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3. WHAT DO WE KNOW ABOUT WHAT IS BEING BUILT?

New Typologies of Learning Spaces

INTRODUCTION

Over the last decade there have been many arguments in favour of new types of 'informal' learning spaces for post-compulsory education (Joint Information Systems Committee (JISC), 2006; Tertiary Education Facilities Management Association (TEFMA), 2006; Oblinger, 2006; Scottish Funding Council, 2006; Jamieson, 2008; Neary et al*.,* 2010). These typically emphasise student-centred, playful, interactive and technology-rich environments. Just as importantly, such spaces are almost always set in opposition to a perceived norm of dull lecture halls, populated by dry pontificating professors lecturing to large groups of bored and passive students. Debate, then, is often framed around a simple binary and self-justifying good-bad division between such informal and formal learning spaces. In this chapter we want instead to first explore what learning spaces are actually being designed for post-compulsory education in the current period (concentrating on the UK), and then examine the interrelationships between specific built examples and the dominant ideas and debates circulating around and between educational, architectural and estates planning experts. We will suggest that:

- Whilst many good examples of innovative learning spaces are being built, a specific subset of these tends to circulate widely, leading to potential problems with both citation distortion and the developing evidence base of 'good' examples.
- There are an increasing number of innovative learning environments that incorporate ideas of informal rather than formal learning, suggesting that the new typology is already becoming part of the mainstream
- The focus on informal learning environments in many current educational debates has made invisible other kinds of new learning environments, which can also help inform our understanding of appropriate learning spaces for post-compulsory education in the 21st century.
- We urgently need more research on the spatial and design implications of different forms of post-compulsory learning; both new 'informal' environments and other ways of designing learning spaces

As with Bligh and Pearshouse (Chapter 1) we believe that learning space design remains under-researched and poorly evaluated. So, rather than merely providing some contemporary examples of 'good' learning design this chapter will instead question how and why certain kinds of physical learning environment are offered

A. Boddington and J. Boys (eds.), Re-Shaping Learning: A Critical Reader: The Future of Learning Spaces in Post-Compulsory Education, 33–47.

up as exemplary and critically examine some of the gaps and complications in such framings – what ideas are being reinforced and what left out. In particular, we suggest that the complexities of relationships between learning and the space in which it takes place are being avoided here, through a tendency to resort to simplistic spatial and aesthetic metaphors. Whilst metaphor or analogy can be a creative generator of ideas about different kinds of learning spaces (Table 3.1) it is

Table 3.1. Examples of informal learning design in the UK (reprinted from Boys, 2010 pp. 20–21)

Learning space	Environment	Design attributes
Saltire Centre, Glasgow Caledonian University http://www.gcu.ac.uk/thesaltirecentre/ (2006, BDP architects) Library, atrium, internet café, informal learning, flexible study spaces, technology-rich environment, landmark building, art commission		"Using the idea that learning begins with a conversation, we created a wide range of environments to stimulate thought or discussion. These included group areas, cafés, incidental places on circulation routes, silent 'monk cells' and terraced south-facing garden areas." (http://www.bdp.com/Projects/By-Name/P-Z/Saltire-Centre/ accessed 16/05/10)
Telford College, Edinburgh www.ed-coll.ac.uk/ (2006, HOK Architects) Social hub, atrium, internet café, learning streets, open-access computer labs, flexible study spaces, technology-rich environment		"The college includes a wide variety of learning environments equipped with 'touchdown' desks for students to freely use the internet and to work on assignments. Providing natural light and ventilation to the classrooms on either side, the Learning Streets avoids the 'corridor' effect typical of large education establishments." (http://www.hok.com/ accessed 16/05/10)
Learning Grid, University of Warwick www2.warwick.ac.uk/ (2004, MJP Architects) Library, atrium, student resource centre, informal learning, technology-rich environment, flexible study spaces, artwork commission		"MJP used a range of screens and furniture to create a loose arrangement of working areas that the students can reconfigure to suit their changing needs. Curves, colours and textured materials are used to create a lively environment - and as a reaction against other facilities which provide dreary rows of computer desks." (http://www.mjparchitects.co.uk/Learning_Grid.php *accessed 16/05/10)*
Centre for Inquiry-based Learning in the Arts and Social Sciences (CILASS), and Information Commons, University of Sheffield. www.shef.ac.uk/cilass/ (2007, RMJM architects) Information Commons, open-access computer labs, informal learning, flexible study spaces, technology-rich environment		"Provides a 24/7 integrated learning environment for undergraduate and postgraduate students. It provides 1,350 new study spaces where students can study individually or in groups, using print and electronic materials. It has been designed to accommodate current and future learning methods and technologies." (http://www.rmjm.com/projects/information-commons-university-of-sheffield-england accessed 16/05/10)
Techno-café, Department of Computer Science, University of Durham http://www.dur.ac.uk/alic/technocafe/ (2006, P H Partnership) internet café, informal learning, flexible study space, technology rich environment		"The client required an innovative computer lab which offered interactive space for people to socialise during group work sessions. Work Pods encapsulating state of the art AV technology and interactive tablet PCs were developed within a modern interior and functional space to offer a hint of techno chic. Pods clad in translucent polycarbonate material, were backlit to provide a soft-lit environment." (http://www.phparchitects.co.uk/?section=technocafe.php accessed 16/05/10)
InQbate Creativity Zone, University of Sussex http://www.inqbate.co.uk/ (2006, University of Sussex) Immersive environment, new technologies, flexible teaching and learning space, teaching creativity		"Fully technology-enabled, but not technology-driven, the Sussex creativity zone provides teaching staff with personal, pedagogic and technical support, along with resources that can be used in a variety of configurations. It is hoped that this will support more innovative and effective teaching and learning in both the InQbate creativity zone itself as well as other teaching spaces on campus." (http://www.inqbate.co.uk/content/view/33/97/ accessed 16/05/10)

often used to enable a kind of slippage, which can make invisible other ways of thinking (Boys, chapter 4). The reliance on metaphor means that innovative design intentions and concepts come to be seen as transparently and obviously the same as their intended realisation and impact, such that for example, the appearance of a playful environment automatically means students will both have fun and learn informally. One is naturally 'like' the other. Here we will argue that we need to be much more careful in separating out design intentions from both their translation into actual form, and from the lived experiences of different occupants; and in developing methods for evaluating the impact of different kinds of designed spaces on learning.

CURRENT EXAMPLES AND TERMINOLOGIES

We began our study by exploring which examples of new learning spaces – and the design languages associated with them – were being used in key texts. These examples have influenced debates over the last 2 years, as evidenced by their repeated citation across sources, as well as mentions at conferences, etc. (Table 3.2). It should be noted that we need to be wary of merely repeating examples from previous literature as 'obvious' good practice, where there is a lack of explicit supporting evaluation evidence that the space has had a successful impact on learning.

Table 3.2. Example pattern of citations of UK learning space examples

	Joint Info Systems Committee (JISC) 2006	*Watson, L. et al, 2007*	*Birmingham uni LDU, 2005*	*Scottish Funding Council, 2006*	*Harrison, A. & Cairns, A, 2008*	*Neary et al, 2010*	
Learning Gateway, St Martin's College, Uni of. Cumbria	x	x					2
Telford FE College, Edinburgh	x			x	x		3
The Saltire Centre, Glasgow Caledonian University	x	x	x	x			4
Civic Quarter Library, Leeds Met University	x		x				2
South East Essex FE College	x		x				2

Table 3.2. (Continued)

InterActive Classroom, Uni. of Strathclyde	x	x		2
The Learning Grid, University of Warwick	x	x	x	3
CETL in Creativity, University of Sussex	x			1
The Hive, Queen Mary, University of London			x	1
White Space, University of Abertay				0

As already noted, in the UK the focus has been on informal and social learning spaces; with some work also on shared research areas and on academic workplaces. The new kinds of learning spaces in these reports offer a range of design metaphors and physical arrangements, all of which tend to centre on a certain set of associated ideas. Spaces are envisaged as enabling collaboration and interaction (both educational and social), articulated, for example, as 'atrium', 'street', 'hub', 'drop-in centre' and 'learning café'; particular spatial layouts for enabling a range of group and individual study combinations in space, such as learning 'nooks', 'pods', 'nexus' and 'clusters'; a tendency to informal, 'softer' furniture such as beanbags, asymmetric furniture layouts, bright colours and 'landmark' elements such as special features or artist commissions; and finally, an emphasis on what are usually called technology-rich environments. A good example of this kind of design vocabulary is Telford College in Edinburgh, designed by HOK Architects in 2006. Here, the central student social area is combined with the main entrance and reception to make a space that integrates the public and students, with the explicit intention of 'making the whole campus accessible and welcoming to the wider community'. Café-style tables are laid out beneath a double-height top-lit and arched space known as the 'Hub', lined on each side by a range of services in single-height wings, like shops. Student Services, a hairdressing salon, a beauty therapy salon, food stalls and a college restaurant are thus intermixed. In addition, the college provides a series of 'learning streets' as each level. These are wide corridors that contain open access computing facilities, as well as a series of study alcoves, and act as 'spines' to rows of classrooms and workshop facilities.

Similarly, the Saltire Centre, Glasgow Caledonian University – another frequently referenced example – is based on a large, shared space. The Saltire library centres around glass atrium and exhibition space, five storeys high, which 'in addition to providing maximum natural lighting […] will aid natural ventilation and environmental control within the building', and is here linked to one 'street' – a

student services mall – this time offering 'a one- stop- shop for our students, enabling them to access all of the services that they might need in a single location' (http://www.gcu.ac.uk/thesaltirecentre/building/index.html). There is a 'learning café' for 'relaxed group study space', outdoor terraces, and a variety of seating arrangements and types, as well as two 'landmark' artists' commissions. But whilst Telford uses the key elements (hub + learning streets) as a means to structure the layout of the whole building, Saltire is designed to provide a variety of different spaces, from noisy social interaction areas for group work, to places for silent study. It was also intended that this flexibility would enable staff 'to experiment further with student-centred, active learning approaches'.

From these and other examples, it seems that a series of new design types are already coming into such common usage as to potentially be the new norm, around this language of 'hubs' 'streets', 'clusters' and 'beanbags'. This is not to suggest that such spaces are 'wrong' or not well designed. Rather it is to raise several important questions that are not often asked. How are these new typologies being developed and justified and what forms of evidence and evaluation support them? Has there been any 'citation distortion', that is, concentration on, and repetition of, certain examples rather than others? Are these new kinds of environment enhancing learning as predicted, and if so, where is the evaluation evidence? Are there other useful design examples that tend to be ignored in the literature and if so, why? How do these particular design concepts, framed at the level of learning encounters, connect to other terminologies more prevalent at the level of the educational institution such as 'sense of place' (Dober, 1992; Temple, Chapter 10). Does this recent addition of new types of learning space provide for the full range of learning in post-compulsory education, or are there important gaps and alternatives which are not being considered?

To investigate what other examples of learning spaces in post-compulsory education were *not* being cited in theses debates, we looked at the listings in architectural magazines for a randomly selected period. As expected, there are many, many examples of buildings being designed for universities, colleges and other institutions, especially given that in the UK there had been (until recently) a major capital building programme in both the post-compulsory education and schools sectors. Even the most desultory search of some online UK architectural journals from January to July 2010 showed newly designed examples of learning spaces in post-compulsory education that ranged from a banquet created out of cardboard by architecture students at the University of Cambridge (http://www.arplus.com/9298/cardboard-banquet-cambridge-uk-by/); via Thomas Heatherwick's latest project – eight units for artists/craftspeople/creative industry types on the campus of Aberystwyth University - and a waterfront building at the University Campus Suffolk, Ipswich; to more fully fledged architectural projects at Downing College Cambridge, Nottingham University (Bioscience Building), University of Liverpool (Library), Edinburgh University (School of Informatics), Trinity University College, Carmarthen, Wales (new teaching block), University of East London (Cass School of Education), Fitzwilliam College Cambridge (Library and IT Centre), University of Essex, (new Business School and Library extension) and Kings

College London (Neuroscience Institute). Of course, it is obvious – when we think about it – that the range of potentially good examples of learning spaces for post-compulsory education is enormous. The more crucial point here, then, is the problem of just how we can engage with such a large number of already built examples; and how we can begin to understand from all of these what does and doesn't work for different learning contexts and requirements.

LOOKING BEYOND 'INFORMAL' LEARNING SPACES

In order to do this, we need to do (at least) two things. As already mentioned, we need to be more critical of the learning spaces examples currently in general circulation by, for example, demanding proper evaluative evidence of impact on learning - or other explicit performance measures - rather than merely repeating existing citations. And we need to more rigorously compare and contrast the various spatial and design languages and arrangements being used to articulate different aspects of post-compulsory learning. This is not necessarily about moving beyond the 'hub, cluster and beanbag'– which we suggest are already on their way to forming the *normal* typology of contemporary learning spaces – but about developing a deeper understanding of this typology's implications for learning and of how and where its language might be extended, challenged or transformed. Fiona Duggan in this volume, for example, offers a case study where students at a further education college wanted learning spaces that reflected professional and employment-related relationships, rather than informal learning per se (Chapter 11). It is also worthwhile to look beyond the university or college, by extending into adult education in museums, galleries and libraries; and to critically examine other building types such as offices (Thody, Chapter 9). Elsewhere, Boys (2010) has discussed a few examples of these other types. Here, we will just outline some of the arguments she makes there, by drawing out differences in the various architectural means being offered for shaping learning. Importantly, these few examples are not just about expressing informal learning through space design, but rather aim for something deeper; they want to *re-categorise* the assumed relationships in educational activities between teacher, learner, researcher, citizen and employee, that is, where and how learning occurs. It should also be noted that these examples are not offered as *substitutes* for the learning space designs already mentioned, or assumed as 'better' versions of practice. Rather it is through the examination of other spaces such as these – as *comparative* forms of arrangement – that we can better inform and open up to more rigorous enquiry, current ideas about when and how design can help enhance the learning spaces of post-compulsory education.

Idea Store, Whitechapel, London

The five-storey Idea Store in Whitechapel was designed by architects Adjaye Associates in 2005, as one of six in Tower Hamlets; part of a local authority strategy to re-think and re-energise its library provision in the area (Figure 3.1). It combines traditional library and information services, with classrooms for adult education

Figure 3.1. Interior of Idea Store, Whitechapel, London. Photograph: Jos Boys.

(supported by courses supplied on site by Tower Hamlets FE College), a local history archive and a variety of reading and study spaces.

As the architects describe it:

> The building is conceived as a simple stack of flexible floor plates wrapped in a unified facade that combines transparency with colour. A curtain wall consisting of a repeating pattern of coloured glass, clear glass, and glass faced aluminium panels encloses all four facades. Each floor is arranged like a promenade that reveals the services and facilities being offered while affording arresting views of the surrounding area. […] The café is placed on the top floor to draw people past the various facilities and rewards them with panoramic views of the city of London. (http://www.adjaye.com/)

This project, then, reverses the Telford College model of offering community facilities within a campus setting. Instead it brings more formal educational spaces out into the public realm of the library, already a setting for voluntary, informal learning. Here the classrooms act in at least two ways. They offer a potential transition zone – a bridge – between the learning here and more structured further education study at the college itself. And they provide flexible additional learning spaces, which are densely occupied all the time in many ways, including being taken over for general study by individuals and groups when no organised sessions are on. In this process the architectural planning is also reversed from the current informal and social learning university typologies we have been considering. Rather than a central atrium, which makes the experience mainly one of looking *inwards*, at the Idea Store Whitechapel, the relatively simple device of 'wrapping' library shelves around the central staircase core and then surrounding it with a 'fat' band of circulation with windows to one side means that almost all the various study spaces look *outwards*. A variety of seating and desks in individual, group and

moveable arrangements arrayed along the perimeter of this outside wall can then form nooks and corners, with varying degrees of privacy, separation and view.

British Library, London

In a similar vein, but aimed at a different constituency, the British Library in London (designed by Colin St John Wilson and completed in 1997) has opened itself up to wider audiences compared with its previous relatively exclusive incarnation as the British Museum Reading Room. Again a series of study spaces are offered, from a canteen and café, to various 'corners' and corridors, as well as the main reading room itself, supported by a range of different furniture and settings, and giving access to a variety of exhibitions, collections and archives. What is most relevant to the arguments here is that, although very different in design to the Whitechapel building, the British Library also offers an environment of relaxed studious calm. It is undoubtedly about learning, visually expressed through the central, transparent book-stack rising through each storey in the public zone; and mediated via a design language of soft lighting, crafted materials and clean, white surfaces, framed by the architect's interest in the inter-relationships between human presence, proportion and detail. The building's layout and atmosphere articulate places for a variety of modes of learning, simultaneously offering up spaces for distraction, relaxation and absorption as well as for activities that may be collaborative and/or solitary, concentrated and/or informal. As such, in different ways both buildings offer at least a dialogue with, if not a critique of, those learning spaces in universities that rely on beanbags, bright colours and the expression of playfulness and 'fun' to indicate that social and informal learning is taking place.

White Space, University of Abertay

Within the university sector in the UK, there has been a range of initiatives at the intersections between post-compulsory education, business and local communities. What makes White Space stand out is not its 'architectural' quality (unlike the previous two examples) because it is a relatively basic conversion of an existing warehouse. Rather, the project is exceptional in its creative re-thinking of the potentially multi-layered intersections between and across students, teachers, researchers and practitioners; that is, it goes beyond the simple student-teacher dyad. Developed within the University's School of Computing and Creative Technologies, the space combines open tutorial and seminar areas with lecturers' work-spaces, provision for local businesses, high-quality digital facilities and relaxation areas:

> The White Space concept surrounds our students with the buzz of a real working environment, allowing them to share real-world knowledge and experience. Tutorials and lectures also take place here, which encourages lively discussions in the relaxation area with fellow students and staff afterwards. […] White Space is about creating a set of essential, personalised assets and

> including their development in all of our programmes (http://www.abertay.ac.uk/studying/schools/amg/, assessed 10/02/09)

Thus, for example, a Masters course combines a business start-up unit for each student at mezzanine level, together with shared facilities, all organised around a central seminar space (Figure 3.2).

Figure 3.2. Masters course facilities, White Space, University of Abertay. Photograph: Jos Boys.

Each of these examples would need to be analysed in much greater depth (see Pearhouse and Bligh, Chapter 1, Melhuish, Chapter 2) to enable us to draw out any useful conclusions about the intersections between the design of space and its impact on learning. Here though, as with Duggan's three alternative 'models' (Chapter 11), what these examples aim to offer are alternative ways of thinking about learning which open it up for critical comparisons and debates; rather than closing things down through the assumption of an 'obvious' informal design typology (obvious only through its binary opposition to the 'appearance' of formality.)

THE VALUE AND PROBLEM OF USING METAPHOR FOR DESIGNING LEARNING SPACES

As I mentioned at the beginning of this chapter, metaphor is a central, though not always explicit, aspect of architectural design. As Peter Jamieson writes about his approach to working collaboratively on learning space design:

> The use of 'metaphor' can provide a basis for individuals and teams (especially when they have little formal design expertise) to engage in the design process and establish a common language. I have used the metaphor of the 'classroom as nightclub or cabaret' as the basis for a recent and extremely effective refurbishment of a traditional classroom into a multi- level collaborative

> learning environment. Other metaphors I have used include 'classroom as empty space' – a room with little furniture and which conjures up various thoughts of what a student would do and how they would do it; 'classroom as a sandpit' – a space for play and discovery (words that are seldom used when describing learning in higher education); 'classroom as café' – a casual lounge setting with no obvious 'front' of class location. (Jamieson, 2008, p. 32)

In the new typologies for learning spaces, concepts such as atrium, street or hub do two things simultaneously. They act metaphorically to represent through analogy the idea of inter-mixing, sharing and unexpected encounters; and they are used to literally articulate the space as an organisational form with these assumed characteristics[1]. So, the 'drop-in centre', learning 'café', 'learning nook' or study 'pod' offer a metaphorical image of different kinds of informal grouping as well as intending to offer the various locations in which peer-to-peer and informal teacher–student interaction can easily occur. The tendency to informal, 'softer' furniture such as beanbags, asymmetric furniture layouts, bright colours and 'landmark' elements such as special features or artist commissions also speaks of these new socially oriented and informal 'identities'; as does the associative resonance between new technologies (with their focus on social networking, anytime access and interactivity) and new attitudes to learning.

But, in fact, such a use of metaphor – not only as a useful generative device but also literally mapped into actual design realisations – raises many questions. First, to what extent are such metaphors shared? While beanbags may well express informal, comfortable, playful and relaxed ways of working to some students, others see them as childish and inappropriate (Melhuish, Chapter 6). Second, are there other metaphors (besides the ones currently in vogue) that might usefully add to our repertoire for post-compulsory education, as indicated by Jamieson[2]? Softroom, the architects of the Sackler Centre for Arts Education at the Victoria and Albert Museum in London, for example, reference artists' studios as a key metaphor in support of their design (http://www.vimeo.com/5858785, accessed 26/03/10). How many and how far might metaphors go before they cease to 'work' in relationship to our current ideas about learning? More generally, how does the underlying associational process work such that a metaphor has particular resonance in specific situations? And perhaps most importantly, what is the relationship between the expressive, representational aspects of such metaphors and their lived experience? In relation to this last question there remains surprisingly little research. Where work exists it tends to stem from anthropology and ethnography rather than education or architecture. And it is deeply critical of the mismatches, particularly in modernist design, between original metaphorical intentions and the experiences of everyday life (Boudon, 1979; Holston, 1989). This underlying tendency for particular problems, where the metaphorical intention is taken as evidence of what actually happens, can be illustrated again and again. For example, the idea of the 'street' (which has been a staple of post-war secondary school design in the UK (Saint, 1987)) has had many criticisms there, but has been re-articulated again, for example, in new post-compulsory research institutes, particularly in emerging areas such as biotechnology. This is not to say that some street-type

spaces do not work in educational environments, only that they are often based on the simplistic notion that mere adjacency will, of itself, enable constructive interaction. For, as Nigel Thrift writes, 'these buildings are clearly meant to manipulate time and space in order to produce intensified social interaction so that all manner of crossovers of ideas can be achieved' (Thrift, 2008, p. 44). He lists several buildings in the UK and the USA designed on this basis and goes on to outline their common features:

> First, they will often include an explicit attempt to represent 'life', whether that be swooping architecture, some form of public display of science, or similar devices. Second, they are meant to be highly interdisciplinary. […] Very often, they will place apparently unlike activities (such as computer laboratories and wet laboratories) side by side, or have unorthodox office allocation schedules, all intended to stimulate interdisciplinarity. Third, they are porous. Personnel […] and information constantly flow through them. […] Fourth, in keeping with an architectural rhetoric about changing ways of working which arose in the mid-1980s and is now an established convention, they are meant to encourage creative sociability, arising out of and fuelling further unpredictable interactions. From cafes to temporary dens, to informal meeting rooms, to walkways that force their denizens to interact (Duffy & Powell, 1997), the idea is clearly to encourage a 'buzz' of continuous conversation oriented to 'transactional knowledge' and, it is assumed, innovation. Fifth, they are meant to be transparent: there are numerous vantage points from which to spot and track activity, both to add to the general ambience and to point to the values/value of the scientific activity that is going on. (Thrift, 2008, p. 45)

But Thrift also goes on to note that 'although these buildings place a clear premium on interdisciplinary discovery, it is often not clear how that process of discovery is being maximised'. He suggests that in addition to the representational/functional/facilitative elements of the architecture itself, the managers of these buildings have also had to implement new *processes* – the designation of explicit 'brokers' and 'pathfinders' to enable cross- disciplinary collaboration, mechanisms to keep people 'on the move so as to avoid group decay and organisational inertia' (2008, p. 46).

Metaphor then is a useful but dangerous tool for designers, their clients and users. It can represent a social-spatial idea and give it the appearance of 'obvious' and 'commonly agreed' reality, especially where it becomes a well-recognised convention through time. But this does not mean that the resulting space is interpreted by all its occupiers in the same way; that other ways of expressing spatial and social relationships are not possible which are not generated from metaphor; and – most crucially – that the representational image necessarily or transparently translates into an equivalent everyday lived experience. In many ways this is a counter- intuitive idea; we are so used to taking design metaphors as powerful expressions of social reality, linking high-rise housing, for example, to poverty and social deprivation, and suburban estates to middle-class conformity, that we are

surprised (and consider it newsworthy) when reality fails to match the metaphor – for example, where a violent crime happens in a suburban area. But at the same time, we often experience the inconsistencies and tensions between the representational qualities of a space and its lived engagement. In the above example of 'street' designs for new research institutes, for example, many of us would remain unconvinced that merely being put together with a variety of people in close proximity is likely to 'automatically' enhance our relationships with them, unless there is already a commitment to this end by all the individuals involved. Even more problematically, the use of metaphor can constrain other, more rigorous and theoretical, engagements with space and learning. The commonsense analysis of space, where designs that look informal are somehow assumed to generate informal learning is tautological (with each 'proving' the other in a closed loop). It seems so obvious that a more informal setting will generate informal learning that we fail to ask deeper questions. For example, if our aim is to help students to learn *how to learn* in this way (that learning is about being collaborative, creative, interactive and lateral) then we may in fact need to develop a highly structured series of development activities[3]. Whether these are considered formal or informal is actually of little consequence. What matters is whether the teaching and learning is of value, and has an effective impact.

This problem with the use of metaphor as a design method is not new to architecture and interior design. Along with cultural and critical theorists more generally, designers and critics have long been arguing against exactly this emphasis on representation (where space is articulated as a setting) and towards practices (where space is a process), an issue Boys will explore further in Chapter 4. She will suggest how some current ideas about learning from both architectural and educational theory, centring on learning as a liminal and transitional journey are valuable to this debate about learning spaces, because whilst being deeply 'spatial' they do not offer obvious design metaphors, and therefore demand a different kind of thinking. Interestingly, none of the three built examples outlined above needed to make obvious metaphorical references, focussing instead, as we have said, on articulating social and spatial relationships. In addition, whilst Adjaye and Wilson are from different architectural generations and approaches, they each bring their own recognisable design attitude to bear and, with it, a tendency to a particular language of form which is not specific to post-compulsory learning, but rather has been adapted to a specific situation. And White Space is a simple and relatively 'non-designed' space (except in as much as creative groupings enjoy the imagery of re-using industrial buildings.)

CONCLUSIONS: ENGAGING WITH THE COMPLEXITY OF LEARNING SPACES

In one emerging educational theory, post-compulsory learning is seen as an engagement with what Meyer and Land (2003) call 'threshold concepts' that is the specific knowledge and practices of a subject specialism which sit beyond everyday commonsense and are in fact, often counter-intuitive, and therefore

hard to understand. This is a kind of 'troublesome knowledge' as described by Perkins - 'that which appears counter-intuitive, alien (emanating from another culture or discourse), or seemingly incoherent' (in Meyer & Land, 2003, p. 7). As Cousin puts it:

> [F]rom this view, mastery of a threshold concept can be inhibited by the prevalence of a "common sense" or intuitive understanding of it. Getting students to reverse their intuitive understandings is also troublesome because the reversal can involve an uncomfortable, emotional repositioning. (Cousin, 2006, p. 1)

The assumption in many discussions about learning spaces that informal and formal learning are in some simple binary opposition to each other, which can be literally and transparently translated into architectural form through designs that *appear* either 'playful' or 'boring' is just such an example of pre-liminal unthought-through 'commonsense'. And the inter-relationships between an activity and the space in which it takes place can feel counter-intuitive. This is in spite of that fact that we know that *both* learning and architectural design are complicated processes of transition and translation. In each case participants bring with them different knowledge, beliefs and attitudes to the problem in hand; and engage with and negotiate their position through time, based on partial knowledge of complex variables (Sherringham and Stewart, Chapter 8). To add to our difficulties, these various understandings and compromises must somehow then be translated into *another* language besides talk and text, the vocabulary of three-dimensional material form and space. Whether new-build or a conversion, possible design choices are also constrained by the material parameters of the existing site, and can only be produced through another sequence of processes – procurement, building, construction and management. Finally, the resulting spaces are occupied by many different people and adapted and transformed through time as requirements and attitudes change. How little like the assumed metaphorical, transparent and direct connection between design intention and reality is this!

In this chapter, we have suggested that a new typology for learning spaces is already becoming the norm, in the UK at least, as particular built environments become increasingly commonly cited as examples of what universities and colleges *should* be doing. We are not suggesting that this vocabulary is wrong, only that whilst simplistic metaphors may be useful for generating ideas about form, they do not work as an 'obvious' mode of evaluation and, in fact, can often *stop* us thinking rigorously about space and learning. In addition, by accepting the language of streets, clusters, hubs and beanbags as the 'obvious' commonsense, other potentially valuable modes for articulating the spaces of post-compulsory learning (from across architectural, educational and estates management perspectives) can become invisible, ineffectively articulated or remain under-researched. Here we have begun to indicate that deliberately problematicising the relationship between space and the learning that goes on in it has a very important potential for future debates about improving educational spaces. This is not just about being more creatively critical of existing assumptions. It can also set us on the path to an equally difficult

but more rich and deep engagement with learning, not just as a shift from formal to informal modes but as an opportunity to completely re-think and re-categorise what post-compulsory learning *is*, where it should take place, and the extent to which space (in all its various meanings and interpretations) *matters* in this process.

NOTES

[1] Boddington (personal correspondence) notes that these kinds of metaphors often align the university, the city and urbanism in interesting ways that need more unpacking; both to see why this connection currently appears so potent, and to explore when and if these metaphors run out of their usefulness and currency. We should be asking, for example, why learning (particularly social learning) is so often associated with the spaces of the street and of crowds. See also Temple, Chapter 10.

[2] There are many potential alternative metaphors not considered here, for example, the idea of a 'learning home', which suggests a sense of rootedness and familiarity, a domestic space that offers more in the way of dialogue with other contemporary educational concerns such as academic 'health' and well-being, rather than the focus offered by ideas of collaborative streets and hubs. See also Sagan, chapter 5, for a discussion of 'holding' environments.

[3] The dangers of the metaphor and of the misrepresentations and misalignments of image and representation that it can engender are important issues not just for architects and designers, but have similarly counter-intuitive effects in the management and construction of *learning* itself. Rigour and structure in the design of learning activities may well be needed within an informal setting in order to properly support students' educational development. In art and design disciplines, for example, learning to be creative is often seen simply as a 'freeing up' of the imagination. This relaxed seeming image belies the importance of providing a very tight safety net that both 'holds' learners and enables them to take creative risks confidently and effectively. We also need to find frameworks for evaluation that reveal these underlying anomalies and do not conflate different conditions of spatiality.

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