Transforming Academic Library Spaces: an evaluation study of Deakin University Library at the Melbourne Burwood Campus using TEALS

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Abstract
Libraries worldwide are transforming their spaces to better align with the changing needs of their communities. The aim of this paper is to outline the process and outcome of an evaluation study of transformed academic library spaces at the Melbourne Burwood Campus using TEALS. In light of changing higher education practices and students learning preferences, Deakin University has been questioning the balance of informal learning spaces and more formal teaching and academic spaces across its campuses. Commissioned by Deakin University Library, TEALS (Tool for the Evaluation of Academic Library Spaces) was developed to evaluate academic library spaces. The Melbourne Burwood Campus library has undergone several phases of refurbishment to create a library environment that is centred around students’ needs and that supports their individual and group learning experiences. In addition, areas of the library yet to be improved will undergo a major redevelopment over the next year. Given this, carrying out an evaluation of the current spaces is timely to ensure that a better understanding of the impact of changes is achieved. The evaluation process involved: a review of architectural plans and space briefing documents; an observational study of spaces; focus groups with students and library staff; and an online survey of Students’ Library Experience. Use of the TEALS space evaluation tool along with an analysis of data collected during the evaluation process have provided significant insights into various dimensions of the quality of new library spaces. The areas of weakness and strength identified in the study will inform the next phase of Deakin University Library space redevelopment.

INTRODUCTION
Academic libraries have long realised the need to examine the impacts of transformation of spaces as this element is often lacking in the evaluation of library space redevelopment projects. While the refurbishment of library spaces is invariably followed by a sustained increase in student visits, an accessible framework for evaluating components of newly developed spaces and the possible impact of transformed spaces on students’ experience has not been available. Understanding what makes the right balance of space types is important i.e. formal and informal spaces, quiet individual study spaces, collaborative group learning spaces and technology-rich project rooms, spaces for collection and spaces for people. A project commissioned by Deakin University Library aimed to address this situation and it specified two key outcomes: firstly, to establish a library space evaluation framework; and secondly, to assess the best allocation and equipping of space to meet...
diverse student needs, faculties’ teaching and learning requirements and curricula, social and cultural contexts. Two project phases thus evolved: firstly the development of TEALS (Tool for Evaluating Academic Library Spaces) and secondly the application of the tool in a trial evaluation of the Melbourne Burwood Campus library. A third phase of the project will be to utilise these results to inform a major redevelopment of library spaces planned for mid-2012.

**BACKGROUND & CONTEXT**

Acting as a visible component of Deakin University, the library at the Melbourne Burwood Campus had over 660,000 visitors in 2007. An analysis of the library spaces which had undergone a refurbishment in 2000 revealed the inadequacy of the existing facilities. A space utilisation survey carried out in 2007 found that “for significant periods of the week there were significantly more students using the library than there were available workstations and study carrels”. The feedback from students and staff also pointed to inflexibility of the library spaces, lack of seating and a need to incorporate innovative learning spaces within the Library—where information, IT and assistance services, as well as flexible, formal and casual study spaces are available in one place”¹.

Realising the need to improve the library’s ability to better support the learning needs of students, the university allocated $1.24m for the Phase 1 refurbishment of the Library at the Melbourne Burwood Campus. Pedagogical changes and advances in technologies brought to the fore the need for the library facilities to be technology-rich, supportive of individual and group learning modes, welcoming and inclusive.

**Visions for Change and Design Responses**

The refurbishment project in 2008 aimed at improving students’ learning experience by incorporating new generation learning spaces into existing library buildings. The main intention was “to increase the learning spaces available to students on campus, mainly through the use of new furniture and equipment”. Zones were defined to communicate the purpose of different spaces and outline refurbishment objectives². The refurbishment had clearly positive results, with visits to the library increasing by over 30 percent in the year following the improvements. The huge increase in visitor numbers has been sustained and in 2011, visitors to the Library at Burwood exceeded 1,000,000.

A review of documentary data and an initial walkthrough observation and interview identified four key goals which guided the Phase 1 building refurbishment:

1. **Transformation of the library from a “book warehouse” to a “people place”**³: The ground level of the library used to be filled with shelves of books spaced across the entire

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¹ Deakin University Library, 2008, Library Refurbishment Project, Melbourne Campus at Burwood: Project Brief
² Ibid.
level Study spaces were secondary to the collection, with students having access to individual library carrels located around the perimeter of the building. One of the objectives of the renovation was to reverse this use of space, transforming the library from spaces filled with shelves of books to spaces which encouraged student choice – spaces for students working individually or learning and studying together.

<table>
<thead>
<tr>
<th>Zone BEFORE refurbishment</th>
<th>Key objectives</th>
<th>Zone AFTER refurbishment</th>
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<tbody>
<tr>
<td>Zone 1</td>
<td>This zone was mainly dedicated to the entrance space and service desk. It also accommodated some staff spaces.</td>
<td>Creating a welcoming entrance and improving functional efficiency</td>
</tr>
<tr>
<td>Zone 2</td>
<td>The zone mainly accommodated computers, information desk and a computer laboratory.</td>
<td>Creating a gathering space to meet and learn</td>
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<tr>
<td>Zone 3</td>
<td>The zone was filled with bookshelves including the periodicals.</td>
<td>Improving the flexibility in the reconfiguration of spaces and service delivery</td>
</tr>
<tr>
<td>Zone 4</td>
<td>The zone accommodated staff area and training rooms.</td>
<td>Providing opportunities for interactions beyond classrooms, allowing a choice of study options and engagement with information</td>
</tr>
<tr>
<td>Zone 5</td>
<td>The zone was a computer lab.</td>
<td>Integrating Information and Communication technologies throughout spaces</td>
</tr>
</tbody>
</table>

Table 1. The five zones defined during the Phase 1 refurbishment project in 2008

2. Creating a welcoming and inviting entry: There was concern about the impression that the library spaces left on students upon arrival. Students' first impression was that the Library appeared to be very daunting. As a newcomer, a student entering the library was confronted by a wide and long open space overly-lit by bright-white fluorescent lighting. In informal discussions, some students said that they'd been discouraged by this vista and the first time they entered the library, they doubled back and exited immediately. Creating a welcoming and inviting entry was one of the key requirements of the spatial transformation.

3. Encouraging way-finding: The library floor plan had changed iteratively over several decades and it lacked a ‘master plan’ vision. The central staircase had become “invisible” to students. Students found it difficult to find their way around the library spaces. Facilitating way-finding, encouraging readability of spaces and flows from one area of the building to another without excessive signage were among the key objectives of the Phase 1 library refurbishment.

4. Maximising the existing budget adopting creative approaches: As the refurbishment project was being undertaken in a period of economic constraint with a limited budget, creative ways of defining a variety of spaces were considered a priority.
Methodology

The Deakin University School of Architecture’s evaluation tool - TEALS - was applied to evaluate the physical spaces of the library. The process of formal evaluation was multi-faceted and the study involved:

1. An observational study which was guided by the TEALS tool “Observational Study List”
2. One focus group with the library staff and four focus groups with students
3. Collecting data by an online survey instrument, “Students’ Library Experience Survey”

The key purposes of the student focus groups were to evaluate the online survey instrument prior to rollout and to collect qualitative data on the ten Criteria of Quality in Academic Library Spaces within the TEALS tool box. The Student Library Experience Survey was developed as an online survey instrument to reach a cross-section of students regardless of location, whether on the campus or away from the campus. The survey aims to collect information about physical space of academic libraries from the students’ perspective. Survey participants were asked a set of questions about the building’s general characteristics and their patterns of library use. This was followed by a set of questions around the quality of physical spaces within the library and their perceptions of and levels of satisfaction with these spaces. The survey was anticipated to take up to 30 minutes to complete.

TEALS: a Tool for the Evaluation of Academic Library Spaces

TEALS aims to establish a framework for the evaluation of academic library spaces, whether new or refurbished libraries. The methodological framework of TEALS comprises four key elements: defining Criteria of Quality (CoQ); identifying Quality Indicators; evaluating library spaces against QIs; and interpreting results for future improvements.

TEALS’ ten Criteria of Quality are criteria for measuring if spaces are working well and accommodating users’ needs. The criteria include general functional requirements of the spaces and users' needs within these spaces. The Criteria of Quality may be applied to academic libraries in a variety of contexts.

<table>
<thead>
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<th>1. Positive Image and Identity</th>
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<td>2. Welcoming and Inviting Entry</td>
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<td>3. Functionality and Efficiency</td>
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<td>4. Flexibility and Adaptability</td>
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<td>5. Variety of Spaces to Cater for Different Users and Uses</td>
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<td>7. A Sense of Place and Inspiration</td>
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<td>9. Access, Safety and Security</td>
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<td>10. Integration of Technologies</td>
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Figure 1. TEALS’ ten Criteria of Quality
Some of the characteristics of TEALS is a “reflective”, “empowering” and “user-friendly” tool which is relatively quick and easy to use. It focuses on students, faculty and library staff. These characteristics distinguish it from existing post occupancy evaluation models.

37 students responded to the survey questions. 54 percent of the students who completed the survey were aged between 18 to 24 and 65 percent of the participants were studying towards an undergraduate degree. 70 percent of the survey participants were female. In terms of the number of hours spent in the library, 46 percent of students spend less than 5 hours per week, 43 percent of students spend between 5 and 20 hours per week and 11 percent spend over 20 hours per week.

![Figure 2. The Degree/Nature of Study of the survey participants](image)

**Evaluation Results**

In the following sections, the findings of the evaluation study of Melbourne Burwood Campus Library are presented for each of the ten TEALS Criteria of Quality listed in Figure 1.

**Criteria 1. Positive Image and Identity**

Most students who completed the survey describe the library as centrally located and straightforward to find. They have a positive view of its location on campus. Almost 75% do not regard the exterior of the building impressive. The popular exterior view was the approach from Elgar Road precinct, looking through windows, seeing the bookshelves and people studying. The Corner Cafe and its outdoor spaces adjacent to the library main entry assists in projecting a positive image of the library for the newcomer.

![Figure 3. The Corner Cafe adjacent to the library main entrance](image)
Criteria 2. Welcoming and Inviting Entry

Students were positive about the library’s new entrance space. The entrance is big and spacious but not too high with access to the gallery space to the left and the service desk further back on the right. Some students referred to the need to use the library entrance to publicise and present what is in store for students within the library e.g. DVDs, magazines and items of general interest. In creating a new welcoming entry, an emphasis was placed on the “openness” of spaces. Some solid walls of the old library were removed and others were turned into less rigid divisions by creating openings in them.

Down lighting, the lines and forms of the new ceiling bulkhead and the design and placement of furniture work together to draw library users through the entrance and into the body of the library. The service desk was pushed backward to the right of the entry to enhance the inviting quality of the entry and reduce the confronting feel of the space. Among the students’ comments in the focus groups, there was a view that the proximity of the service desk to the library main entrance is a factor which contributes to the welcoming nature of the entry.

The gallery created next to the main entry is fitted with Australian standard gallery fixtures and displays high quality exhibitions in conjunction with the Deakin University Art Gallery. The gallery in the library entrance was one of the most frequently mentioned positive features by students, strengthening its role in creating a warm and inviting entry.

Criteria 3. Functionality and Efficiency

Some students suggested that ‘not being able to find spaces in the library to work’ may be more related to students’ usage behaviours – i.e. students reserving study desks by leaving their bags and books – rather than due to the quantity and quality of library spaces. In relation to the area of the refurbished library spaces, the data collected did not identify any significant problem. Adjacency of zones appears to be an issue to closely address in any future design and development. Drawing upon students’ comments in focus groups
and survey data, the current zoning strategies, particularly in relation to noise and activity, do not seem to be successful.

**Criteria 4. Flexibility and Adaptability**

Access to power seems to be one of the key issues with the physical spaces of the library with 57 percent of the survey participants reporting that it is not easy to find a power point to charge/use their laptops and electronic devices in the library. Size, colour and form appear to be among the most favourable features of the furniture in the library. Openness is an important feature of the refurbished library spaces catering for flexibility of spaces and furniture arrangements. In order to make the most of the refurbishment budget, strategies were applied to reduce the number of solid and fixed walls to define spaces, such as the use of steel vertical elements and timber screens.

![Figure 6](image6.png)

**Figure 6.** The design represents some of the various ways explored to define spaces using furniture, shelves, lighting, vertical elements and changing the floor or ceiling heights.

**Criteria 5. Variety of Spaces to Cater for Different Users and Uses**

An issue was raised by students with respect to the lack of quiet space just to think and reflect. Students’ responses suggest that the lack of quiet spaces may be related to the issue of zoning and the adjacency of quiet spaces and spaces for group work.

![Figure 7](image7.png)

**Figure 7.** The most needed types of spaces in the library
The individual study carrels were described by a student attending the focus group as outdated but functional. The observational study carried out by the authors confirmed the view that more creative design and innovative solutions are needed to accommodate individual quiet study.

![Pie Charts showing students’ level of satisfaction with four major space types in the library: Quiet Individual Study Space, Group Study Space, Project Rooms/Quiet Study Rooms and Research Support Spaces](image)

**Figure 8.** Pie Charts showing students’ level of satisfaction with four major space types in the library; Quiet Individual Study Space, Group Study Space, Project Rooms/Quiet Study Rooms and Research Support Spaces

**Criteria 6. Being Social and People-Centred**

Among the interesting findings in relation to the quality of the library as being a social and people-centred space has to do with the location and accessibility of the service desk in the library. 92 per cent of the respondents reported that it is quite easy to find the service desk. 76 per cent of the respondents also suggested that they have a favourite place in the library, a finding which highlights the significance of place-making and leaving room for personalisation of library spaces.
The design of flexible spaces and varied furniture provides opportunities for students to not only find their preferred spaces in the library but also create their “own” places among the library spaces.

Creating informal spaces with a variety of comfortable lounge-type furniture can be considered a key design indicator, highlighting the role of the library as a “people place”. In addition to these social spaces specifically designed to encourage informal learning and social interaction, the design of furniture allows easy reconfiguration of spaces. Students are able to move tables, benches and chairs around the library spaces and create their “own” place to accommodate their learning needs “at that moment”.

An interesting finding of the online survey and student focus groups was that for many students, the informal social amenity of the library is mostly used for project meetings and group work; purposeful learning tasks involving group social interactions. In other words, the respondents did not seem to consider the library as a primary place for social gathering and catching up with people.
**Criteria 7. A Sense of Place and Inspiration**

Survey participants’ responses to the question “What are the inspiring features of the architectural design of the library?” pointed to important architectural features of the library spaces at the Melbourne Burwood campus. The terms mostly mentioned by students included colour, light and open plan or open layout. Furniture and colour scheme are the two main categories for these inspiring features. While some students found features of the library spaces inspiring, others didn’t support this view suggesting that they found no inspiration from the library spaces and they in fact don’t look for such features when they come to the library.

<table>
<thead>
<tr>
<th>Term</th>
<th>Times referred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open plan/open layout</td>
<td>4</td>
</tr>
<tr>
<td>Colour i.e. colour scheme &amp; colour of furniture</td>
<td>9</td>
</tr>
<tr>
<td>Furniture</td>
<td>3</td>
</tr>
<tr>
<td>Couch</td>
<td>4</td>
</tr>
<tr>
<td>Light</td>
<td>6</td>
</tr>
<tr>
<td>Corner Cafe/coffee shop</td>
<td>3</td>
</tr>
<tr>
<td>Gallery/the space displaying student artwork</td>
<td>2</td>
</tr>
<tr>
<td>Ease of access</td>
<td>1</td>
</tr>
<tr>
<td>Staff</td>
<td>1</td>
</tr>
<tr>
<td>None/Blank</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2. The mostly referred terms in response to the question “Would you please list some of the inspiring features of the architectural design of the library?”

**Criteria 8. Environmental Comfort and Sustainability**

Students provided positive responses to the survey questions relating to the environmental comfort of the library spaces. A common opinion shared by the majority of participants was that there is insufficient lighting in the lower level of the library. This lower level was not part of the Phase 1 project and has not been refurbished at this stage. In terms of lighting, the refurbished level was regarded as having a favourable mix of natural and artificial lighting.

**Criteria 9. Access, Safety and Security**

One of the participants of the focus group, a female student using a wheelchair, expressed her frustration about the difficulty for people with special needs accessing library spaces. It is highly recommended that any future development of the library takes into account the issue of access for different library users with different physical abilities. The inappropriate signage in the library spaces was mentioned by a number of other students. A female graphic design student, regarded this as a weakness in relation to library physical spaces. Examining better strategies to provide clear signage in highly visible spots is recommended in future refurbishments. The survey data and students’ comments in focus groups in relation to personal lockers in the library, currently not provided, is not conclusive. Nevertheless, it is worthwhile to consider trialling the provision of a number of lockers which can be booked for a few hours or the whole day to achieve insight into how they may influence students’ patterns of use and their attitudes towards using library spaces.
Criteria 10. Integration of Technologies

Reviewing the measures of Integration of Technologies, it was determined that the best method of data collection for this criteria was through observational study. Initially, no specific question in the Students' Library Experience Survey addressed integration of technologies. Nevertheless, questions addressed during focus groups and comments by students in those sessions along with the observational study, cast light on some issues and factors to be considered. The existing library spaces and furniture do not appear to be highly successful in supporting students’ need for flexible technologies. The existing computer workstations were designed with single student use in mind. They leave little room for collaboration of two or more students where collaborative activities require use of computers. It is recommended to explore opportunities through which spaces and furniture facilitate student collaboration involving the use of technologies. Despite the introduction of many 'powered' desks and power points located amongst informal seating the location of power points in the existing library spaces is another issue which requires reconsideration in any future development. A basic recommendation in this regard is the provision of power and data points from the floor in order to maximise the flexible potential of spaces and facilitate easy reconfiguration of spaces.

CONCLUDING REMARKS

Applying the ten TEALS Criteria of Quality has been an informative tool in the evaluation of the refurbished library spaces at of Deakin University Library at the Melbourne Burwood Campus. Drawing upon the findings of the evaluation study, the following key issues need to be considered in any future development and refurbishment of the library’s spaces:

I. Maintain and extend the variety of furniture:

Survey data and comments received from students during the focus groups suggested that ‘variety of furniture’ is one of the positive features of the existing library spaces. It is highly recommended to maintain this variety in any future improvement to the spaces. Creative design of furniture is encouraged to allow students to use the spaces in a flexible manner. They value being able to make easy and quick changes to the arrangement of spaces to match their learning activity.

Figure 11. The ‘cotton wheel’ tables appear to be a successful addition to the spaces. They were received very positively by students. Given that these tables are of different heights, they can be used with different seating types i.e. chairs and couches, and they can be easily moved around.
II. Maintain the extent of natural light, views and students' ability to control these: On level 2, individual study desks located along a wall of windows enjoy natural light and a relaxing, green view to the garden outside. Blinds allow students to control the natural light. Any future development is recommended to maintain elements of “control” over physical spaces.

III. Develop strategies to maximise visual connection while ensuring visual privacy:
The observational study of the library spaces which are yet to be refurbished pointed to a clear need to encourage visual connection across spaces. In addition to supporting safety and security through passive control, visual connection throughout spaces promotes a sense of place, readability of spaces and wayfinding. The ability to see other people and being seen in a public space can also contribute to the psychological sense of community. While efforts need to be made to encourage visual connection through design-related strategies, it is also important not to compromise the need for visual privacy especially where quiet reflective tasks/activities are taking place.

The conflicting needs of promoting visual connection and maintaining visual privacy come particularly to the fore in relation to the spaces in libraries set up for quiet study. In the first floor, the silent study area presents a dull and lifeless environment where visual connection is significantly minimised by outdated, “traditional” study carrels. It is important to examine different design-related strategies and features to reduce the current formal and institutional feel of the space, encourage openness and connectivity while maintaining visual privacy and creating an inspiring and functional quiet study space.

IV. Ensure a mix of study settings within the quiet study areas: A silent or quiet study area does not necessarily need to be filled with individual desks and carrels. If library spaces are to support students’ different learning styles, study needs and individual preferences, it is essential to create a range of settings e.g. individual desks, small tables and small couches.

V. Make the most of colour and lighting: The recent refurbishment of the library spaces on level 2 represents a good example of benefiting from colour themes and lighting design to create inspiring spaces. It is highly recommended to continue this initiative and maintain this focus in any future change to the library spaces.

VI. Make the most of circulation and in-between spaces: The observational study found some good examples of using in-between spaces and circulation areas. It is recommended that future developments take this into account and come up with creative strategies to maximise the potential of these spaces to support a range of functions.

VII. Apply strategies to clearly define different settings within an open space: Make use of elements and features to distinguish circulation spaces and major library space zones: vertical elements, light fittings, features on the ceiling and floor carpet can be used to define spaces and create a degree of visual privacy.
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