lively, and when that distracts me too much, I can move back to the silent area.

From these comments, the importance is identified of “zoning” i.e. the appropriate grouping of the different study settings:

The different levels of quietness make it easy to study individually or with a group.

It should be noted here that the three libraries included in this study are in close proximity of each other, meaning students have the opportunity to choose where to study:

My mood and study needs generally match the library I choose. For group work I like large group tables or group room with an overhead screen (BSL). For quiet study I will use the law library, which has great desks. And I like the SSAH for its atmosphere and location.

4.14 Proximity of Books and Journals to Study Spaces

This feature was mentioned by 24 students, highlighting two dimensions: (1) the practical dimension of quick access to the printed materials while studying; and (2) the psychological dimension of feeling good about being surrounded by books and its encouraging potentials:

I find the aesthetic of libraries in general - the tall shelves full of books - to be really comforting and nice to study in.

5. Concluding Remarks

We conclude with five recommendations to consider in library space development projects:

5.1 Examine design related strategies to control noise and create quiet spaces

A key design challenge is how to create physical environments conducive to quiet study, that minimise distracting noise and create a peaceful atmosphere. A number of design strategies to improve acoustics include: (1) adopting appropriate zoning of quiet and noisy spaces; (2) using sound absorbing materials on the dividing walls or screens; and (3) using clear signage in proper locations to promote more positive students' attitudes, behaviours and patterns of use.

5.2 Address library furniture considerations

A detailed discussion on considerations for the library furniture is not within the scope of this paper. However, a key factor contributing to the good design, selection and arrangement of library furniture is the provision of a range of furniture that meets different students' needs and preferences. For example, while some students suggested individual study carrels as a positive feature of the library, others stated that they would prefer "studying at larger tables with others rather than single booths." Access to power points is another important issue for students particularly relevant to the design of library furniture e.g. integrating power sockets in tables or desks. A range of creative strategies have been adopted by libraries to provide safe and quick access to power from the floor or ceiling, while maintaining the flexibility of spaces.

5.3 Invest in the comfort, look and feel of the interior architecture

Qualitative analysis of our survey identified environmental comfort among the top reasons for students visiting the library, especially during breaks between classes. Our analysis suggests that there should be two primary aims in this respect: (1) providing for thermal comfort during summer and winter while being energy efficient; and (2) maintaining visual connections through the utilisation of views through windows or glass partitions. Students' comments in our survey described library environments conducive to study that were uncluttered, clean and ordered; not looking crowded; and having appropriate indoor temperature, adequate mix of natural and artificial light, and comfortable furniture allowing long periods of study. It is also important to create less formal spaces that encourage creativity and reflection. Students' comments also highlighted the importance of the psychological dimensions of seeing other students studying, being among books, the studious environment of the library, and the fewer sources of distraction compared to home environments. But whilst 'visual connection' to a community of learners is important, so too is the need for 'visual privacy' in quiet individual study spaces.

5.4 Maximise choice of study spaces and closely examine specific requirements of every learning setting / space type in your library

Students have different preferences for background noise while studying. They may have different tasks at hand or be engaged in different learning activities with different requirements. This suggests a successful strategy is providing students with choice between varieties of space. If the library is to include social spaces, multiple functions in these spaces should be clearly defined and their adjacencies to dedicated quiet spaces carefully considered. In addition to creating different learning settings, it is essential to determine the right balance between individual and group study spaces, and between formal and informal learning zones.

5.5 Conduct ongoing assessment of the quality of physical library spaces

Ongoing assessment is clearly the key to understanding students' experiences, needs and preferences in relation to physical environments, identifying areas of strength and weakness and making informed and evidence-based decisions about future improvements to academic library spaces. Determining the right balance of different learning settings and space types should be an important focus of such assessment. To achieve this, libraries need to carry out ongoing evaluation of their students' patterns of library use, examine learning and teaching needs and review the educational visions and specific contexts of their institutions.

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