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# Designing informal learning spaces using student perspectives

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This article describes the design of informal learning spaces at an Australian university that support students in the generation of knowledge. Recent learning space design projects at La Trobe have been informed by a number of pre-existing projects, including a small research project on student use of technologies, a national project on learning space design, and a significant curriculum renewal process at the university. It demonstrates the ways in which evidence based on student perspectives and principles developed through applied research in teaching and learning can inform real world learning space design projects in a higher education context.

## Introduction

Although the obvious purpose of higher education is the development of independent thinking skills and domain knowledge by and for students, the design, control, and organization of learning environments is primarily the responsibility of administrators and teaching staff.

With large group lectures, seminars, and tutorials still the predominant learning mode, the organization of space and time in higher education generally configures students as receivers of knowledge until the point of graduation, at which time they are expected to produce knowledge of their own.

While the role of higher education is to transform students into critical thinkers who are capable of solving problems and building knowledge for themselves, we too often conceive of this process as knowledge transfer in a single direction, and not knowledge production and dialogue. As a result, learning space designs frequently reflect didactic modes of learning without paying adequate attention to other important modes. As Gibbons and Fried Foster (2007, p. 82) point out, university staff tend to assume that the experiences of students are similar to their own as students, but this is not the case. Gibbons and Fried Foster advocate a user-centered design approach founded in an understanding of the diversity of student experiences. Temple (2008, p. 229) suggests that learning space design has too often been overlooked, and has only recently begun overlooked, and has only consult best-practices from to be linked to learning outcomes in higher education. In the Australian context, Jamieson et al. (2000, p. 225) note that students and teachers "rarely… have meaningful input into the design of facilities," and a recent ALTC study on the evaluation of learning spaces (Lee and Tan, 2011, p. 9) found that universities tend to discuss the design of learning spaces with students only after they are built and occupied.

This article outlines a number of concurrent processes that led to and informed the design of a series of new informal learning spaces at La Trobe University in Victoria, Australia, to support students in generating their own knowledge. These processes include a small research project looking at technologies in students' everyday lives, a national teaching and learning applied research project on learning spaces, a significant institutional curriculum renewal process and a number of projects to build new learning spaces at the Melbourne campus of La Trobe. The purpose of unraveling these interwoven threads in a short case study is to reveal the importance of thorough applied research techniques that use student perspectives to establish an evidence base and in developing clear principles that have underpinned real world learning space designs in useful ways.

### *Supporting student use of technologies*

A number of key studies have looked at student use of technologies in higher education. Prensky (2001, p 6.) proposed that contemporary students should be regarded as *digital natives*, calling on fundamental changes to education in order to reach them. Kennedy et al. (2006, p. 117) attempted to test this hypothesis using empirical methods, finding a lack of homogeneity in student skills with technologies beyond the basics. Clearly not all students are *digital natives*, and the concept that students themselves have fundamentally changed as a result of a more technologically rich environment remains in doubt. The ECAR Study (Kvavik and Caruso, 2005) surveyed students across 63 institutions, drawing a picture of which particular technologies were used by students, their confidence and abilities in using them, and the contribution

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of these technologies to learner experiences. This and later ECAR studies have demonstrated the ubiquity of technologies in the lives of students as well as the diversity of their experiences with them.

Following up on these studies, Riddle (2009) conducted a pilot study supported by the Australasian Society for Computers In Learning In Tertiary Education on the use of information and communications technologies by Australian students in their everyday lives. This project used the 'day experience method' (Riddle and Arnold, 2007) and asked 19 La Trobe students to act as co-researchers to record their own use of technologies over a 24 hour period using a kit comprised of a paper diary and a camera (Keppell & Riddle, 2011).

Certain key findings of the project related to learning space provision. Firstly, all of the students in the study reported owning laptops, but many were reluctant to bring them to the campus. At peak times, students found it difficult to get access to computers in the university library and reported that access to wireless internet was patchy and overly restricted. They also wanted more comfortable private study spaces on campus with power points for laptops and extended hours access (Keppell & Riddle, 2011).

Students actively took up the topic of adequate provision of private study spaces during this study. During a focus group, one student expressed her frustration:

"There's just no bulk place for large numbers to sit. The university is not providing for the number of people that actually attend here. And, well, because it is so far out I guess it benefits people who live sort of locally and things like that, but people that have got to travel so far or whatever if they're going to spend the whole day here, you know, and wanting to do like study in the library and then come out for lunch or whatever and go back into the library. For one, if they leave the library they lose their spot in the library, there's nowhere else to go, you probably can't go back and do study. And then you go outside to find a chair to sit on, like, in a group, or even by yourself and you can't find one" (Chanelle, 3rd year International Business student, focus group 3).

When asked about a photograph of some small fixed tables and chairs outside the library, another student commented:

"This is for group discussions. I observe one thing, that many people when the library closes, they are doing some stuff on their laptop. What they do is like, since the library is closing they don't want to lose their stuff or whatever, they come outside the library whilst the library is closing and they sit over here because they get the internet connectivity over in that space, and they finish off their work out here. But they can't sit much longer because there is no power, so their battery runs out... I observed many times" (Eddie, postgraduate Information Management student).

In addition, the study demonstrated several things that seemingly had little to do with high technology. For example, students can struggle to plan their time effectively and they spend much of their time in workplaces, travelling, and in the home rather than on campus. As a result, their diary entries showed that when they are on campus students are sometimes hurried and when they become frustrated by the lack of suitable study spaces they leave. These findings have informed the design of the learning spaces described below by providing evidence of the needs and desires of students for comfortable and functional study spaces.

## *Developing learning space design principles using student perspectives*

Spaces for Knowledge Generation, or SKG (Souter et al., 2010), was a national project aimed at rethinking the design of learning spaces in terms of knowledge production among university students. The two-year collaborative project was led by La Trobe University and partnered by Charles Sturt University, Kneeler Design Architects, and Apple. It conducted an international study tour and a series of staff-student forums, and produced a set of case studies and prototype designs, a practical guide to designing student-centered learning environments, and seven design principles for learning space design: comfort, aesthetics, flow, equity, blending, affordances, and repurposing (Souter et al., 2010).

These outputs, and in particular the seven design principles, are another key resource that has informed recent learning space design projects at La Trobe University. Particular principles applied in these projects are described in further detail below. The principles developed in the SKG Project are underpinned by recent work on student learning and the campus environment (Chickering & Gamson, 1987; Graetz & Goliber, 2002; Long & Ehrmann, 2005; Oblinger, D, 2006) all of which emphasize the importance of a learning-focused and student-centered campus environment encouraging active learning. Nespor's (1994, p. 7) work noting the importance of peer learning through 'networks of knowledge builders' is a key concept that informs the strategy of developing new informal group study spaces leading from this project. The work of Apple, Stanford University's Wallenberg Hall, and the TEAL Project (Dori and Belcher, 2005) at MIT also helped to develop our thinking (http://www.skgproject.com/category/interview/).

Student perspectives were an important component of the SKG Forums. In one workshop on collaborative learning, a student from Victoria University described a

classroom layout for group learning with tables "shaped so that students are facing each other" (Souter et al., 2010, 'Beyond The Comfort Zone'). In another on informal learning spaces, a student presented a design prototype drawing inspired by public spaces such as nightclubs and food courts, with wireless internet and zones with varying furnishings to allow multiple uses (Souter et al, 2010, 'The Corners of Our Minds – Eddy Spaces'). These ideas each made their way into the final set of design principles.

## *Curriculum renewal and pedagogical designs using group work*

In 2009 La Trobe University embarked on an ambitious program of curriculum renewal known as *Design for Learning*. Recommendation 1 of this plan was that all undergraduate programs adopt six university graduate capabilities: writing, speaking, inquiry/research, critical thinking, creative problem-solving, and team work (Design for Learning, 2009).

La Trobe Faculties are currently mapping each of these graduate capabilities in all core subjects across all programs at cornerstone, midpoint, and capstone levels (Spencer, Riddle and Knewstubb, 2011). The curriculum mapping process in the Faculty of Business, Economics and Law (FBEL) has identified the teaching and assessment of speaking and team work in all core first and second year subjects as particular areas for focus in curriculum renewal. While team work and communication are consistently identified among professional and accrediting bodies as highly desirable graduate capabilities, students are still not taking part in enough learning activities and assessment tasks of this nature.

Both Faculties are making changes to the curriculum to incorporate more team work, but it is essential that learning spaces of appropriate qualities and quantities are available to support innovations in pedagogy. In recent years an institutional pilot was undertaken to extend the use of Enquiry Based Learning (EBL), a student-centered approach involving structured group work to undertake an enquiry. This approach was subsequently adopted in the redesign of a small number of subjects in two Faculties. An evaluation of one of these subjects in the School of Management showed that the perception among students was that this unusual mode of learning was engaging and connected to real world work environments (Burchielli et al., 2010). However, a comprehensive audit of all teaching spaces concluded that the university lacked adequate flat-floor learning spaces with appropriate furniture for collaborative learning, and had only a limited capacity to support informal group study. There was therefore a mismatch between the newly designed curriculum requiring students to work together and the learning spaces provided for them.

## *Faculty-based Learning Commons Project*

In September 2010 La Trobe University began work on a new project to convert under-utilized spaces across the university for use as informal learning spaces. The project received $586,600 in funding from the federal government through the Department of Education, Employment and Workplace Relations (DEEWR) and $240,000 from the university's capital development plan.

The FBEL learning commons (Figure 1) is a flagship of this project to create an indoor/outdoor area designed with student study needs in mind. This space includes a group learning zone with banquette seating to create a café-style ambiance, an open area with chairs and tables that can easily be reorganized for group and private study, and an outdoor learning terrace with weather-proofed seating and a timber deck.

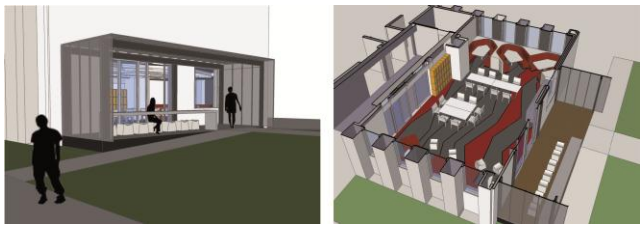

**Figure 1. FBEL learning commons**

The project includes provision of amenities for students with disabilities and there is a long-term plan to make the space available for extended hours. The design emphasizes flexibility, comfort, and an appropriate blend of technologies with wireless internet availability in the outdoor seating area. Indoors, the group learning areas and lockers provide students with power for laptops and mobile devices.

Other spaces that have been developed as part of the project include small study and chat, or 'eddy spaces', along two corridors in a Social Sciences Building (Figure 2),

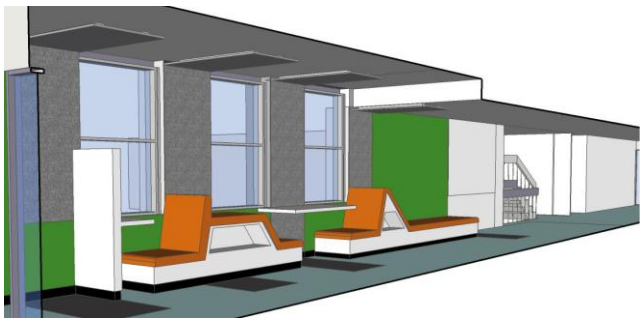

**Figure 2. Eddy Spaces in Social Sciences**

and in a large corridor outside a lecture theater in Education (Figure 3).

The following section assesses the designs for these spaces against the design principles developed in the SKG Project (http://www.skgproject.com/learning-spaces-toolkit/).

## *Comfort*

A central design principle is the comfort of the users of a learning space. This principle encourages the use of natural light, good acoustics, controlled temperature, and comfortable furniture. The design for each of the Faculty-based learning commons spaces involved all of these elements, through the combination of high quality banquette seating, ceiling fans for convective cooling and air circulation, heating, large windows, and acoustic shielding.

## *Aesthetics*

The SKG Project's 'aesthetics' principles include symmetry, harmony, simplicity and fitness for purpose. These are evident in the design in a number of ways, for example in the selection of high quality café style furnishings and floor coverings and the inclusion of the outdoor 'learning terrace' in the FBEL Learning Commons, which has fixed seating and bench space. These qualities are vital because there is evidence that students experience comfortable, functional, and aesthetically pleasing spaces as institutional interest in their experience and thus as a proxy for institutional respect (Souter et al. 2011). This is in turn relates to student perceptions of institutional interest in their learning.

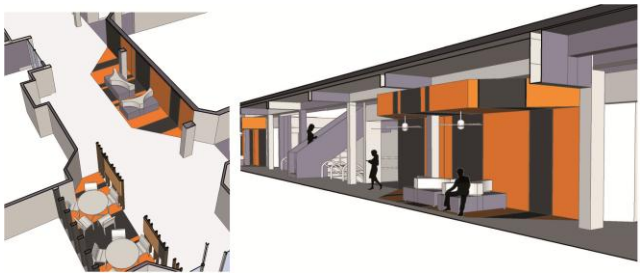

**Figure 3. Eddy Spaces in Education**

## *Flow*

The SKG principle of 'flow' refers to both a state of mind of the learner (being 'in the zone') as well as the movement through physical space and is particularly relevant to the creation of 'eddy spaces', which are formed at points in the pedestrian traffic through the large corridor shown in Figure 3, for example. Indeed, the concept of the 'eddy space' uses the metaphor of flowing water that slows and forms small whirlpools at appropriate places along its course. The design of these spaces enable learners to move through corridors and find places to stop, for a moment or an hour, to read, check their email, or hold a conversation with a peer. Spaces that acted only as conduits before are becoming rich learning nodes in their own right.

## *Equity*

The principle of 'equity' has also been an important focus for the project, with the inclusion of disabled-access toilet amenities fitted with emergency assistance buttons and a wheelchair access ramp (Figure 1). Careful thought has been put into the appropriate heights for horizontal benches and lockers to cater to a diversity of learners. Power outlets have also been located in easy to reach places and have been embedded into table-tops in fixed group furnishings (Figure 1).

## *Blending*

The designs also incorporate the principle of the subtle 'blending' of technologies into a predominantly face-to-face environment through features such as wireless internet throughout, adequate numbers of power outlets, and the provision of powered lockers to support laptops and mobile devices. A 'bring your own device' approach is in contrast to learning commons spaces built in an earlier era at the university where large spaces were dedicated to computer laboratories for private study. These spaces are less conducive to blending computer-based work with group discussion, reading and the use of tablet devices.

## *Affordances*

The 'affordances', or action possibilities, of the Faculty-based learning commons project are critical to the design. For example, the designs provide for the use of Mobile Collaborative Workstations (MoCOWs) comprised of large LCD computer screens on trolleys that can be moved into place for students to work together in teams to edit documents or develop presentations (Figure 1). All of the Faculty-based learning commons spaces have also been designed with plenty of room to move and with furnishings that can be easily moved by students to create new possibilities. For example, students can reconfigure the furniture in the FBEL learning commons to support multiple groups, one large group, or a series of private study areas.

## *Repurposing*

The principle of 'repurposing' acknowledges that different activities go on in learning spaces over the course of the day, the week, the semester, or the year and depend

on many different factors. Spaces should be able to accommodate as many of these activities as possible, without the need for time-consuming reconfiguration. The Faculty-based learning spaces, therefore, include both outdoor and indoor spaces, partly due to Melbourne's highly changeable climate. Durable 'flip top' tables with wheels and lightweight stackable chairs allow this repurposing to be second nature to learners.

Evaluations are currently underway for these new spaces and usage results will be reported in future work. At the time of writing, the informal learning spaces described above have recently been completed and are in high use. They have also been used to influence other formal and informal learning spaces being developed in the university.

## Conclusion

This article has described the design of new learning spaces that arose from applied research projects that incorporate institutional and stakeholder perspectives and, in particular, those of the student. It analyzed the effect of including the SKG project's formal principles of good design in the provision of new informal collaborative and 'eddy spaces' across three Faculties of the university. Future work will describe the use of these spaces and evaluate them against these principles. Workshops conducted by the authors have indicated a genuine interest in learning about these experiences and theories, and it is intended that this work should continue.

The challenge of designing spaces that are a good fit for the culture of an institution, learner-centered, and informed by sound pedagogy is one that all higher education institutions face. While this piece describes a particular set of informal learning space design projects within an Australian context, the approach taken in this work could be applied to the design of learning spaces in other universities. We have argued that current practice too often ignores student perspectives and reproduces a physical environment that is familiar but less suitable for active learning, peer learning, and learning supported by technologies that students prefer to use. By refocusing attention on the development and adoption of design principles based on suitable evidence and up to date research on where and how students learn, universities can begin to design informal learning spaces with active learners in mind.

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