

Moving beyond the classroom: Accommodating the changing pedagogy of higher education

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Abstract

The foundational educational spaces of the university campus have been the traditional lecture theatre supplemented by a basic tutorial room. These spaces must be understood as a design solution for a teacher-led, institutionally-driven pedagogy that has remained fundamentally unchanged for centuries. Although educators are inclined to take for granted the physical environment in which teaching and learning is transacted, the formal classroom environment limits certain pedagogical activities; consequently the curriculum is inherently tied to design.

What is the role of the university campus environment as more active, student-centred approaches to teaching and learning are taken up? What types of 'classrooms' need to be developed to facilitate the pedagogical trends that are emerging in higher education? How can we break with traditional approaches; to designing on-campus learning environments that enhance the quality of student learning? What type of design layouts can promote the diverse ways in which students acquire knowledge? This paper questions the future of the 'classroom' as a paradigm for teaching and learning settings within the university. In turn, it proposes the notion of 'learning spaces' as layered transactional settings for liberating our thinking and our approach to spatial design in order to achieve dynamic learning environments able to meet current and future needs of teachers and students.

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Introduction

The foundational educational spaces of the university campus have been the traditional lecture theatre supplemented by a basic tutorial room. These spaces must be understood as a design solution for a teacher-led, institutionally-driven pedagogy that has remained fundamentally unchanged for centuries. Although educators are inclined to take for granted the physical environment in which teaching and learning is transacted, Monahan stresses that 'built environments enable and constrain certain modes of social action and interaction' and consequently 'educational structures embody curricula and values by design' (2000, p. 1).

A look at universities worldwide reveals that the composition of the campus is gradually changing. Key factors driving this change include the requirement to promote institutions in an increasingly competitive marketplace, the need to incorporate new technologies into the campus environment, and widespread efforts to adopt new approaches in teaching based on our developing knowledge of student learning

(Jamieson, 2003a). These critical changes in the higher education sector require a new design solution for the fundamental teaching and learning environments within the campus setting.

If universities are in the process of, to use the language of this conference, 'reinventing the university classroom', what should be the key ideas and educational principles driving that change? Speculating on the prospect of the 'classroom of the future', Valenti (2002) laments that a majority of contemporary classrooms 'look very much like classrooms designed one hundred years ago' (p. 52). He says

Though the scope and scale of today's classroom building far exceeds that of yesterday's one-room schoolhouse, a teacher from 1902 would likely adapt rather quickly to the classroom of 2002, once he or she could locate the chalk (p. 52).

Even where recent efforts have replaced the traditional classroom chalk with new communication and information technologies (CITs), questions have been raised about the limitations of such environments and their capacity to sustain the diversity of student learning approaches currently being implemented (Jamieson, 2003b). Given the integral role of the constructed environment in the quality of the student learning experience and the massive resources invested in developing new spaces - estimated by to be around \$50 billion dollars in the USA higher education sector alone over the next few years (NLII, 2004) - there are a number of key questions that must be addressed. Can we rely on established practices for planning, designing and constructing the classrooms required to accommodate the emerging pedagogy within higher education? How should such classrooms be used to enhance student learning within the setting of what has been described as the hybrid university campus of the future with its emphasis on virtual learning environments (Bleed, 2002; Monahan, 2000)?

Furthermore, this paper will contend that the challenge of creating new on-campus learning environments extends beyond the design of the actual classrooms themselves. The question must be asked whether the conceptualisation of educational spaces, and the language used to describe them, is a barrier to exploring a wider range of possible spatial solutions? The notion of the 'classroom' is a powerful symbol entrenched across cultures and historical epochs that conveys a common spatial design. Contributors to the growing scholarship on educational architecture are increasingly employing the term 'educational spaces' rather than 'classroom' (Scott-Webber, 2004; Strauss, 2002) in order to open up the possibilities for conceptualising a range of pedagogically effective environments.

Key directions in higher education pedagogy and the implications for the spatial design of the university campus

Although the higher education sector has begun to acknowledge its student cohort largely as 'adult learners', universities have generally been slow to change the way they conduct their core business - teaching, learning and research - to meet the specific needs of these learners. Gradually, notions such as 'flexible learning', 'student-centred learning', 'self-directed learning' and 'problem-based learning' have taken hold as the focus has shifted from retaining established institutional practices to adapting to changing student needs. That these approaches may also be more educationally effective, drawing on the findings of relevant scholarship, has also been a factor driving this change. What, then, are the key directions affecting the development of teaching and learning within higher education and what are the implications for the design of more effective, student-oriented learning environments on campus? As Scott-Webber (2004) reminds us, 'Built environments impact behaviour and we must know for which intended behaviour we are designing' (p. 65).

A reduction in teacher-centred, didactic instruction in favour of more self-directed learning activity is likely to result in the need for fewer large lecture theatres that have traditionally been the foundation stone of the university blueprint. Whilst it is likely that major presentational spaces (lecture theatres) will need to be retained within institutions, although possibly in reduced numbers, the features of a more appropriate facility might include:

- A layered environment that provides opportunities for promoting individual, one-to-one, small group, and large group activities (Lippman, 2004; Lippman, 2003). The space may be designed with fixed

elements that are variable in size along the perimeter walls for supporting individual and one-to-one activities. If the seating is arranged sociopetally (Osmond, 1957) the areas along the perimeter walls should encourage students to extend and expand their learning from individual and one-to-one activities to create small group learning activities. This flexibility affords an integrated learning environment where the intended learning outcomes include, and can be achieved by, students having greater choice in how they develop their understanding.

- A space able to be adapted for the use by smaller, more interactive classes. This could be achieved by providing a level-floored area at the front of the lecture theatre which would provide tables and chairs for use in the lecture, but which could also be adapted for tutorials or project groups. In addition, the new lecture theatre should be available for student use in non-scheduled class times, enabling the more adaptable facilities to be used by students individually or in collaboration with other students.
- Where traditional, stepped seating is provided, it should be designed to enable students to easily turn and work with students sitting behind them. In this way, small-group discussion and interaction can be designed into lecture presentations. This would also enable the bulk of the seating to be used more flexibly by small student groups in non-class times for informal learning activity.
- The lecturing space should accommodate those students preferring to work using laptops or other portable technologies.

An independent, self-directed learner will also be involved in learning-centred discussions and negotiations with both teaching staff and fellow students (Tait & Knight, 1996). Spaces need to be provided which offer opportunities for both formal and informal interaction. These spaces would provide an alternative to the teacher-student contact which is often restricted to either the formal classroom or the teacher's office; and also the campus dining facilities and cafes, etc. which typically host student-student interaction. Located in close proximity to relevant classrooms, staff offices and other resources and facilities, these spaces would be attractive, common areas for formal and informal activity. When the spaces outside the classroom are layered for the diverse ways in which students learn, they cease to exist as paths and become 'learning spaces' in their own right (Pasalar, 2003; Lippman, 2002a, 2002b).

Describing the value of such spaces for improved learning experiences in science, Metcalf (20002) imagines an environment

in which interaction becomes the routine, rather than the exception, where the traffic patterns and placement of offices, labs and common spaces make conversations a part of daily life. This concept also serves to encourage the kind of serendipitous encounters (faculty-faculty, student-faculty, student-student) that are at the heart of the scientific culture (p. 1).

In broad terms, a more active, problem-based approach to learning will require a much wider range of spaces than is traditionally available in universities. University campuses typically offer the student an extremely narrow range of 'places' for learning in both formal and informal settings. In particular, there is a clear demarcation between instructional and social spaces. What is needed are spaces which are 'softer, less rigid, more open to the indeterminable uncertainties of experience' and where the character of the space is formed by the 'shape and identity of the relationships created within it' (Ceppi & Zini, 1998, p. 10). Such spaces would help to stimulate wide-ranging possibilities, rather than prescribe and restrict the performance of users. These spaces would allow students a degree of personal ownership and control, thereby generating a sense of identity with, and responsibility for, the maintenance and integrity of that space.

Active learning assumes students will have convenient access to major resources and support facilities, especially CITs. Traditionally, these have been concentrated within libraries or learning resource centres which have typically imposed very rigid patterns of student behaviour and restricted the ways that students can undertake their learning (e.g. controls on noise, movement and group activity in libraries). Noticeably, CIT spaces in libraries primarily encourage individual use of technology at the expense of collaboration. In contrast, a more responsive library/resource centre would:

- Encourage a greater range of behaviours and approaches to learning (maximizing students' preferred learning styles) by offering a variety of spaces within its overall environment.
- Provide spaces and facilities which are adaptable by students, thus increasing student independence and reducing the reliance on the input of institutional staff from areas such as facilities, information technology or security.
- Feature IT resources which foster both individual and collaborative use.
- Prominently situate social and hospitality spaces where students may choose to work.

These types of considerations are already emerging with the adaptation of many institutional libraries into a more holistic 'learning' or 'information commons'.

In addition to key central facilities, an array of new spaces will be required that enable a more collaborative, group-based approach to learning (Jaques, 2000). For instance, there will be a need for 'incubator rooms' where project teams can isolate themselves over extended periods in order to conceive and plan activities/projects/research; while 'presentation spaces' will be required to rehearse and stage group presentations and assessment. In order to replicate workplace environments where team-based activity is increasingly prominent, a more active and problem-based learning approach will necessarily require students to work in various collaborative arrangements. To meet this need, universities will need spaces that are:

- Adaptable - enabling various sized groups to form and work within a discrete area.
- Flexible – in that they can be transformed easily by other users.
- Multi-dimensional – allowing different types of activities to occur simultaneously.
- Accessible – permitting open access to students according to need.
- Secure – providing storage for incomplete and ongoing work.

Adult students expect to have much more control over decisions relating to the consumption of food and beverages in study/work areas, as well as discretion about how they work and the schedules they work to. Students combining study and work in various combinations and who attend campus in narrow windows of opportunity, must be able to combine learning activities and eating/drinking according to their individual circumstance. This means that any restriction on the consumption of food/drink in formal learning spaces should only apply when issues of health/safety are of primary concern, or where a distraction to other learners will occur.

Consequently, the placement of such sites becomes a major issue for the design of new university campuses. On one level, it is a matter of matching developments in the wider community where food/drink consumption has become the focus of social interaction through the development of sidewalk cafes/bars/etc. In addition, the location of sites offering food/drink needs to be designed to maximize student convenience and to reduce lost study time and the effort spent commuting between facilities.

The idea of a teaching and learning precinct

A core idea emerging in the higher education scholarship is the need to create 'learning communities' engaged in the overlapping practice of teaching, learning and research. According to one view (Garrison & Anderson, 2003), such communities would comprise

teachers and students transacting with the specific purposes of facilitating, constructing, and validating understanding, and of developing capabilities that will lead to further learning. Such a community encourages cognitive independence and social interdependence simultaneously.... The learning community is a fusion of individual (subjective) and shared (objective) worlds (p. 23).

Consequently, it has been argued that 'learning communities' should be situated in specifically designed 'precincts', contributing to the overall design of the campus as a series of distinct, though possibly linked, precincts but which are not necessarily drawn around traditional disciplinary boundaries (Jamieson et al., 2004). Designing and allocating space for the needs of a specific learning community in this way would

further strengthen the interaction, relationships and common endeavours of the members of that community.

In broad terms, a 'learning precinct' within a university campus would comprise a combination of formal and informal spaces; both internally and externally. It would be a setting that generates a particular identity for its users and a personal sense of attachment and belonging. From the perspective of reconceptualizing the campus environment overall, the notion of a 'learning precinct' enables links to be formed between spaces previously regarded as being independent of each other, thereby creating new possibilities for using the spaces individually or in combination. For example, the requirements placed on staff office spaces (traditionally created to provide privacy and separation from others) change as expectations grow in terms of increasing student access to staff for formal consultation and informal interaction. Similarly, outdoor or garden spaces that once largely served an aesthetic function might become active learning environments.

Ultimately, the greatest requirement of such precincts will be their capacity to accommodate the future needs of the 'learning community'. In other words, the environment must not only optimise the performance of current members of the learning community, it must also enable future iterations of the community to address their own specific needs, many of which will not have been imagined during the initial planning and construction process.

Discussion

The 'classroom' as we know it is dead. Let this be the message to the entire academic community, as we challenge facility managers, architects, designers, academics and students to conceptualise the new learning spaces of the future. Although his view will be too extreme for some, Strauss (2002) merits careful consideration when he claims that

We can probably do without classrooms entirely though we may choose not to eliminate them. If we do keep them, they need to become an integral part of a student's learning space and our allocation of resources to improve learning must include the entire learning space, not just the classroom (p. 1).

Dane (2004) proposes a three-part strategy for moving towards this new paradigm of learning spaces. First, architects and designers need to be informed of new pedagogical developments so that they can adopt an appropriate briefing process to explore alternative spatial models. Secondly, post occupancy evaluation by architects and /or facility managers should become mandatory in order to provide the chance to learn in the true 'action learning' sense, by reflecting on the successes and failures of new learning spaces. Thirdly, university teachers will need to be supported through appropriate professional development about how to use new types of learning spaces (see also Jamieson, 2003a).

Furthermore, we contend that visioning strategies for the project prior to the schematic design phase need to be developed to bring together the key stakeholders – the architects, designers, and all the constituency groups that will, or may, inhabit this new university setting. Such strategies would enable: (i) the development of a common language in which all of the key stakeholders may communicate with one another; (ii) opportunities for the architects and designers to understand the teaching strategies and approaches presently employed at the university as well as likely future practices; (iii) consideration of the diverse learning environments required for the range of teaching and learning activities scheduled on a daily, weekly, monthly or yearly cycle.

In rethinking our conception of the classroom and shifting to notions of 'learning spaces' – ideally situated within 'learning precincts' - we need to question how we might use these settings. It is possible that a designated 'learning space' might be the site where a scheduled class is convened, serving as the common hub around which a range of activity is centred but not exclusively located, as in a traditional classroom. In this scenario, students might commence with the teacher(s) for brief instruction (possibly to commence a learning task), an information update or an opportunity to touch base with other learners.

Subsequently within the same session, the 'learning space' might act as the base location for some students (being supported by the teacher who may remain at that site) whilst other students relocate to adjacent

on-campus locations including outdoor areas, IT facilities, the library or hospitality sites; or possibly to off-campus locations according to their need or preference. Eventually, some or all of the class might reconvene in the original 'learning space', although this is merely one option.

Such a class could be formally scheduled within the institutional timetable (although it would require a new description other than 'lecture'), but beyond that simple fact it bears little resemblance to the way most university classes currently take place in their on-campus settings. This scenario requires us to think very differently about how we teach and how we consciously engage the physical campus environment as a positive element in the student learning process.

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