

Space, technology and the student experience

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Overview

- The problem of space
 - Designing spaces
 - Experiencing spaces
 - Constructing spaces
 - Studying spaces
 - Conclusions
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- Slides available on Slideshare (or via [academia.edu](https://www.academia.edu)), references at the end



The problem of space

Campuses vs. e-learning

A significant feature of most educational resources is that they are restricted to many and can cost a lot to gain access to. [...] In a traditional, campus-based, “closed” university, the educational resources available to registered students are within the perceived boundary of the system, and most learners usually sit in the system’s environment, which itself is not very open. Universities limit the number of students they enroll, and determine the students’ entry through selection methods such as previous educational achievement. [...] Further, most universities serve full-time students. Part-time students must structure their time around the institution’s schedule, which can be difficult for those who work or have family and other commitments. The students must come to the campus to participate in the educational experience. The methods of teaching used are also very limited (and limiting): Students attend professors’ lectures, along with some seminars, workshops and laboratory, or other practical activities. Educational resources are housed in a physical library or bookstore.

(Lane, 2008: 149-50)

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...but technology...

New technologies and approaches to education are already having a clear and positive impact on higher education provision. [...] They are already starting to facilitate better quality learning and teaching for both on-campus and online provision, as educational resources from around the globe become more freely accessible. [...]

There is enormous potential for widening access to higher education and increasing the diversity of the student population. Online technologies provide opportunities to learn anywhere, anytime and from anyone. [...] This will provide an important tool to governments in ensuring a diversity of provision within higher education systems to meet the needs of all learners. It also provides a platform for reaching international markets and complements existing developments in cross-border education.

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Technology offers a number of **opportunities and challenges** for higher education, both **enhancing existing provision** and **opening up new potential**. [...] **Technology naturally enables the provision and delivery of flexible learning and pedagogy**. Flexible learning is concerned with the pace, place and mode of learning: [...]

Place is concerned with the physical location, which may be work based or at home, on public transport while commuting, or abroad when travelling; [...]

Thinking of the three variables above, namely pace, place and mode, then a pedagogical approach can be positioned within the three **degrees of freedom**, ie a three-dimensional space of flexible learning.

(Gordon, 2014)

The allure of online learning

- A long fascination with the ‘martini’ model of online learning (e.g. Hiltz & Wellman, 1997)
 - Martini Rosso’s advertising slogan “Any time, any place, anywhere”
- MOOCs overthrowing the ‘brick and mortar’ campus (Friedman, 2013)
- Google threatening (or overcoming...?) “the monopoly (or at least hegemony)” of lecturers and University libraries (Barber *et al*, 2013: 16)
- Space as (part of) a *problem*, technology as a *solution*

Disaggregating Universities

Function	Such as...	Alternative	Resilience
Content	Lectures, journals	Open content, YouTube, Google	Weak
Filter	Lectures, reading lists	Search, social network, Delicious	Weak
Structure	Courses, research programmes	Pathways, for example, Trailfire; recommendations, for example, Amazon	Medium
Social	Student cohorts	Social network, communities, wikis	Weak
Support	Tutorials	Groups, peer to peer, expert sourcing, for example, Mahalo	Medium
Recognition	Assessment and accreditation	Reputation, prior learning recognition	Strong

(Weller, 2011)

...although discussions of 'openness' date back to at least the 12th Century (Peter & Deimann, 2013)

Liberties

- Freedom *from* or freedom *to*...? (Knox, 2013)
- Negative liberty
 - emphasising the removal of barriers to freedom
- Positive liberty
 - Individuals choose the form and quality of freedom they wish to pursue, and how to pursue it
- So what might we lose if we “overcome” the campus?
(...will come back to this...)



Designing spaces

The UK's 'Key Information Set'

- “Proportion of time spent in various learning and teaching activities - by year/stage of study, with a link to further detail”
 - Scheduled
 - Lecture, seminar, tutorial, project supervision, demonstration, practical classes, studio/workshop time, fieldwork, external visits, placement, year abroad
 - Placement (“work-based learning”)
 - Independent (“guided independent study”)
- Expected to total to 1,200 hours per year; often expressed as percentages
- Unhelpfully to pedagogy

Designing for learning

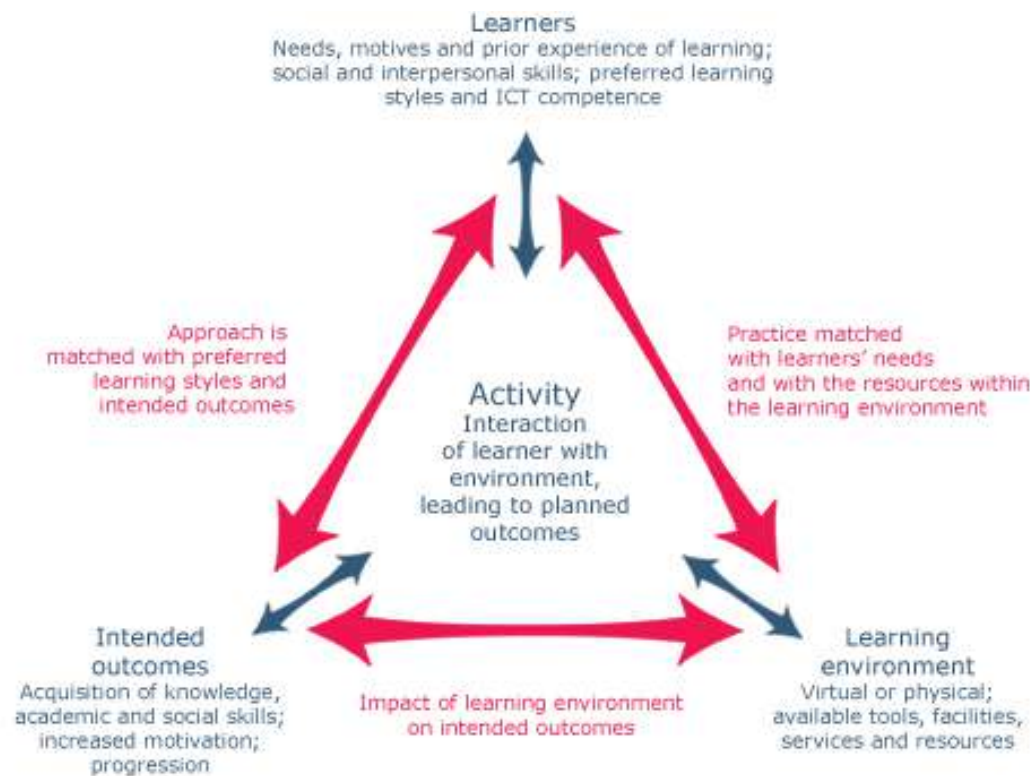
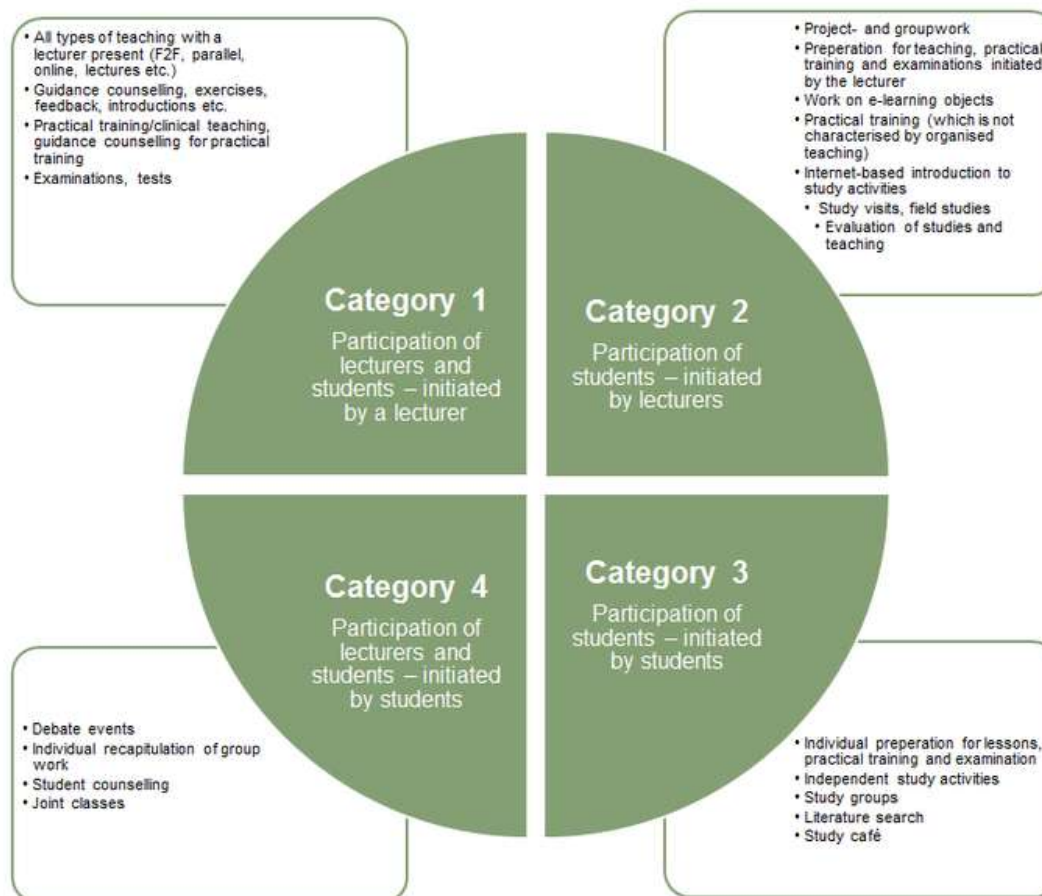


Fig 2. Adapted from a specification for learning activities H.Beetham, 2004

Source: http://www.elearning.ac.uk/effprac/html/design_model.htm; JISC, 2004

The Study Activity Model



- Source: <http://www.viauc.com/press/articles/Pages/expectations-to-students-to-be-made-clear.aspx>

Course Resource Appraisal Model

- A way of considering the interplay between pedagogy, costs and spaces (Horan & Laurillard, 2014)
 - What's the balance between acquisition, collaboration, discussion, inquiry, practice and production?
 - Who's present?
 - Is it location specific?
 - Who provides feedback?
 - Is it personalised?

TLA Creator Wizard

Steps

1. Create Teaching & Learning Activity
2. **Select Existing Activity**
3. Activity Details

Select Existing Activity (2 of 3)

Browse Existing Teaching & Learning Activities

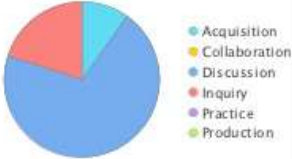
Student Interaction	Student Feedback
<input checked="" type="checkbox"/> Tutor Present	<input checked="" type="checkbox"/> Tutor
<input checked="" type="checkbox"/> Online	<input checked="" type="checkbox"/> Peer
<input type="checkbox"/> Location-Specific	<input type="checkbox"/> Computer-based
<input type="checkbox"/> Time-Specific	<input type="checkbox"/> None

Field trip
Formative practice
Individual production
Live student discussion
Live student presentation
Live tutor presentation
Live tutored discussion
Personal Tuition
Reflective journal
Role play
Summative Assessment
Tutored discussion online

Your Activities
Example TLA

Social (size: 5), Online, Time-specific, Tutor-present, Tutor feedback

< Back Next > Finish

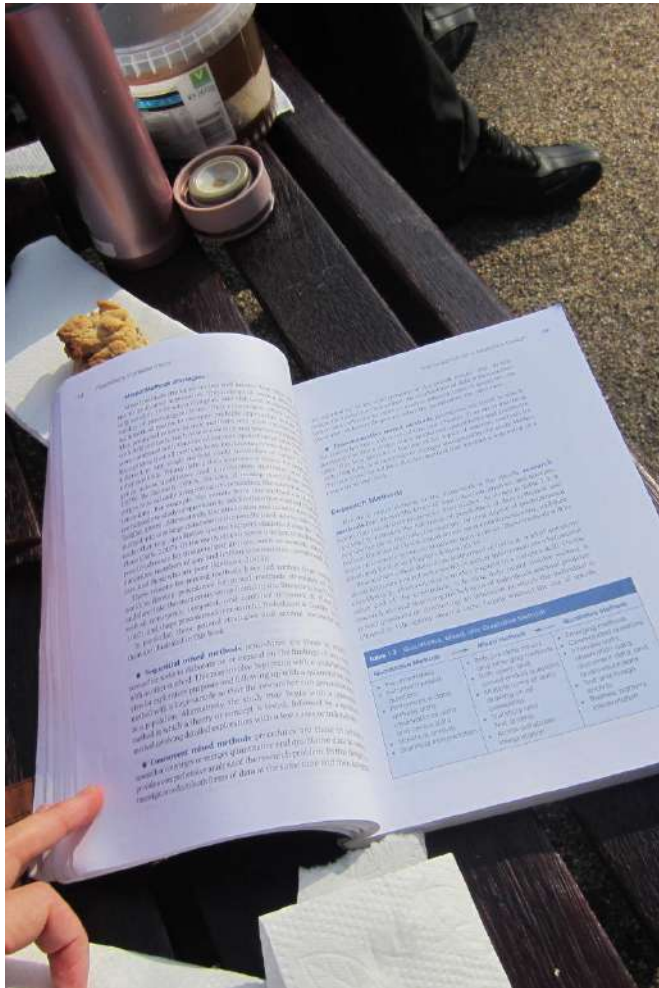


However...

Power expresses itself in plans which inevitably require implementation by those situated in the tactical exteriority. But no plan is perfect; all implementation involves unplanned actions in what I call the “margin of maneuver” of those charged with carrying it out. In all technically mediated organizations margin of maneuver is at work, modifying work pace, misappropriating resources, improvising solutions to problems and so on. Technical tactics belong to strategies as implementation belongs to planning.

(Feenberg, 1999: 113)

- So... can we really engineer
 - Spaces?
 - Pedagogies?
 - Experiences?



Experiencing spaces

The 'incorporeal fallacy'

Even in cyberspace environments, as Stone (1991:117) has famously remarked, there is always 'a body attached'. Cyberspace could well be a non-space, but the subjects who inhabit it always remain embodied.

(Land, 2005: 154)



If you can, with a straight face, maintain that hitting a nail with and without a hammer, boiling water with and without a kettle... are exactly the same activities, that the introduction of these mundane implements change 'nothing important' to the realisation of tasks, then you are ready to transmigrate to the Far Land of the Social and disappear from this lowly one.

(Latour 2005: 71)

Humans, and what they take to be their learning and social processes, do not float, distinct, in container-like contexts of education, such as classrooms or community sites, that can be conceptualised and dismissed as simply a wash of material stuff and spaces. The things that assemble these contexts, and incidentally the actions and bodies including human ones that are part of these assemblages, are continuously acting upon each other to bring forth and distribute, as well as to obscure and deny, knowledge.

(Fenwick *et al*, 2011: vii)

The campus is best thought of not simply as a constraint but, to borrow Brown and Duguid's phrase, as a 'resourceful constraint' (Brown & Duguid 2000: 246), one it would be premature to write off and which those developing distributed learning need to take seriously. [...] The campus – or more generally, the co-location of learners, teachers, labs, classrooms, lecture theatres, libraries and so on – refuses to lie down and die.

Those seeking to develop distributed education should understand the support a campus setting gives the educational process and should be prepared for the necessity to find new ways of providing that support in a distributed education context.

(Cornford & Pollock, 2005: 181, 170)

- Rhetoric about 'transcending' material spaces is misleading (i.e. virtual spaces are also material)
- Designs that attend only to the built infrastructure miss important elements
- Need to understand how people relate to the spaces they find or we provide
- Need to understand how spaces, infrastructure, resources and people can be brought together to enable studying to happen



Constructing spaces

Unfinished spaces

We recognise space as the product of interrelations; as constituted through interactions, from the immensity of the global to the intimately tiny. [...] We recognise space as always under construction. Precisely because space on this reading is a product of relations-between, relations which are necessarily embedded in material practices which have to be carried out, it is always in the process of being made. It is never finished; never closed. Perhaps we could imagine space as a simultaneity of stories-so-far.

(Massey, 2005: 9)

Rather than starting analysis from a space out of which objects move, this approach aims to map mobilities and the ways in which spaces are moored, bounded and stabilised for the moment, and the specific (im)mobilities associated with such moorings. We might take such spaces for granted – as, for instance, universities – but a mobilities analysis would examine the ways in which such spaces are enacted and become sedimented across time.

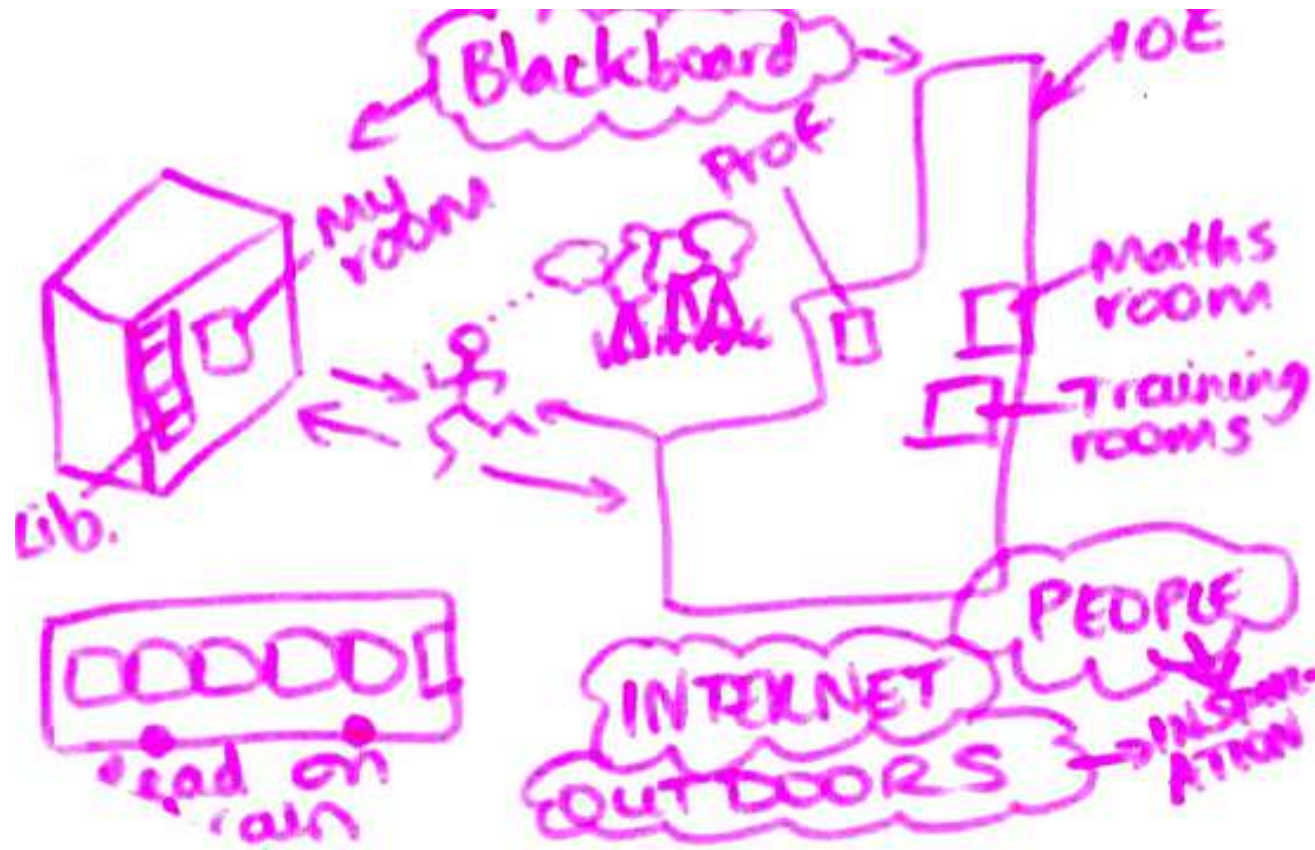
(Edwards *et al*, 2011: 223)

Convergence and mooring

Today, traditional, brick-and-mortar teaching often takes place in spaces that may be described as *the auditorium or lecture hall, the classroom, or sometimes the training room*, where students practice certain concepts or skills (Kjeldsen 2010). [...] In our work, we suggest the existence and construction of a learning space that manifests itself on the students' personal laptops, which can exist as platforms in and across all the above-mentioned learning spaces.

(Kjaergaard *et al*, 2013: 1971)

- Spaces may look fixed and finished, but that's not how they're experienced
- The design of spaces *suggests* uses, but doesn't guarantee them
- Peoples' relationships to spaces develop over time
- Complete mobility – without any points of continuity – becomes fragmented and incoherent experience
 - Does freedom from all constraints leave you unable to claim you've learn something?
- We need to understand the patterns of practices, and how studying becomes *moored* to specific things (rooms, devices, people, etc) in order to be coherent and successful



Studying spaces

Digital Literacies as a Postgraduate Attribute?

- JISC Developing Digital Literacies Programme
- Led by Lesley Gourlay
- <http://diglitpga.jiscinvolve.org/>
Design Studio: <http://tinyurl.com/q92jhzh>
- iGraduate survey / Focus groups / multimodal journalling in year 1
- Case studies across three areas in year 2:
 - Academic Writing Centre
 - Learning Technologies Unit
 - Library

(See Gourlay & Oliver, 2013)

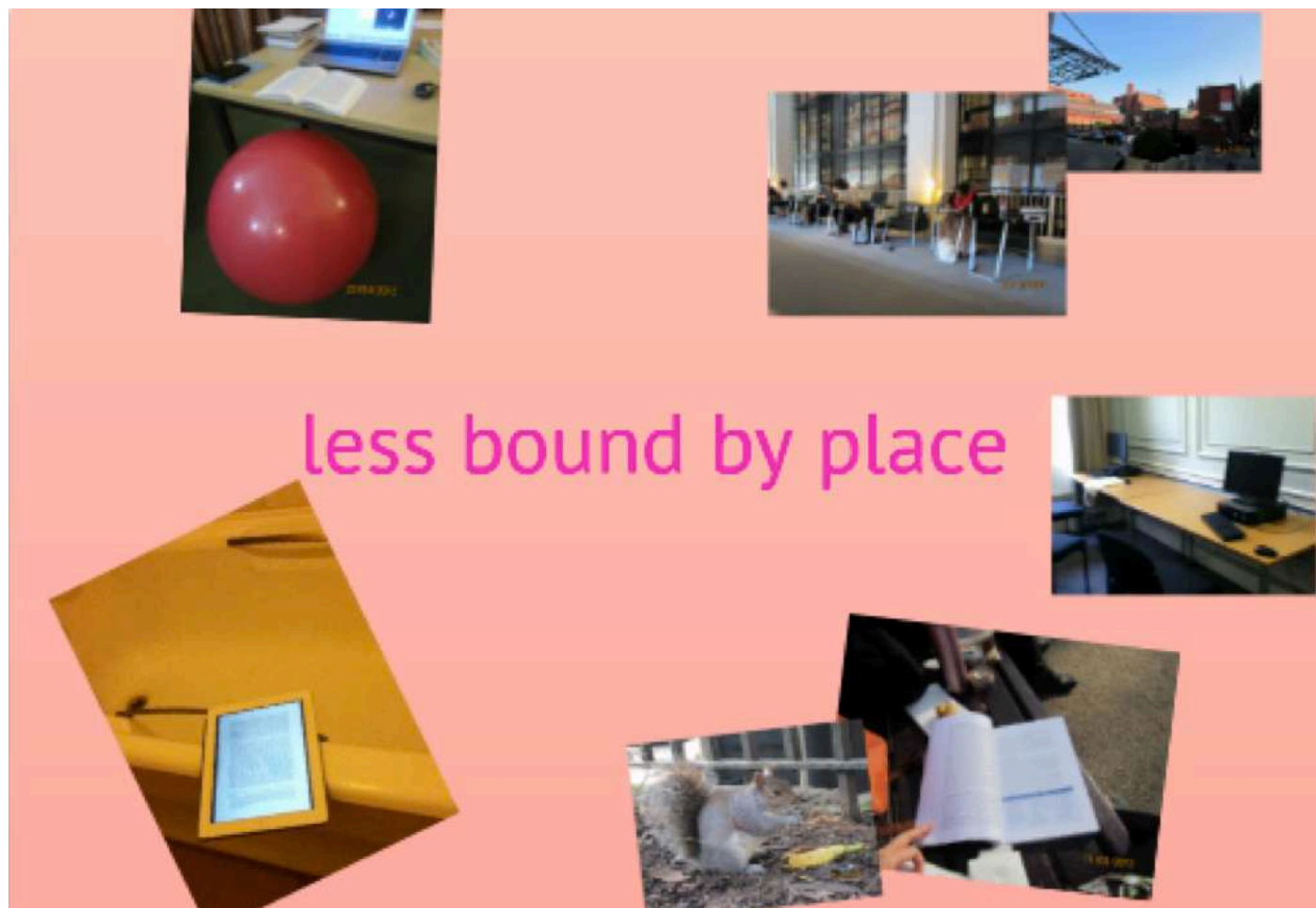
Journaling



- 12 students recruited from the focus groups
 - 3 from each of the four groups (PGCE, taught masters, taught masters at a distance, PhD)
 - Distance students interviewed via Skype
 - Given iPod touch
- 4 Members of staff
- Interviews took place over 9-12 month period

- A structured sequence of interviews
 - Generating 'maps' of studying; discussing a digital 'biography'
 - Students capture images, video and other forms of documentation to explore engagement with technologies for study
 - 2-3 further interviews, building student analysis of data via presentations
- Progressively focused discussions
 - General experience; use of VLE, library; production of assessed work

Yuki's sense of freedom



- Free from what? Free to do what?
 - Skillful curation of lecture recordings, digitised readings and other resources on her iPad
 - Freed from needing to be in the library/lecture theatre/etc
 - *Not* freed from the need for wifi, battery charging points, digital library infrastructure, course registration, etc...
 - Free to bring these otherwise separate spaces together (even in the bath) in order to study them
- Freed from specific rooms, but moored to a specific device

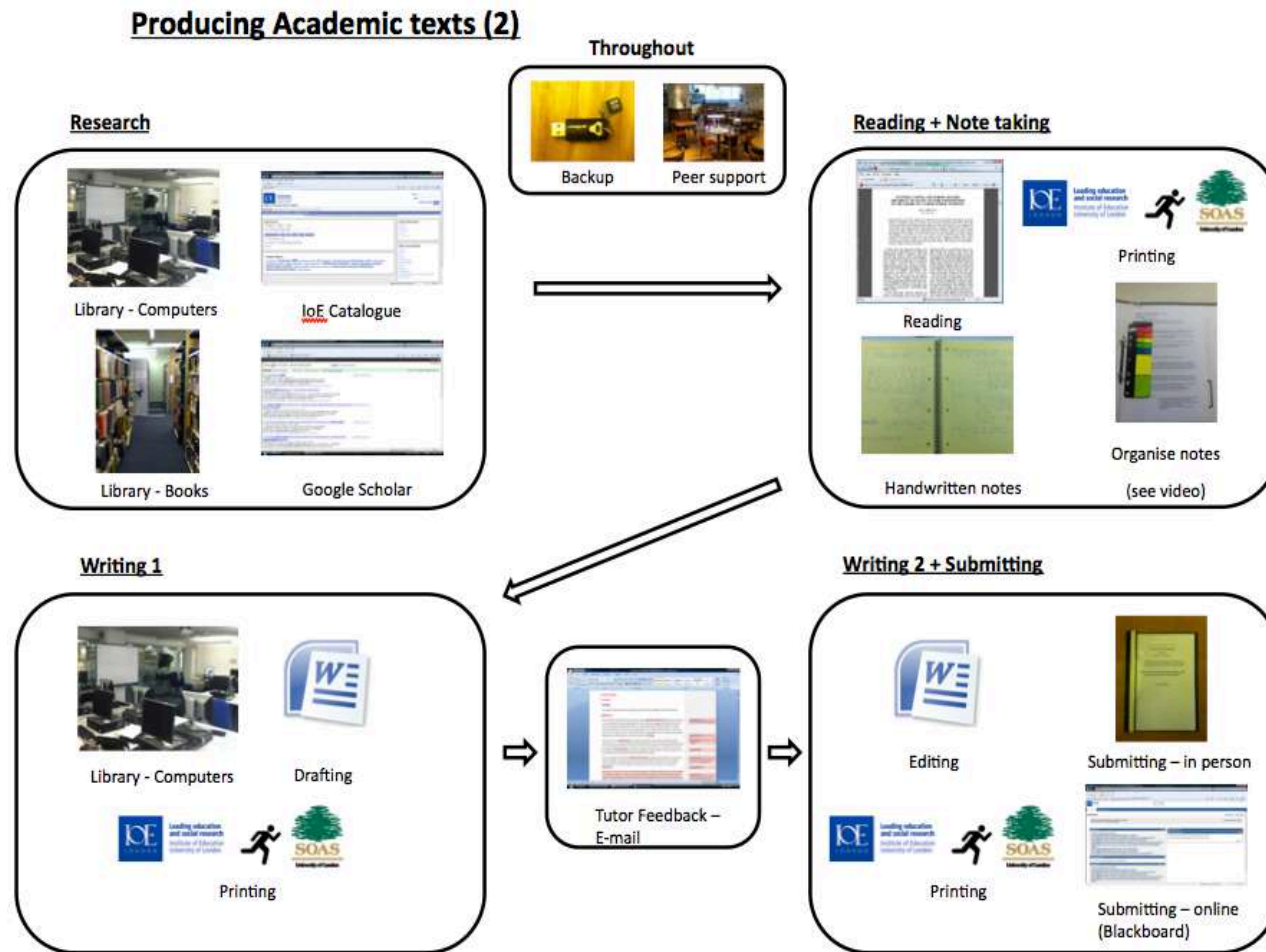
Juan's sense of place

Where I live it could be, you could be in a town sort of anywhere and you wouldn't really necessarily notice. Whereas you come in here and you come over the Waterloo Bridge and you see St Pauls and the Houses of Parliament, you know, you're in London, you're doing something again. You know, this is where people do important things and that, kind of, thing and it gives it a reality. [...] It focuses me a little bit on that.

(Juan, Interview 3)

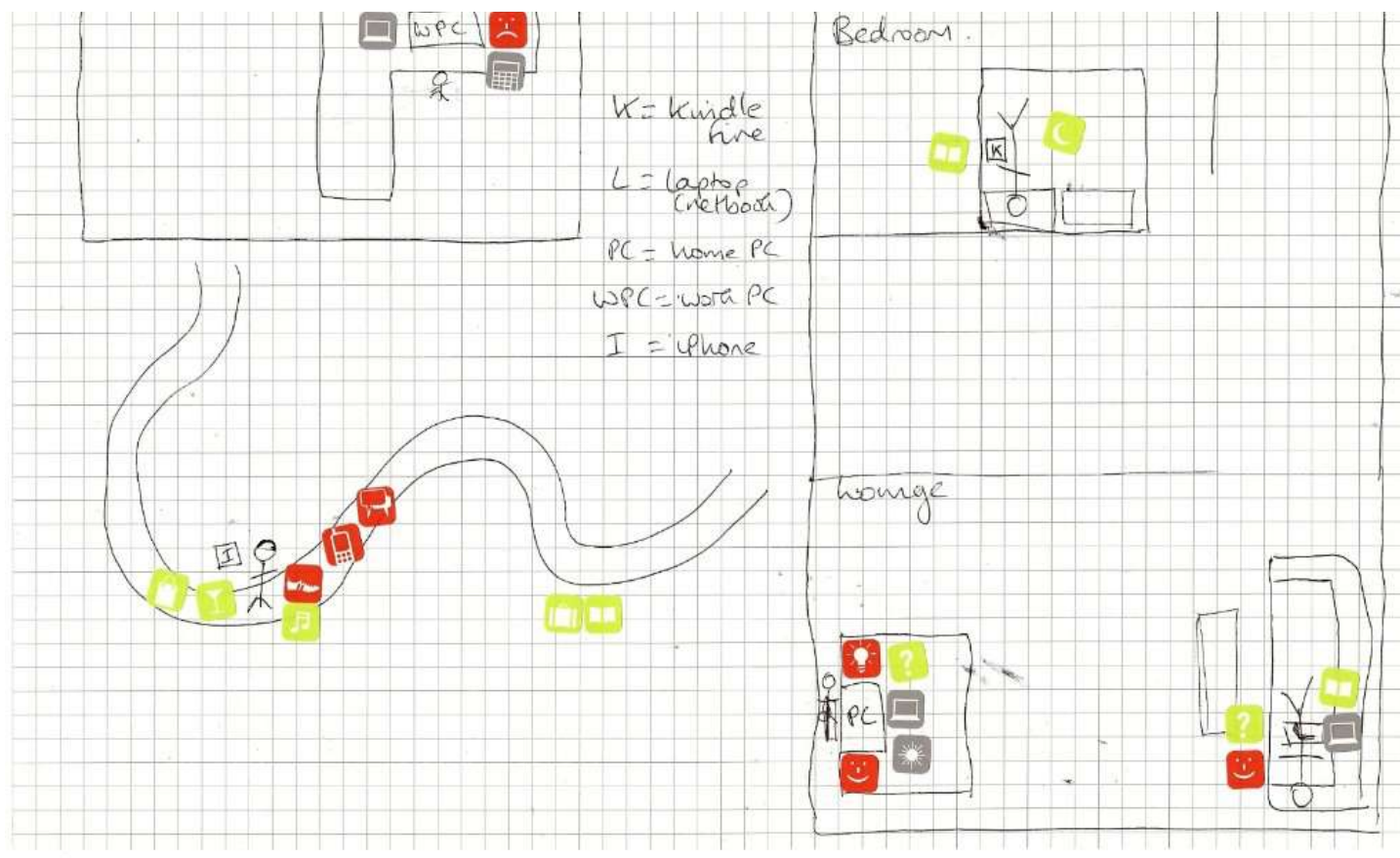
- Moored to markers of international significance
 - Freedom to think seriously? Would freedom from this be a benefit?

Juan's extended library



- How Juan worked:
 - Walking the stacks to browse and collect texts
 - Back and forth to desk with a computer, browsing electronic texts
 - Skim-reading to shortlist
 - Wanted measured reading and annotation later, in other spaces
 - Walked to another institution
 - Used girlfriend's ID and password to log in to their network
 - Printed articles for reading on a printer that allowed double-sided printing
- His sense of the library as a successful study space involved connecting it to another library, another institution's computer networks and printers, and his girlfriend
- Was *already* free to walk out of the building

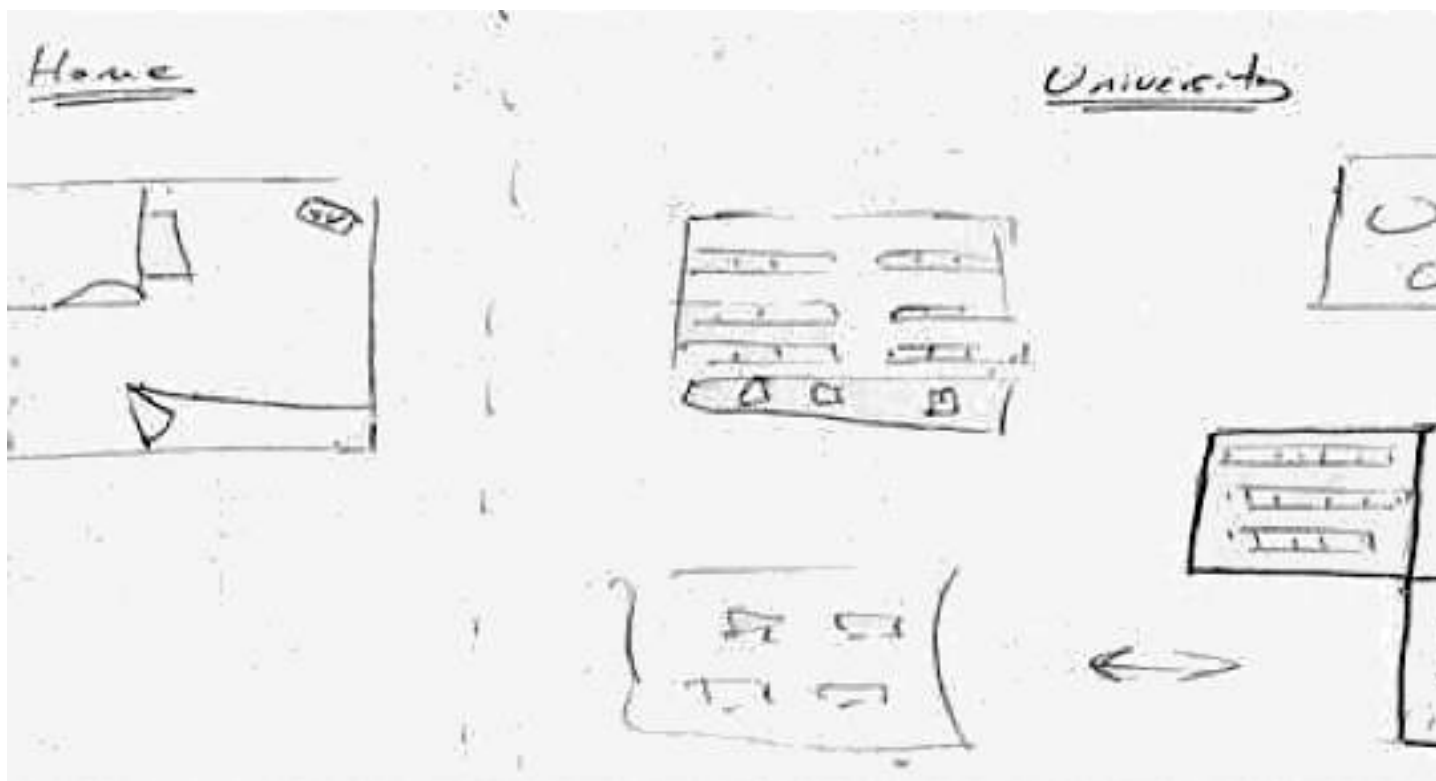
Gertrude's home and office



My laptop lives on the end of that coffee table. And it lives there because that's where the electricity socket is, um, and that's where I spend my evenings. Um, laid there with the laptop on my lap, um, doing a variety of stuff... I might be shopping, I might be reading, again, my Kindle might make it into the sofa, it might not. I might read there. I might be answering emails. I might be responding to things. Sometimes I might even write there.

- The office as a site of destructive testing
 - Some barriers do need removing...!

Juan's struggle to separate



I like having a break between things and that kind of thing. And the same very much I think between home and university. [...] When you're in one thing then you're there and you're in that moment for a while and then you might change to sort of another one. [...] Without too much work, I could do all of this [at home], you know, but I choose not to because I like the change. And I like the movement maybe as well, so it is, yes, it's an important thing I suppose for there to be these sort of, these areas of not necessarily nothing, but of distinction, clear distinction between them.

(Juan, interview 1)

- *Too free* to escape from studying; learning unbound
- Freedom to stop studying?

Faith's struggle to enter



Our staff room was equipped... one, two, three, four, five, six, seven... seven computers now we can use and only one of them attached with a printer. So, [...] everybody wants to get to that computer where you can use the printer. [...] So, six student teachers tried to use other computer. So, it, kind of, sometimes feels a bit crowded. And when the school staff want to use it, well, okay, it seems like we are the invaders, intruders?

(Faith, interview 2)

Conclusions

- Space remains an important consideration for education
 - A challenge – attendance on campus, participation in professional spaces
- The widespread assertion that technology ‘solves’ problems of space is misleading
- Attempts to design pedagogies around notions of space are helpful, but have their limits
- Understanding studying in terms of mobilities and moorings gives a new perspective
- Exploring how spaces are related, linked, sequenced or separated helps us understand students’ experiences
 - Weighing designs and policies against experiences



References

- Barber, M., Donnelly, K., Rizvi, S., & Summers, L. (2013) *An avalanche is coming*. London: Institute for Public Policy Research. <http://www.ippr.org/publication/55/10432/an-avalanche-iscoming-higher-education-and-the-revolution-ahead>.
- Cornford, J. & Pollock, N. (2005) The University Campus as a 'resourceful constraint': process and practice in the construction of the virtual university. In Lea, M. & Nicoll, K. (Eds), *Distributed Learning: Social and cultural approaches to practice*, London: RoutledgeFalmer, 170-181.
- Edwards, R., Tracy, F. & Jordan, K. (2011) Mobilities, moorings and boundary marking in developing semantic technologies in educational practices. *Research in Learning Technology*, 19 (3) 219-232.
- Feenberg, A. (1999) *Questioning Technology*. London: Routledge.
- Fenwick, T., Edwards, R. & Sawchuk, P. (2011) *Emerging Approaches to Educational Research: Tracing the Sociomaterial*. London: Routledge.
- Friedman, T. (2013). Revolution hits the universities. *The New York Times*, 26th Jan, 2013.
- Gordon, N. (2014) *Flexible Pedagogies: Technology-Enhanced Learning*. York: Higher Education Academy.
http://www.heacademy.ac.uk/assets/documents/flexiblelearning/Flexiblepedagogies/tech_enhanced_learning/TEL_report.pdf
- Gourlay, L. & Oliver, M. (2013) Beyond 'the social': digital literacies as sociomaterial practice. In Goodfellow, R. & Lea, M. (Eds), *Literacy in the Digital University: Critical Perspectives on Learning, Scholarship and Technology*, 79-94. London: Routledge.
- High-Level Group on the Modernisation of Higher Education (2014) *New modes of learning and teaching in higher education*. Luxembourg: European Union.
http://ec.europa.eu/education/library/reports/modernisation-universities_en.pdf

- Hiltz, S. R., & Wellman, B. (1997). Asynchronous learning networks as a virtual classroom. *Communications of the ACM*, 40 (9), 44-49.
- Horan, B. & Laurillard, D. (2014) CRAM user guide. Available online: <http://web.lkldev.ioe.ac.uk/cram/CRAMUserGuide.pdf>
- JISC (2004) Effective practice with e-learning: a good practice guide in designing for learning. Bristol: JISC. Available online: <http://www.jisc.ac.uk/media/documents/publications/effectivepracticeelearning.pdf>
- Kjaergaard, H. W., Kjeldsen, L. P. B., & Asmussen, J. B. (2013,) The Convergent Learning Space: An Updated Learning Space for 21st-Century Teaching and Learning. In *World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, 1971-1976.
- Knox, J. (2013) Five critiques of the open educational resources movement. *Teaching in Higher Education*, 18 (8), 821-832.
- Land, R. (2005) Embodiment and risk in cyberspace education. In Land, R. & Bayne, S. (Eds), *Education in Cyberspace*, 149-164. London: Routledge.
- Lane, A. (2008) Widening Participation in Education through Open Educational Resources. In T. Iiyoshi, & M. S. Vijay Kumar (Eds.), *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*, 149-163. Cambridge, Mass: MIT Press.
- Latour, B. (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
- Massey, D. (2005) *For Space*. London: Sage.
- Peter, S., & Deimann, M. (2013) On the role of openness in education: A historical reconstruction. *Open Praxis*, 5 (1), 7-14. <http://openpraxis.org/index.php/OpenPraxis/article/view/23/8>
- Weller, M. (2011). *The digital scholar: How technology is transforming scholarly practice*. London: Bloomsbury.