

2.0

The Process of Creating
Learning Space (H. Wilson)

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There seems to be a significant disconnect between those who teach in spaces, those who design learning spaces, and those who incorporate technology into these spaces. We can see this disconnection in terms of the language and understanding of how different groups describe space: the word 'collaboration' may mean subtly different things to a teacher, architect, or technologist.

Subsequently we find an inconsistency in quality, cost and outcomes of designing learning spaces. Finding a way to navigate through the current pedagogy/space/technology paradigm has been a particular focus of our study.

The model for designing and building learning spaces has not changed dramatically for over one hundred years. More recently we find significant shifts in pedagogy and at the same time a desire to incorporate technology, whilst still using the same industrial systems of space delivery. In this climate of change new spaces are being developed as potential prototypes for 'the new'. The danger lies in a lack of understanding about how these spaces are designed and are evaluated in that they are often copied out of their context and without any regard for how that space may have related to the particular pedagogy it was designed for, or whether the technology was appropriately assigned.

The process of procuring learning space relies on many players in order to bring any of these projects to fruition. The game however has had its ground shift. We can no longer rely on the standards for learning spaces developed over time since the 60s and 70s. Learning space was distilled into an efficient set of design standards useful for facilities managers and architects. Academics based their funding bids on them. They were extremely successful models for didactic teaching models with limited technology. The new age of learning is much more dynamic and more technologically-rich.

With the obvious need to re-examine the way we design, we find we also need to revisit the whole procurement process. It is not that there are not exemplars, but that there is a consistent inconsistency in their outcomes.

These are the following themes that were raised in the final colloquium session that we can begin to unpack through lessons learned over the two years.

The space bid - The process of the academic presenting a case to gain funding.

The funding bid - The process to filter and prioritise which projects from the pool of space bids should get up. How each project can contribute to the campus framework and connected learning experience.

The design phase - The process of understanding the intersection of pedagogy, space and technology and the implications to the enabling of learning.

The construction phase - The process of building and the co-ordination of key stakeholders to ensure a quality outcome.

The space bid

What is the format for Academics presenting a case for new space?

The politics of space mean that quite often the projects are developed within Faculties and have

HAMILTON WILSON
WILSON ARCHITECTS
BRISBANE, AUSTRALIA



Figure 1: The Collaborative Teaching and Learning Centre, UQ

their own advocates to push projects through for funding approval. The bids are often prepared by people who may be preparing a submission for the first time. The inconsistency of this process is open for examination. Almost all of the spaces identified with the case studies were exceptions to this rule in that they were identified as strategic innovation projects and often fell outside the normal bidding process. Interestingly, the dominant players in the innovation of space were within the library.

Within the colloquium's interactive session it was discussed that there may be an opening for a new type of person who has an understanding in Pedagogy/Space/Technology (a type of educationalist dramaturge -a theatrical position where their contribution is to assist the director to categorise and discuss the various types and kinds of plays, their interconnectedness and their styles).

This PST Dramaturge would be able to assist the faculty in articulating their teaching and learning outcomes to align with space (the amount of space required for any particular cohort size) and extent of technology support. This kind of support to faculties could give more weight to their space bid and a consistency in their evaluation.

This method was utilised with the development of the briefs for the Australian Defence Force Academy's refurbished learning spaces (2008). In this case the staff were required to apply the Pedagogy Space Technology metric in their consideration. For each space a descriptor for the learning outcomes and teaching modality was articulated. Space recognised the size and makeup of the cohort. The Technology component focused on what technology would best enable the pedagogy and support the students. This process was in the whole, successful in that it examined a diverse range of teacher-led spaces as well as social learning spaces. This process still relies on the briefing group having a deep understanding of how to articulate the various components. A PST dramaturge would have been able to sit down with them to work through these areas in more detail. This is in effect what happened when it was redrafted and reissued.

The funding bid

To begin to develop a framework that strategically places proposed or refurbished space bids in context within the campus can help evaluate diverse projects more objectively. By looking at the campus as a connected learning experience it is possible to strategically understand the balance and mix of learning space. A new model called the Places for Learning Spectrum begins to consider this continuum and develops a dialogue to discuss any space on campus (Figure 2).

Campuses need to be contemplated as a complete network of connected learning environments. In this framework the process of learning does not exist singularly but rather it happens within a range of different types of pedagogies, spaces and technologies. This learning space continuum has two types of conditions at its extremities. Wholly independent self-directed unstructured learning at one end and structured teacher-led didactic learning environments at the other. Within this range a spectrum of other pedagogies, spaces and

technologies provide an effective learning framework.

This model looks at an institution as a whole and rather than it being made up of a series of learning silos we consider space as a highly connected network of places for learning. This model proposes that every square metre has the potential to support the learning process and so every coffee shop, every corridor, every courtyard is incorporated into the design.

The Places for Learning Spectrum is student-centric and can be broken down into three components exploring these relationships from their perspective.

The types of physical spaces to support learning;

The various communities of people who support learning (staff, peers, community);

Learning modalities to enable learning for different student outcomes.

Every space that can be conceived within and beyond the campus can be mapped and a dialogue begun about learning potential.

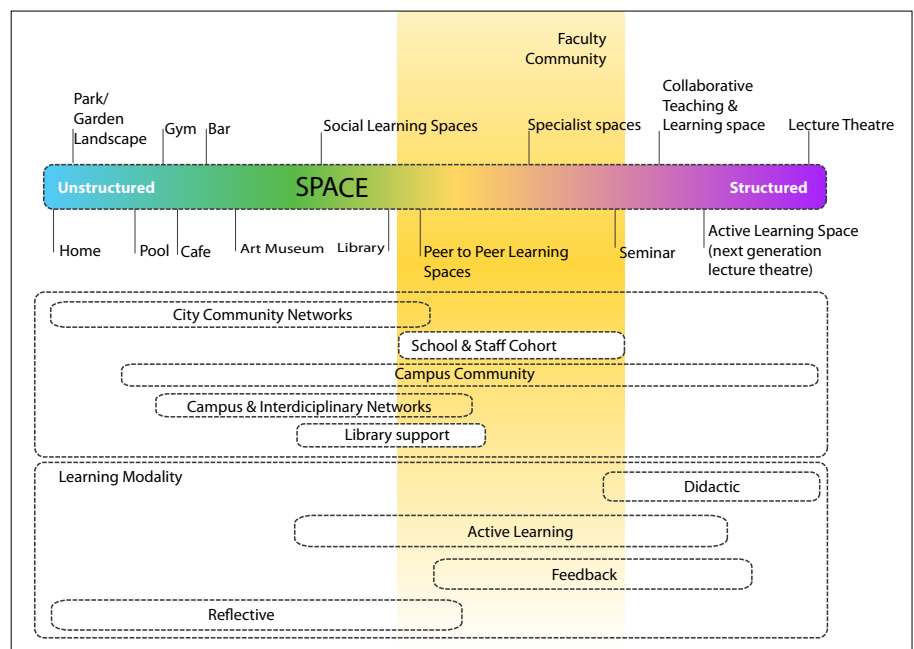


Figure 2: Places for Learning Spectrum.



Figure 3: Smaller Spaces in the CTLC, UQ

A student who enrolls in a university to gain an expertise in a particular field of study is, by default, a member of their faculty community. Many universities undervalue this group through poor visibility of their study cohort and limited opportunities to interact and to support each other. At the entries to faculties more space needs to be given over to describing the place of learning, reinforcing the type of learning that

have the same learning challenges results in two unique outcomes. The student feels they belong to a community and are supported by it.

The Places for Learning Spectrum begins to also focus on the types of generic teaching and learning spaces that can better enable learning. Traditionally lecture theatres were the only type of large structured teacher-led space. Now it is

The design phase

Learning places may be broken down into two distinct types: structured (teacher-led) and unstructured learning (peer to peer, social learning and self directed). Within this simplistic framework all places for learning can be conceived. This model looks at an institution as a whole rather than a series of independent faculties, and instead looks at space as highly connected network of places for learning.

Structured Learning Environments

Within any one teacher-led learning experience there are generally a number of modes that can be identified.

- Didactic mode: set scene for investigation / delivery of content / instructional
- Collaboration mode: investigating as group
- Feedback mode: discussing group outcomes
- Reflective mode: documenting (individual or group) - assignment/project write up

Within any learning session the space and technology needs to support the dominant learning mode. If the pedagogy is predominantly collaborative then it is counterproductive to the learning experience to have a room full of tables in rows, with very little room to move around furniture. A simple test is to document the proportion of learning modality. ie If the pedagogy is project based/collaborative then the pedagogical weighting may be as follows: Didactic/instructional 10 percent; Collaborative 75 percent; Feedback 10 percent; Reflective 5 percent. Furniture and technology need to directly support these modes.

Historically educational spaces have been based on a 100 percent didactic model for a cohort of around 30 students. The constraints this can present often result in teachers struggling to align current pedagogy and space.

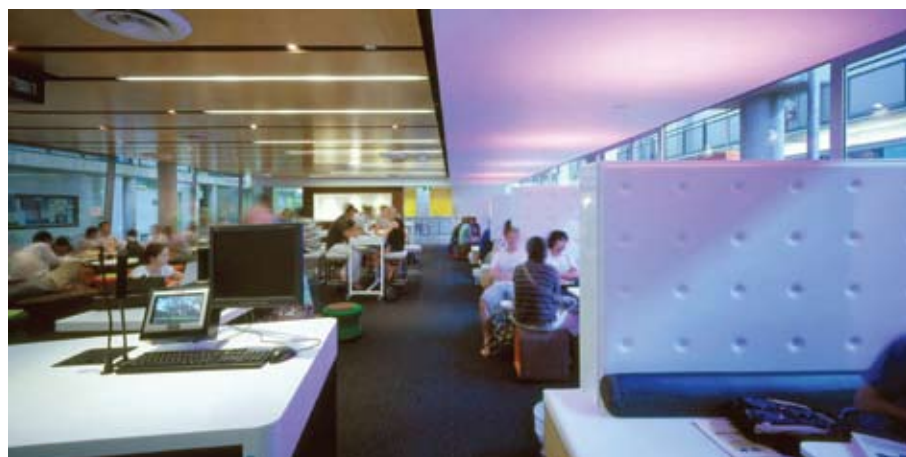


Figure 4: The University of Queensland First Year Engineering Learning Centre. A 'noisy' active learning space co-located with the University Engineering library. (Scott Burrows, Aperture Architectural Photography)

happens there and spaces to support students to be able to study with their own cohort. It is interesting to note how many universities have the ground floor of a faculty significantly occupied by staff and the students are to be found elsewhere.

Peer to peer learning spaces enable this level of engagement if located at entry levels and when the space is highly visible. This type of space can be clearly seen and understood with the new First Year Engineering Learning Centre at the University of Queensland (Figures 4 & 11). The client brief was for a critical space for students to support their intensive project-based curriculum. The outcome was a highly active learning place where the first year students are given the opportunity to own their space, support each other, and be in a common location for lecturer support. The opportunity for students to be supported by other students who

generally acknowledged that, with a shift to more project-based learning, a broader range of spaces with a range of technology support needs to be available. (Collaborative teaching and learning spaces and Active Learning Spaces)

With the advent of more project-based learning there is an obvious need for libraries to support more group work, but spaces associated with coffee shops and social places also enable a dynamic environment for study. Although supporting a more diverse study cohort these are spaces that can begin to establish better interdisciplinary networks.

The framework lets us begin a more meaningful dialogue about any place within a campus and where pedagogy and the community it serves can be considered.



Figure 5: The old and rarely used Art Gallery at Bond University (Wilson Architects)



Figure 6: The overall view of the room with a glazed collaborative room to the right, booths to the left, MLC, Bond University (Wilson Architects)

Designing Learning Space

When talking to education institutions that are reviewing space or are planning to build new spaces, I am now requesting three things:

1. Documentation of the pedagogy and its modal makeup: what are the conceived learning outcomes.
2. The size of the overall cohort and project-based collaborative groups.
3. Consideration of what technology can be used to augment greater learning outcomes. This element has an obvious cost component and perhaps a less measurable time saving and enabling component. (This should be done at a reasonably early stage so it can be budgeted and value managed).

One area we have been investigating is how one space can be multimodal with a seamless transition between learning modes. The Collaborative Teaching and Learning Centre (CTLC) at the University of Queensland was the first of these types of spaces where the modes are switched: the physical space is modified by electronic screens and lighting to create smaller groups within the overall cohort (Figures 1, 3 & 10).

The technology then enables the lecturer to observe and share any one of the group's work with another. This learning environment engages the student at a number of levels and plays on its theatrical transitions to constantly give visual clues about the mode of learning expected.

Not all spaces need to be the same. It is just as important to understand the potential of connected learning experiences that can transition from one space to another. i.e. A lecture theatre might make sense to be co-located with seminar spaces or collaborative teaching and learning spaces in order to make the most of the possibilities of different spaces that can support different learning modes. An extension of this idea can begin to conceive the campus as a whole learning space continuum where multiple and diverse opportunities to learn can be found from the structured teacher

led spaces all the way through to coffee shops, corridors, self-directed study places and other unstructured learning environments. Every square metre of space should be considered in enabling learning.

Unstructured Learning Environments

Following any structured learning experience students should be given the opportunity for its extension rather than being closed down due to lack of adequate support. Traditionally the support happened within the library and was a monastic individual pursuit. A library is one particular learning environment with great support in information literacy skills, but also able to support technology and course work. The library, when seen as an integral part of the social learning environment with appropriate staff and varied technological study options, begins to transform the idea of how it might exist within the overall learning framework. A librarian's support can penetrate beyond the walls of the library into other social or peer to peer learning spaces.

Peer to peer/social learning spaces are some of the most talked about areas within educational institutions and also the least understood and studied. The re-badging of spaces as 'learning commons' or 'hubs' is often only the old computer laboratory in disguise (many computers in a room with a funky name, colours and furniture). If the study experiences are limited and the opportunities with the onsite technology without diversity then there may cause for review. The ability to choose the most appropriate space for this to occur necessitates offering a variety of study options. Each of these options enables a different level of engagement with both other students and technology.

For the new Balnaves Foundation Multi-media Learning Centre (MLC) at Bond University this metric was applied in both its conception and later post occupancy evaluation. To take a large unstructured open area, which was once the university's art gallery (Figure 5), and make sense of creating a diverse study learning environment required a measured approach to

configuring furniture and technology. The space needed to allow for a range of opportunities to work in different group scenarios, the pursuit of individual projects and allow students to engage with various digital formats. The location, form and configuration of the various furniture and technologies need to be understood in that each different study space has a distinct pedagogical intent with a spatial and technology arrangement carefully crafted to suit (Figures 6, 8 & 9). This space is unique in that it sits outside the traditional library but is managed by the library staff with integrated coursework/technology support. It was interesting to note that the uptake with technology as a study support tool was significantly greater than the First Year Engineering Learning Centre at the University of Queensland.

Experience and Context

The image of the classroom below describes in its layout the potential modes of learning capable in the space. It is rigidly didactic with very few opportunities to present other modes of teaching and learning. However the space also has an emotive content which also impacts the learning process.



Figure 7: Traditional Teaching Space

The room is windowless, with hard and immovable furniture which is uncomfortable and difficult to access and the lights produce distracting glare. The emotive content of the space suggests a



Figure 8: The Bond study 'booth' where students can digitally capture hand notes, surf the web, connect to university databases, watch a movie and plug in their laptop.



Figure 9: The MLC at Bond

negative response by both students and staff and despite the best teaching methods the space will challenge students' ability to concentrate for any length of time. Although this is an extreme example we understand that well thought through functional space needs to also positively engage the senses. These spaces are people centric and as such must recognise their potential emotive responses to space. Design can influence the way we engage with people and place. We can change or modify behaviour through furniture, layout, colour and lighting. We can encourage people to stay longer. We can limit the time

spent in one space. We can shift the way people work together and individually. We can indicate through lighting levels whether you can talk loudly or quietly. We can make a space feel busy and dynamic or quiet and reflective. All of these qualities need an understanding of the students' context and expected learning outcomes as it differs from one university to the next, faculty to faculty, country to country.

The construction phase

What expertise should be provided by the university and what expertise should be brought in?

The process of construction has been well tested over many years where systems have been put in place to reduce risk in the procurement of educational space. A tension that has been increasingly more significant is the incorporation of technology within the design and construction of learning spaces. At the 2007 Association of Education Technology Managers (AETM) the issue of process of learning space procurement was raised. Universally the response to this subject was one of frustration. Issues of co-ordination through the design and construction phase often meant that there was abortive work or insufficient time allowed for fit-out and fit-off.

This issue can be broken down into various components:-

- Incorporation of technology at a strategic level.
- Incorporation of technology at a planning and design level.
- Installation of technology systems.
- Maintenance of technology systems.

There were very few conclusions that could be made about the best approach to the problem except that there was a consensus about the lack of understanding of what technology managers do and how they are embedded into university space procurement systems. This is an ongoing conversation which needs to be worked through with all the key stakeholders to begin to develop better systems that can interface with their existing procurement systems.



Figure 10: Study Nook in the CTLC, UQ.

Conclusion

To move forward with the process, assuming we are building on knowledge brought forward from the evaluation of past projects, it is clear that the way we procure space needs to be revisited. There seems to be a need to be able to cut through the politics of space and set clearly-defined processes based on a common documented, agreed and understood language that can inform academics, executive administrators, facility managers and external consultants.

What has been presented here is a road map to the process based on the two year study and the outcomes of both of the colloquia. Using the PST framework as a reference, this has been tested on various projects where it has been applied and tested in my architectural practice on real projects rather than based only on theory. Other campuses need to develop their own roadmap based on their own particular context. The following points should at least be considered.

- Establish a common language for your pedagogies and break down learning into its various modes (i.e. Didactic, Collaborative, Feedback, Reflective, etc.).
- Document the learning modalities expected with the new spaces (pedagogy).
- Document the culture and size of the overall cohort and the project group subsets (space).
- Document the types of technology that can better enable the learning outcomes (technology).
- Understand how any new spaces fits within the overall campus structure and the ecology of the existing teaching and learning spaces (what spaces are over or under-supplied or distributed).
- How does the new space support the student at a faculty level and a campus level? (Space should be seen from their perspective. It should be noted that libraries generally already have a well-developed model).
- Ensure that at every stage the Pedagogy Space Technology framework is consistently reviewed.



Figure 11: The First Year Engineering Learning Centre, UQ.