14: Towards aligning pedagogy, space and technology

What is a learning space?

The concept of a 'learning space' is problematic as various stakeholders invariably will not share the same common language or understanding of the term. For architects, estate planners, educators, psychologists, librarians, learning technologists, tutors and students it will mean something more than just a pure physical space, embracing sensory, virtual, social and cognitive spaces. Introducing emergent (e.g. mobile) technologies into the learning context creates further complexity as they add their unique characteristics and opportunities. When presented with a means to explore and make sense of new spaces and technologies tutors may plan and develop innovative pedagogic practices and approaches to enrich the learning experience. However, their students may exploit or subvert these plans as they make sense of the new environment and encounters within tutors and their peers.

Troublesome spaces

Media rich, large-scale learning spaces appear to have the potential to provide innovative opportunities for a rich and diverse array of learning contexts and encounters which students find stimulating and which promote learning.

However, Radcliffe (2008) cautions that "Peer to peer/social learning spaces are some of the most talked about areas within educational institutions and also the least understood and studied." Temple's (2007) literature review of learning spaces showed that a significant proportion of the literature makes various claims about the benefits of learning spaces which are either anecdotal or are not empirically supported.

The potential opportunities provided by new learning spaces can become 'troublesome spaces' for tutors due to their:

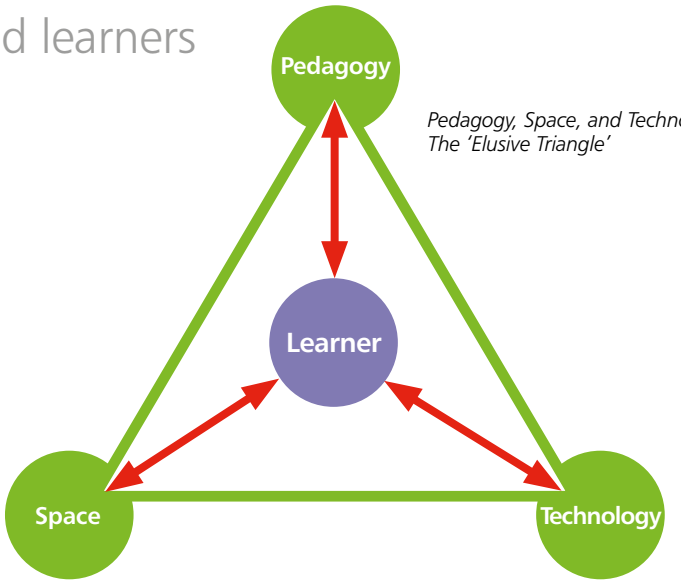
- not having developed a thorough 'mental map' of the learning space and the facilities that are available in and around it
- underestimating the time involved in designing and planning for these 'learning events'
- attempting to control an unpredictable and open 'teaching' environment
- existing learning and teaching philosophy

Students also experienced Augustine House as a 'troublesome space'. It was not always clear to them what they can and cannot do in certain spatial configurations; this was further compounded by the fact that they perceive it as being "just a library".

Aligning space, technology and learners

Much work has been done to try and investigate a relationship between pedagogy, space and technology and whether these three elements are, or can be, aligned in some way.

> *"…the convergence of technology, pedagogy, and space can lead to exciting new models of campus interaction."*
>
> *Oblinger (2005)*



Pedagogy, Space, and Technology: The 'Elusive Triangle'

Radcliffe (2008) provided a tool that uses the relationship between pedagogy, space and technology in order to inform the design, operation and assessment of learning spaces, with each of the three elements influencing each other in a reciprocal manner. It places great emphasis on the importance and arrangement of space to influence patterns of learning and teaching.

Fisher (2005) went so far as to propose a range of pedagogies that could be used, depending upon the subject matter, to support a range of student skills and competences that could be linked to particular spatial configurations that lent themselves well to these learning activities.

The varying experiences of both academic staff and students surrounding Augustine House and the iBorrow netbooks suggest that within any given learning space there is a constant negotiation between pedagogy, space and technology. A conceptual model has been tentatively proposed which shows pedagogy, space and technology as creating an 'elusive triangle' with the learner based in the heart of the three elements. The triangle is 'elusive' because it recognises that the intersection and interplay between the three elements and the learner is complex and problematic and the relationship is not always fully understood.

The triangle itself represents the 'learning environment' in which all four elements play an active part. The 'learner' is an active participant inside the 'pedagogy-space-technology' triangle, influencing, and being influenced by, these three elements according to the situation and context. What is currently missing from the model is a notion of time as the learning experience changes and evolves over time for any given space, technology, group, context or tutor.

JISC, 2006: www.jisc.ac.uk/media/documents/publications/learningspaces.pdf

Case study

A fortuitous delay over security allowed the researchers to observe how students were occupying the various learning spaces before and after the iBorrow netbooks were introduced into Augustine House.

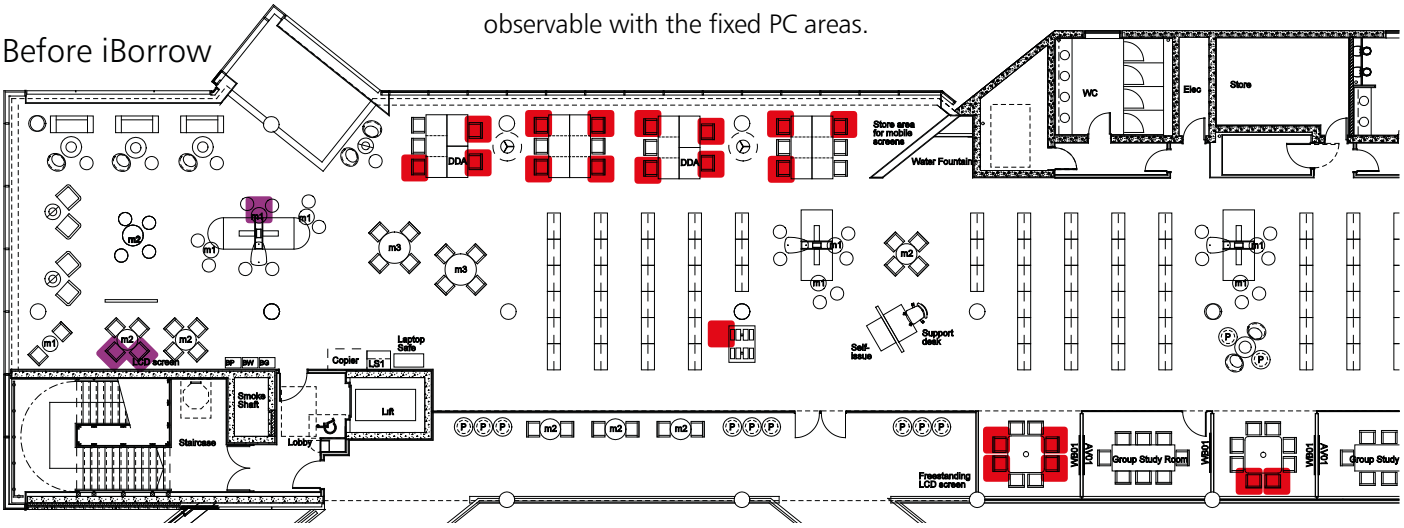
The first plan view below of Augustine House shows a third floor space prior to the introduction of iBorrow. It shows only a few students using their own laptops (purple squares); most of the other students were sitting at desks with fixed PCs (red squares). Access to a computer is on an individual basis and the social interaction limited.

In contrast, the second plan view below shows the same space a few months after the introduction of iBorrow. Now extensively occupied by students with iBorrow netbooks (green squares) and with the fixed desktops still in heavy use, it appears the iBorrow netbooks allow students to occupy spaces of their own choosing, working with or alongside friends who are not necessarily engaged in a shared activity. Such social interactions were not so observable with the fixed PC areas.

Professor Betty Collis, the pedagogic consultant on the iBorrow project, cautions that:

> *"...it remains frustratingly difficult to isolate the impact of a particular learning space or intervention on learner development..."*

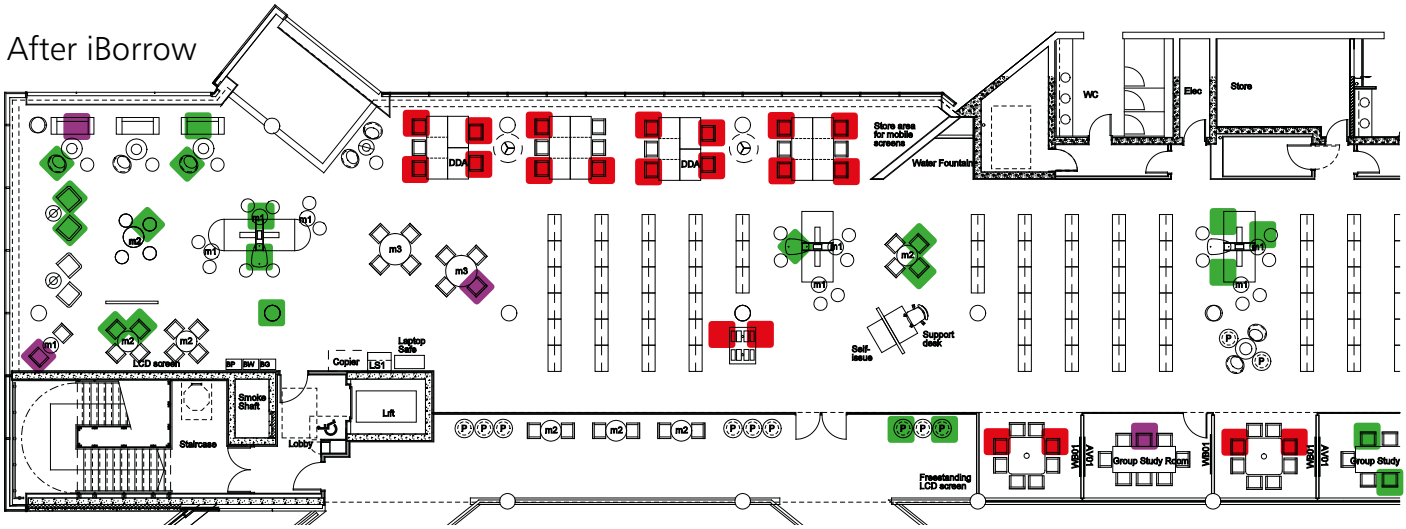
Before iBorrow



Augustine House (Before): Third floor (East wing) October 2009

KEY: Desktop Users Own Laptop Users iBorrow Users

After iBorrow



Augustine House (After): Third floor (East wing) February 2010

The student interviews (see Chapter 8) highlighted that the portability of the netbooks, coupled with the flexible spatial configurations of Augustine House, afforded them the capacity to work within different social and spatial configurations and that they were able to choose the technologies that they wanted to use and the spaces that they wanted to occupy, in order to study or undertake assignments.

Senior management, planners and architects of large-scale learning environments work to achieve a successful balance between the proportions of open, social spaces and closed private spaces that are made available to students. However, the troublesome nature of large-scale learning spaces produced contradictory message emerging from our feedback:

- Our aspiration in designing the spaces was based on a social learning model, but feedback from many students showed a preference for 'silent spaces' free from noise and other distractions allowing them to 'focus' on their work with the additional benefit of feeling 'safe and secure'.
- The lack of a shared vocabulary or values surrounding behaviour in 'a library' showed as a tension for tutors, librarians and students between traditional studious behaviour which was challenged by the open, flexible spaces that promoted social and creative engagement.
- Students' use of the spaces was almost wholly self-determined. Few reported their tutors directing them to the resources. Despite the availability of tours and workshops run by library professionals to show them how to use the facilities, students looked to encouragement and direction from their academic tutors to provide inductions and undertake authentic tasks within the spaces.
- As the Library and Student Services Centre, Augustine House may have signalled to academic staff that the relationship between themselves, students and the space would be based on a traditional library model rather than being required to induct students into a rich variety of learning spaces.
- Even teachers who recognise that the new 'learning spaces' were not synonymous with traditional 'teaching spaces', found their early experiences in engaging students with the resources challenged their skills and perceptions of teaching and learning and required them to adjust these strategies.

Conclusion

Some tutors have demonstrated they can circumnavigate some of this 'troublesome space'. Firstly, they develop a thorough 'mental map' of the learning space and the available facilities, and in doing so, were to an extent able to minimise the risk of the 'troublesome space'. Secondly, we provided a suite of development opportunities where staff can explore a number of scenarios which appear to be facilitated by this particular blend of 'physical' and 'digital' spaces.

Planning and evaluating learning spaces

To enable the project and tutors to plan, capture and understand the nature of learning taking place, Professor Betty Collis helped develop a tool which we termed a 'Pedagogy Scenario'. The tool asks the tutor to consider and reflect upon the nature of the activity to be performed or carried out, how it would be resourced, how many students would be involved and whether they would be placed into groups, the spaces which the students would occupy, and the kinds of technologies that would be adopted to support this activity.

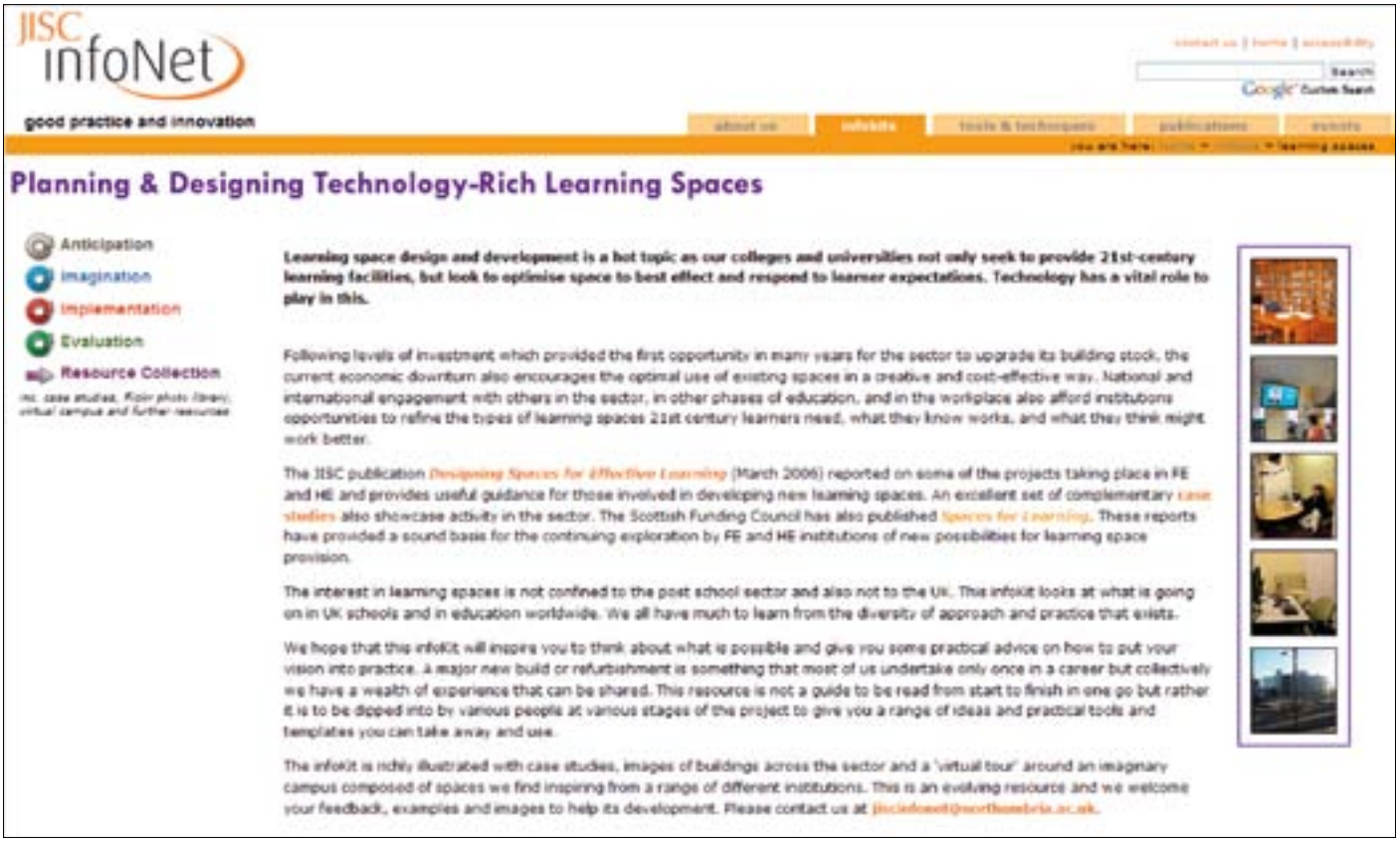
Pedagogy Scenario

Question	Coding	
1. How many students involved:	(a) One? (b) A pair? (c) A group?	(c) Group (10 students)
2. Nature of activity:	(a) Process (study, discuss, deepen understanding, etc.) ? (b) Product (produce something for assessment)?	(a) Process (discuss, share ideas about L&D initiatives particular to their organisation)
3. Nature of study resources being used:	(a) Developed by the group/individual? (b) Located in the library/via the network?	(a) Developed by the students themselves and (b) idea generation and mind mapping tools located via the network.
4. Type of activity:	(a) Catch up, review, study for exam? (b) Project work? (c) Prepare for practicum or field work? (d) Short exercises?	(a) Study/review/reflect for assessment
5. Focus for communication:	(a) For organisation/information needs? (b) For peer feedback/learning dialogue?	b) For peer feedback/learning dialogue with tutor.
6. Who chooses how to use AH:	(a) Tutor? (b) Student?	(a) Tutor (but could also include (b) if students make further decisions themselves about when they should meet to work in AH.
7. Role of the tutor during AH use:	(a) Planned availability (virtual or face to face or phone)? (b) Unplanned availability but could be contacted? (c) No availability?	(b) Unplanned availability but could be contacted.
8. Use of technology within AH	(a) To capture, retrieve, work on, share knowledge, knowledge products (group archive, group workspace resources, group memory, etc)? (b) To access study materials from expert sources? (c) For individual organisational needs (note taking, document management, accessing VLE for organisational purposes, printing, etc)?	(a) work on, share knowledge/ knowledge products.
9. Which zone(s) of AH is most likely to be helpful?	(1) Individual reflective? (2) Group reflective? (3) Enclosed collaborative? (4) Semi-enclosed collaborative? (5) Open lounge collaborative? (6) Flexible interactive? (7) Stand-up IT? (8) Support? (9) Printer/copier? (10) Coffee area? (11) Other area for informal contact such as an outside terrace?	Zone 2 (Group reflective) during preliminary planning and idea development.

Resources

JISC's infoKit *Planning & designing technology-rich learning spaces* contains a wealth of information, materials and resources to help planners, policy and decision makers, and educators to begin the task of planning and developing their own learning environments.

The infoKit is available at:
www.jiscinfonet.ac.uk/infokits/learning-space-design



JISC infoNet on Learning Spaces

Conclusion

Despite international interest in learning spaces spanning 15 years, our understanding of the nuanced dynamics of pedagogy, space, and technology is still fairly new, and in some cases uncharted territory. Augustine House has provided the opportunity to begin an investigation of how our students' learning patterns (the 'learner footprint'), are, or can be, influenced within a large flexible space using mobile technologies, and the extent to which they are driven by tutor-led, or student-led, learning activities. (see Chapter 17).

It would seem that if tutors want to engage their students in using the spaces and facilities offered by a large-scale learning environment, there first needs to be a shared vocabulary to support a discourse around the experience. Within these spaces the boundaries are blurred between 'library' and 'social'. Tutors need to be active users of the space, modelling patterns of behaviour which can inform students' motivation and attitude towards use of the space.