The Co-Evolution of Pedagogy and Learning Spaces for a Better Student Experience

Dr Hiral Patel, Cardiff University

A long-standing challenge

What is the purpose of the university estate, one might ask? Learning is the first and foremost answer that comes to my mind. Learning, particularly learning through life, is becoming increasingly critical in the context of the fourth industrial revolution. Professor Stuart Russell emphasised the importance of education in his 2021 Reith Lectures on living with Artificial Intelligence. The workplace sector is discovering that, after working from home during the COVID-19 pandemic, the key role of offices is to promote organisational culture and to learn from colleagues (Katsikakis et al. 2020).

Considering that higher education institutions' core aim is learning, one would have thought that there is a strong body of knowledge on relationships between learning and learning spaces. However, that is not the case. There have been many calls to develop our understanding of interactions between learning activities and learning spaces, as well as building capabilities to achieve an alignment between learning and space. An in-depth review on the topic of learning spaces was conducted by Temple and Fillippakou (2007). They found that the interactions between learning activities and learning spaces within the higher education sector are not well understood. In addition, it is not just the design of learning spaces, but also the ongoing maintenance of learning spaces that matters. Temple (2008) concluded that "… *connection between day-to-day premises maintenance and learning may need to be drawn to the attention of institutional managements. It seems that small things may make a big difference to learning, rather than, necessarily, grand architectural statements*". A decade and a half later, in the context of the COVID-19 pandemic, Taylor (2021) re-emphasised the need for architectural interventions based on an integrative approach that linked learning spaces and teaching/learning styles. Taylor urges to maximise the use of existing estates and I would argue that to do so, we need to have mechanisms in place to achieve continuous alignment between learning and spaces.

The current state of play

'Aligning learning and space' survey was conducted to map the current state of skills, capabilities, resources, and processes within higher education institutions to align curriculum and learning activities with physical spaces. The survey questions focused on how such alignment is achieved at different stages of curriculum development, as well as during new building and refurbishment projects.

The survey was part of an ongoing programme of research on the future learning environments and was funded through ESRC Impact Accelerator Project at Cardiff University which involved my secondment at SUMS Consulting. Project partners included the Association of University Directors of Estate (AUDE). It was deemed essential to hear from both estates professionals as well as education developers and academic/teaching staff. Hence, the survey was disseminated to AUDE members, selected members of the HEDG and SEDA JISCMAIL group. The survey was open from September to December 2021.

The survey gathered 11 responses. The responses represented 10 higher education institutions, one of which was a European institution while the others were from the UK. Seven respondents had a role in education development while two respondents were Estates staff. While this is not a statistically representative survey, it does offers insights into a few key themes.

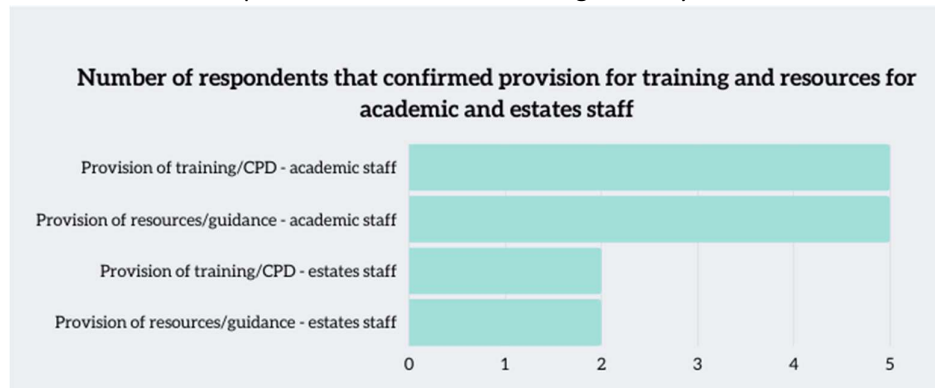Following findings emerged from the survey:

1. Capabilities for aligning learning and space are not organizationally co-located. They are dispersed within an institution and requires to be brought together.
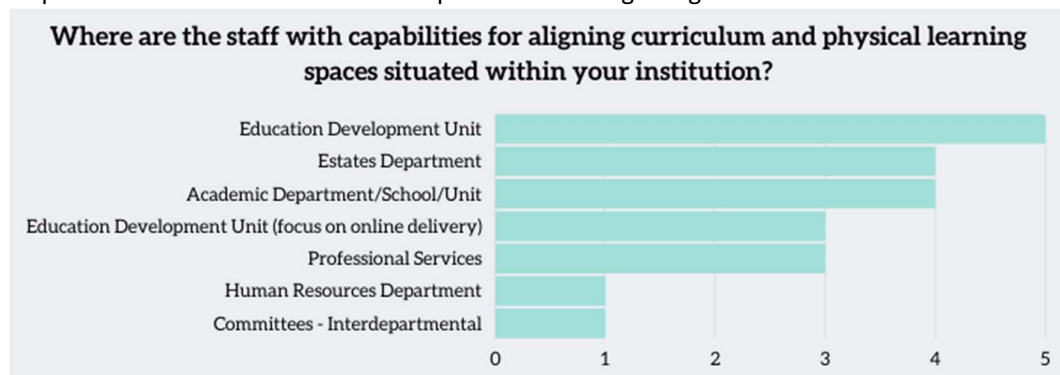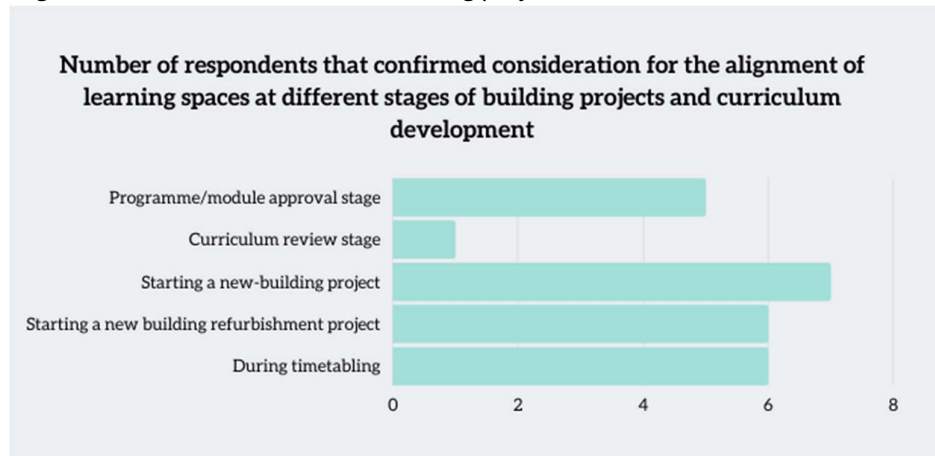

2. The staff with capabilities to jointly address academic practice and learning spaces are not present either in the estate departments or education development units.
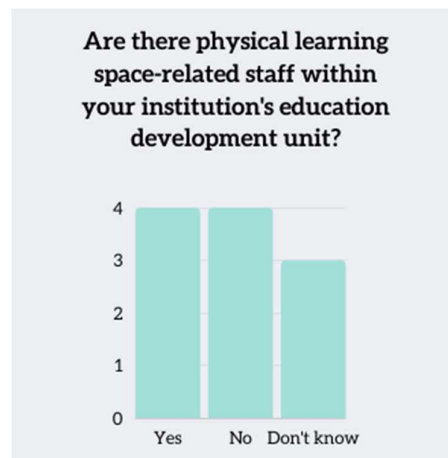
3. While there is some provision of training and resources to align curriculum and space for academic staff, such provision for estates staff is significantly less.

Number of respondents that confirmed provision for training and resources for academic and estates staff

Category	Value
Provision of training/CPD - academic staff	5
Provision of resources/guidance - academic staff	5
Provision of training/CPD - estates staff	2
Provision of resources/guidance - estates staff	2

4. Curriculums and academic practices are constantly evolving. However, consideration of alignment between curriculum and space during curriculum review stages is minimal. Also, alignment is not considered in all building projects.

Number of respondents that confirmed consideration for the alignment of learning spaces at different stages of building projects and curriculum development

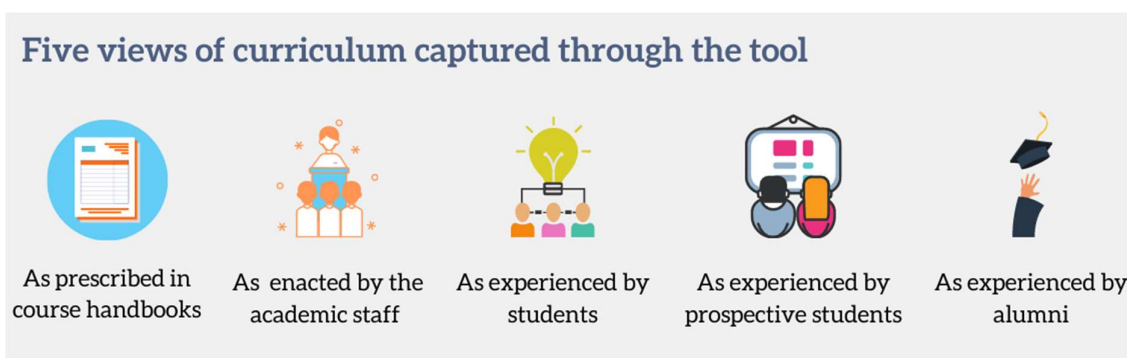| Category	Value
Programme/module approval stage	5
Curriculum review stage	1
Starting a new-building project	7
Starting a new building refurbishment project	6
During timetabling	6

Learning-space aligner tool

The learning-Space Aligner tool addresses some of the challenges that are emerging from the above findings. It creates a forum for reflecting on existing curriculum design and visioning future learning strategies while engaging with physical spaces actively. The tool can be used for briefing new learning spaces as well as evaluating the fit of existing spaces for evolving curriculum. The 'Learning-Space Aligner' tool aims to provide a first step in creating an action plan for change.

Key features
- Learning outcomes and learning activities drive the discussions.
- Service design concepts of journey mapping and channels are used.
- The tool is applied through workshops with academic staff, staff from various university services and students.
- The tool could be applied at the levels of either a module or a programme.
- The tool could be applied at annual module/programme reviews as well as in curriculum design exercises.
- The tool looks at learning space holistically and captures both physical and virtual spaces.

- The tool enables different voices to be heard. The tool captures five views of curriculum as shown below:

Five views of curriculum captured through the tool

| As prescribed in course handbooks | As enacted by the academic staff | As experienced by students | As experienced by prospective students | As experienced by alumni |

Who is this tool for?

- **Estates professionals**
  The tool can be used to identify space needs across the campus and inform estates development strategy. It could provide useful evidence for informing business cases as well as evidence for assessment schemes such as Learning Space Rating System.

  > Use case: I am a Project Manager and I want to identify what kind of learning spaces will be needed when I co-locate three schools on one site. The tool will aid to identify common pedagogical approaches across the different schools. This will assist to establish shared and specialist spaces needed and the intensity of their demand when it comes to timetabling.

  > Use case: I am a Project Manager and I have initiated a programme of improvements for lecture theatres across the campus. Using the tool with key academic/teaching staff and students will aid to understand their experiences in existing lecture theatres. This could inform the principles for the improvement programme.

- **Architects involved in building projects**
  Taylor (2021) identifies that architects have a critical role to play in the briefing process to create healthy and adaptable learning spaces. Reflecting on three university projects, Nicholson (2010) concludes that briefing and design are inextricably interlinked and the success of one depends on the other. The tool offers a mode for continually discussing the relationship between learning activities and learning spaces throughout the project, as well as after the project is completed to make ongoing adjustments and interventions.

  > Use case: I am developing a detailed brief for a new building for a School of Engineering. The tool will help to gather insights into current practices and future teaching/learning vision of the school. The tool could also be used with students to understand how they use different spaces within existing building.

- **Education development staff**
  Jamieson (2003) suggested that academic developers have a key role to play in the design of learning spaces, particularly in setting out project briefs. In addition to this, academic

developers have an opportunity to play three further roles once the building projects are completed:

- o Firstly, a need to engage with facilities management teams to ensure continuous alignment is achieved between existing learning spaces and the ever-evolving curriculum.
- o Secondly, to develop capabilities within the teaching staff to sense spatial constraints and provide resources on how they might overcome some, if not all, of those constraints. This becomes particularly vital in the context of blended delivery where those constraints might be overcome through online tools.
- o Thirdly, the academic developers could gather insights from the ongoing use of learning spaces and inform the development of a programme of building works for their institutions. The key activity in this role would be to gather evidence to inform future design decisions.

> Use case: I am Education Development Manager and I am delivering a blended learning project for the School of Arts Humanities and Social Sciences. The tool can be used alongside curriculum design methodologies to gather spatial and technological implications of the new mode of delivery. It will also aid in capturing students' experiences and support curriculum co-creation activities.

- **Academic/teaching staff**
  Based on his work on dynamic capabilities, Teece (2014) notes that "…the strength of a firm's dynamic capabilities determines the speed and degree to which the firm's idiosyncratic resources can be aligned and re-aligned consistent with the firm's strategy". Building on the dynamic capabilities framework, Green et al. (2008) identified that enacting strategy is a collective endeavour that involves individual actors. Thus, focusing on the role

> Use case: I am Director of Teaching and Learning for undergraduate programmes in the school. We aim to create a shared first year across different undergraduate programmes in the school. The tool will enable to identify the spatial and technological features required to deliver the joint first year. The tool will be applied through a staff workshop to capture the desired learning outcomes and learning activities for different modules of the shared first year, and the implications on learning spaces and learning technology will be identified.

> Use case: I am Head of Student Experience for my faculty. The NSS scores for one of our schools are particularly high. I want to gather best practices from that school and share it with other schools. To gather the lessons, the tool can aid to capture students' experiences across different modules, and how physical spaces, digital technologies and support services are integrated to create an excellent student experience.

> Use case: I am Course Director for our BSc programme and I am planning to create online/distance learning version of this programme. By comparing current face-to-face delivery with how it might be delivered online in the future, the tool will identify the physical spaces and technological requirements that will be needed for the programme.

of individuals is important in enacting strategic visions in practice. The tool aids individuals and teams to identify a plan of action to achieve strategic visions of teaching and learning.

Pilot project

The tool was piloted at the Department of Computer Science, Cardiff University. The purpose of the pilot was to exchange ideas on the future teaching and learning vision, and how strategic alignment might be achieved with learning spaces. Further details of this pilot project can be found here.

A subsequent event was organised with AUDE to bring together teams of academic and estates staff to review the tool. The event provided useful insights into potential use cases and re-affirmed the existence of challenges that the 'Learning-space aligner' tool is intending to address.

The conceptual basis of the tool

The conceptual basis for this tool is derived from a decade-long research programme. The foundational concept for this tool is to think about a building as socio-material interactions and not as a static object (Patel and Tutt 2018). This implies that the learning experience is a triad between people (academic staff, teaching assistants, student support staff, peers and external stakeholders), learning environments (physical and virtual spaces) and learning activities (assessments, exercises, lessons).

The notion of continuous alignment between organisational practices and buildings is based on my work on the DEGW Archive. It is evident from DEGW's work for several multi-national clients that alignment is not a one-off activity, but runs parallel to organisational changes (Patel and Green 2020). The continuous evaluation of a building's use, based on qualitative and quantitative data, is critical to inform ongoing interventions (for example see this paper on measuring occupancy of buildings - Patel, 2019). Lessons learnt from DEGW's work also reveal that focusing on experience (a great place to learn) is as important as if not more than efficiency (density and flexibility). This is particularly relevant in the immediate context of blended learning as well as longer term challenges around the new models of higher education (Patel 2019b).

I am currently co-authoring the third edition of the book 'Managing the brief for better design' with Alastair Blyth, John Worthington and Fiona Young. We are developing the idea of 'Integrative briefing' which connects different physical scales (chair to the city), organisation and spatial as well as physical and virtual. The integrated approach requires moving beyond a building as a unit of reference and thinking about the campus as an ecosystem of learning spaces that spills into its urban context.

References

Green, S.D. et al. 2008. Competitive strategy revisited: Contested concepts and dynamic capabilities. *Construction Management and Economics* 26(1), pp. 63–78. doi: 10.1080/01446190701656174.

Jamieson, P. 2003. Designing more effective on-campus teaching and learning spaces: a role for academic developers. *International Journal for Academic Development* 8(1–2), pp. 119–133. doi: 10.1080/1360144042000277991.

Katsikakis, D. et al. 2020. *The future of workplace: How will COVID-19 and data shape the new workplace ecosystem?* Cushman & Wakefield. doi: 10.1108/14777280710727398.

Nicholson, R. 2010. Briefing is a design process. In: Blyth, A. and Worthington, J. eds. *Managing the brief for better design*. Second. London: Routledge, pp. 197–204.

Patel, H. 2019a. Are we looking at the same thing? Multiple methods to frame 'occupancy' of a library building. In: *35th Annual ARCOM Conference, 2-4 September 2019*. Leeds, UK

Patel, H. 2019b. *The Future of Learning Environments*. London: Higher Education Design Quality Forum.

Patel, H. and Green, S.D. 2020. Beyond the performance gap: reclaiming building appraisal through archival research. *Building Research and Information* 48(5), pp. 469–484.

Patel, H. and Tutt, D. 2018. "This building is never complete": Studying adaptations of a library building over time. In: Sage, D. and Vitry, C. eds. *Societies under Construction*. Palgrave Macmillan, pp. 51–85.

Taylor, I. 2021. Universities and colleges. In: Gillen, N. et al. eds. *RETHINK Design Guide: Architecture for a post-pandemic world*. London: RIBA Publishing, pp. 187–206.

Teece, D.J. 2014. The foundations of enterprise performance: Dynamic and ordinary capabilities in an (economic) theory of firms. *Academy of Management Perspectives* 28(4), pp. 328–352. doi: 10.5465/amp.2013.0116.

Temple, P. 2008. Learning spaces in higher education: An under-researched topic. *London Review of Education* 6(3), pp. 229–241. doi: 10.1080/14748460802489363.

Temple, P. and Fillippakou, O. 2007. *Learning spaces for the 21 st century: A review of the literature*. Higher Education Academy.