Retrofitting University Learning Spaces

25 simple ideas to use in the redevelopment of university learning spaces
Acknowledgements

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Introduction

There has long been a need to provide simple, cost effective and easily scalable solutions to help improve the quality of existing learning spaces in Universities. Fortunately, having a positive impact on student learning, staff and student satisfaction and the overall quality of the campus experience doesn’t have to be a costly or complicated process. More often the simple ideas are the best and most successful.

The 25 ideas presented here are all designed to be simple, affordable and easily implemented solutions to help improve the quality of existing spaces.

For more information about these ideas or to see these ideas in action, please visit the Retrofitting University Learning Spaces website at http://learnline.cdu.edu.au/retrofittingunispaces/index.html

1 Don’t try to get it perfect

Sometimes it’s not what we put into a learning space but rather what we leave out of it that can be the most important element. It is impossible to design the perfect space, so it is better to approach any retrofitting project with a clear policy of not doing anything that can’t be easily changed as users, needs and learning styles change. This means avoiding specialist joinery, custom technology solutions, fixed podiums, teaching stations or benches. The good news is that not only does this increase the long term flexibility of a space, it also saves the project money.

2 Reduce distractions

In seeking to make more of the space active and dynamic, there is a need to address the issue of acoustics so that activity inside classrooms doesn’t create significant disturbances for activities occurring outside the classroom and vice versa. A range of acoustic panels are available that can both reduce acoustic disturbance and introduce colour and interest into a space. Panels come in a range of colours and textures and are a cost effective way of upgrading a learning space. Treating a wall with acoustic paneling can be achieved for as little as a few hundred dollars.
Think beyond the four walls

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Lighten the space

Generally, academics and students tend to respond more positively to lighter, brighter spaces. Old, tired spaces can be given a new lease of life simply with improvements to the room’s natural and artificial lighting. New lighting systems can be installed for as little as $5,000 to $7,000 (including a new ceiling) in a standard sized tutorial room. Opportunities to increase natural light by increasing the size of windows, replacing doors with clear glass or removing whole walls should also be a high priority. There has been a tendency to actively block natural light on the mistaken belief that it is necessary to support AV projection requirements etc. With the use of newer generation projectors (5000 plus lumens), there is no need to darken rooms so that students can see the screen.
Maximise writing surfaces

While most classrooms have whiteboards for academics, there are often limited opportunities for students to brainstorm or work collaboratively. Whiteboards and pin boards can be liberally added to classrooms to provide as many working surfaces as possible for activity within a space. Observations suggest that simple technologies like whiteboards are an important complement to more complex computer or audio visual technologies. It is worth noting that whiteboards do not need to be plain white or limited to fixed sizes. Using coloured glass, write-up paint or white board wallpaper instead of traditional whiteboards can be more cost effective and more flexible in terms of being able to be cut to almost any shape and size, and also help brighten and provide interest in the room.

Make spaces within spaces

Breakout spaces can be created inside the classroom to support group work and/or create private reflective spaces by using room dividers, privacy screens or portable furniture. Room dividers generally have a bad name because most people think of the old style concertina walls. However, glass dividers can provide a higher level of acoustic treatment while still maintaining a sense of openness between the rooms. Glass surfaces can be treated with film to provide privacy, points of interest or to create another writing surface. Other forms of dividers can be functional, as is the case with the whiteboard dividers, or they can be made using unusual material such as plastic trees, which are designed to create the illusion of separate spaces without interrupting the openness of the room. The key to any room divider solution is that it can be easily and simply moved to allow the room to be easily adjusted into different learning modes.
Avoid beige

Learning spaces don’t need to be boring just for the sake of easy maintenance. A number of strategies can be utilised in an effort to make the spaces both welcoming and stimulating. Colour can be introduced, not only through elements like wall colours, carpets and furnishings, but also through a range of functional elements like acoustic wall treatments, films on room dividers, glass whiteboards, and computer screens. Artworks in the space can tell the story of the space redevelopment and, as such, provide not only an element of interest but also a serendipitous learning opportunity for students. Using student artwork or specific artefacts to decorate a space can encourage a sense of ownership, as well as make spaces more interesting. Having said all of that, more is not necessarily better – a little bit of colour can be far more powerful than a lot of colour. A space should be interesting without being so overwhelming that it distracts from the learning objectives.

Let them eat cake

Consideration of student access to comfort elements including food and beverage is another key ingredient to improving learning spaces. Students are increasingly involved in learning activities that take place over long periods of time or occur in the evenings and on weekends. For this reason it is important to recognise their need to access adequate sustenance to ensure they have the mental capacity to continue their engagement with the learning activity underway. While this can be met in part by on campus cafes and restaurants, access to these resources outside normal hours also needs to be considered. Small kitchenette facilities spread across clusters of learning spaces will enable students to make coffee or heat food during breaks in class activities and return refreshed to the learning activity. This sort of activity will need to be appropriately supported with rubbish and recycling facilities to ensure learning spaces remain clean and uncluttered.
Student feedback on learning spaces strongly focused on a number of basic elements. Central among these was the issue of comfort. While it is possible to purchase a wide variety of different types of chairs, many of which require minimal maintenance, the need for longer term comfort in classrooms suggested that it was worth the investment to acquire office quality ergonomic furniture. Learning activities within these spaces are evolving beyond the single hour tutorial model to encompass a wider array of more condensed multi hour learning models. The selection of more comfortable chairs is critical to support students during these longer activities. If you are uncomfortable, everything else is secondary – including learning.

**Think outside the square - and the circle**

While furniture in rows, squares and rectangles is an efficient way of utilising space, it doesn’t support group or active learning practices particularly well. Round tables are better for group work but inevitably, someone in the group will always have their back to some point in the room. Fortunately tables can come in almost any shape and size thanks to more agile manufacturing processes at some Australian furniture manufacturers. Tear drop or gum drop shapes for example can allow a room to function predominantly in a strongly collaborative mode while allowing student attention to be directed to a central point as needed. More irregular shapes like gum leaves or kidney beans, with a combination of larger and smaller curves, can support a range of group and individual activities.
Keep on moving

When we try to create spaces that can respond to a range of new and emerging pedagogical requirements, one size doesn’t fit all. Ensuring that tables and chairs are easily movable is one way of making spaces more agile. Another is to use tables that can be easily reconfigured into different shapes. Quarter circle or crescent shaped tables, for example, can easily support a number of different configurations ranging from more traditional front facing arrangements through to more dynamic group work arrangements. It is important that tables are lightweight and mobile, so that they are easily movable. Creating a false wall to store tables and chairs when not needed is also a great way of making a space more agile. Sometimes learning activities can be better supported with no furniture at all.

You can’t have too much storage

Bag racks are something long associated with school days, but there is an increasing need to provide students with adequate storage both outside and inside the classroom. With the move to more active forms of learning, there is a need to clear the floor to assist both staff and student movement around spaces. Equally, the benefits of movable furniture can be easily lost if the floor is covered with student bags impeding easy movement. Awkward nooks and gaps in classrooms can be easily and relatively cheaply turned into storage space for students. Opportunities also exist to build storage into mobile room dividers, thus serving multiple purposes. Remember there is a need to provide both short term and longer term storage solutions allowing students to easily store models and ongoing work.
Provide alternatives

One size rarely fits all but most classrooms are generally fitted out in one standard configuration of seats and tables. Using multi-height tables and seating can facilitate both different student preferences, and be used to create a range of different spaces within a classroom. Providing a range of seating styles ranging from task seating to couches and informal seating can provide similar flexibility. New lightweight stools, available from a range of manufacturers can provide a cost-effective, flexible and interesting addition to more comfortable task furniture in any classroom.

Remove the podium

Nothing reinforces a directive or didactic form of learning like a fixed podium at the front of the classroom. In order to reduce the didactic feel of a classroom and to facilitate a more flexible approach to a space, consider providing a movable podium, or better still, simply remove the podium altogether. Moving from a “sage on the stage” model to more of the “guide on the side” approach does pose a range of technological challenges in terms of allowing academics to move throughout the room and still control the room’s features and functions. However, there are solutions that allow any screen to be the source for projection facilities, while wireless tablets and slates provide a useful level of mobile computing access for academics who need to use technology as part of the learning activity. Even a simple Logitech screen pointer that allows the academic to easily change slides and manage a presentation from anywhere in a room is a great way of breaking the mold.

Engage them when they’re not looking

Learning spaces often provide a wide range of underutilised opportunity to engage staff and students in learning activities beyond the formal classroom activity. Blank spaces, corridors, walls are all valuable opportunities to engage, stimulate and promote. Examples of professional outputs or previous student work can serve to engage and challenge, as well as establish useful benchmarks for the desired quality of work. Displays of old technologies, research tools or a timeline of key theories in a field can serve to tell the story of a discipline or profession. Snippets of key literature printed on to transfers that can be easily added to and removed from available surfaces can be used to inspire students to explore more broadly. Displays do not need to be overly complicated or costly. The story behind the redevelopment of a learning space told in posters would make a useful display for architecture and design students.
Power up

The provision of power to learning spaces can be somewhat of a conundrum. On one hand, providing power so students can use laptops is seen as a key element of any collaborative learning space, yet provisioning power into items like furniture often means reducing the flexibility to easily move them around. Adding power outlets around walls, in corridors and in outdoor areas is generally a good idea and can take an underutilised space and make it considerably more attractive to students. In classrooms, explore options for soft provisioning of power to tables through simple solutions like retractable umbilical cords that can be easily removed if necessary.

Think ubiquitous connectivity

The heart of the technology refresh for any learning spaces should be the introduction of, or upgrade to, 802.11n wireless infrastructure. While the argument for wireless should be self-evident, the real value of the 802.11n arrangement is that the mobile technology devices in the rooms do not need to be reconfigured if they are moved around different learning spaces and across networking subnets. Traditionally students have had to log off and log back on as they move around. With 802.11n students, academics and mobile technologies can more easily move about different spaces and remain connected to their online resources and tools as well as each other.
Free the technology

Screens, projectors and computers have traditionally been fixed to classroom walls or locked down to ensure appropriate security or to protect sensitive equipment. While valid in its intent, unfixing the technology and allowing it to move significantly increases the overall agility of a space to respond to different requirements. LCD screens on trolleys make display surfaces highly mobile, allowing students and academics to easily reconfigure the spaces according to their specific needs or the needs of the learning activity in which they are engaged. Provisioning a room with laptops that can be freely moved around during class and returned to a secure laptop garage on completion is another useful addition to space agility. Operating the technology across the wireless infrastructure means that the mobile LCDs and laptops can be moved around and in and out of their rooms and still remain connected to necessary backend system and resources.

Provide access to more than just Word and PowerPoint

Too often, technology in learning spaces provides little more than the standard suite of software available on a staff desktop or a student lab machine. This set of software tools is largely suited to the individual creation of basic textual and image documents, and is not well suited to more creative, imaginative or collaborative activities. A simple addition to any learning space is software that can support brainstorming, idea creation, team collaboration and decision making. This sort of software is widely available commercially and in many cases there are high quality open source alternatives. These tools are more ideally suited to the types of activities that are intended to occur in newer generation learning spaces.
Feel free to touch the screen

A keyboards and mouse are part of the everyday landscape, however there is a range of newer, more engaging and more interactive ways to interact with the classroom technology. Touch screen technology has matured to the point where it provides both an effective and engaging way of interacting with technology, particularly when working in groups. It also means that large screen LCDs can act as smart whiteboards reducing the need for the more specialist devices. The touch screen capacity of Slate PCs, tablets and mobile phones utilising wireless, Bluetooth or 3G connectivity also provide a range of engaging ways to interact with content, between devices, and with large display screens.

Let students take control

While it has become almost a mantra of learning space design to take advantage of student provisioned technology (laptops, mobile phones) it is still largely the norm that academics exercise control over the major technology items in a learning space. Letting go of the control is an important step in engaging students more actively in their learning. Software like TeamSpot allows students to interact directly with LCD screens in a more free form manner to support a range of collaborative activities. Making technology mobile so students can move it to where it suits them, is another good way of letting students take charge of their learning.
A common requirement for many emerging learning activities is the desire to have students (and academics) capture aspects of in-class activities for later review, assessment or dissemination. Often this is achieved with lecture capture style technology which is often expensive, overly complicated and inflexible. A range of low end solutions exist to enable simple, flexible and effective classroom capture of learning activities and performances. If your LCD screens are mobile then the addition of a webcam and appropriate software like camtasia (commercial) or camstudio (opensource) creates a highly flexible classroom capture facility. The addition of relevant software to a laptop with an inbuilt webcam provides a useful recording facility for small group work. Light weight recording device like Flip Video’s Camcorders, Sony’s Bloggie or Kodak’s Playsport are available for under $200 dollars and provide HD capture ability that is highly flexible, user friendly and of sufficient quality for all but the most professional of requirements. Having this sort of equipment available for loan by staff and student is more cost effective than fitting out a single classroom with a classroom capture system.

Modern learning spaces often need to be underpinned by complicated and costly hardware control systems that manage the room’s technology and allow control of the various devices to be switched between different users and groups. While extremely powerful in design there are two basic problems. (a) They tend to be costly and (b) they tend to enforce a certain restricted set of space configurations. Software solutions like Netsupport School, Synchroneyes and DyKnow all allow students to display materials to the larger group or send materials to other students in the space. They also allow academics to constrain the extent of the technology available to students (i.e. limit access to certain applications, network facilities or hardware components). Coupled with mobile display screens, and a flexible laptop provisioning process this genre of software can enable the most mundane of spaces to be easily reconfigured to support active and collaborative learning.
Don’t forget the great outdoors

One of the great advantages in most areas of Australia is the opportunity to use outdoor spaces for periods of the year. The use of outdoor space as informal learning spaces has long been recognised, however the opportunity now exists to develop outdoor spaces that are equipped with technology to the same or similar level as formal indoor learning spaces. Waterproof plasmas and through glass touch screens make it possible to create technology supported outdoor spaces. The planned deployment of weatherproof power points at appropriate locations across the campus means that mobile devices like portable LCD screens can be moved outdoors, weather permitting.

Clean the toilets

Student perceptions of learning spaces often focus on their overall experience of a campus, rather than just the good or bad elements of any particular space. Consequently, questions about areas for improvement in learning spaces will generate reflections on basic human discomforts, such as the cleanliness of toilets or the general state of repairs of a building. It should not be underestimated how much ongoing management issues like the need to adequately maintain spaces and keep them clean impacts on the quality of a student’s learning experience.