Spatial imaginings: Learning and identity in online environments

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"I have been thinking about space for a long time" are Doreen Massey's (2005, p.3) words that have captured my imagination to explore online learning spaces and places as experienced and used by learners. This paper opens up a space to explore the intersections of spatiality, identity and online learning, drawing on concepts from geography and actor-network-theory (ANT) originating in science and technology studies, using a relational socio-material perspective. I argue for 'spatial imaginings' that are more generative if space/place is conceptualised relationally. Through three vignette snapshots as part of a larger ethnographic study within an Australian university, I explore issues of learner identities and their learning practices in relation to pedagogical, physical and online spaces/places. These socio-material explorations can enrich our understanding to challenge existing views of space, time and place as bounded, fixed and stable. The emergent conceptual insights can inform the work of educational designers, online educators and educational theorists to better understand online learners and their diversity and the socio-material complexities and hybridities of pedagogical, physical and online learning spaces/places.

Keywords: spatiality, learning spaces, online learning spaces, metaphors, qualitative methods, Actor-Network-Theory, ANT, hybridity, space/place, flows, identity, learning

Introduction – opening up the spaces

"I've been thinking about space for a long time" (Massey, 2005, p.3). Like Massey, I too have been contemplating the complexities of analysing emergent learning spaces − the intersections of online and physical spaces/places (Al-Mahmood et al., 2006). In this digital age of e-learning, learning can occur in a variety of spaces and places, where we can have "learning as taking place outside as well as within the taken for granted spaces of the classroom, workshop and lecture theatre [that] bring to our attention not just the question of how our learning is affected by specific features of particular spaces, but also how we as embodied individuals are changed by our experiences in these spaces" (Paechter et al*.,* 2001, p.1). The emergence of hybrid learning spaces/places requires a new imaginary of interpretive frameworks to explore intersections of spatiality, online learning and learners. Online learning prevalence has led to unprecedented possibilities and combinations for learning spaces and pedagogies. How we experience these has an important effect on how we learn as newly emergent online learning technologies facilitate movement across previously bounded categories of space/place. The mantra of e-learning 'any time/any place/anywhere', the "Martini world" as Goodyear (2006) puts it, generates learning environments across multiple locations and combinations.

How are we to think about the relationships between the pedagogical learning spaces of online and offline spaces then? And how can we start to describe the relationship between theses spaces? By moving beyond singular and bounded conceptualisations of space/place to seeing spaces/places as multiple, this paper aims to explore these possibilities using generative metaphors to consider what we take as "a unique space to be a *mixture* of distinct spaces" (Moreira, 2004, p.55). Perhaps more aptly in Massey's (2005, p.19) words the aim is "to liberate 'space' from some chains of meaning (which embed it with *closure* and *statis*,…) which have all but chocked it to death, in order to set it into other chains (…alongside *openness*, and *heterogeneity*, and *liveliness*) where it can have a new and more productive life" (emphasis in original). This paper addresses the issue of learning spaces/places in online learning environments − lived spaces and learning spaces, to consider spaces/places as hybrids of relational flows. This requires seeking "cartographical imaginings" (Edwards & Clarke, 2002, p.168) or spatial imaginings using the notion of "relationality" (Cooper, 2005), where entities come into being through relations. To build on this relational world view of flows, I gather together generative concepts from the areas of Geography, Actor-Network Theory (ANT) within Science and Technology Studies and Education to

enrich our conceptualisation of the intersections of identity, online learning and spatiality, and importantly their co-constituting nature. First, a brief literature review of space/place concepts is necessary and an expansion on the notion of relationality and ANT concepts are outlined, followed by a brief description of the larger ethnographic study. This is followed by data story vignettes to illustrate conceptual workings to provide generative metaphors towards understanding spatiality, identity and online learning practices in new ways from a socio-material perspective.

Space/place conceptualisations

The terms space and place may seem innocent enough, but have been cause for fruitful discussion amongst philosophers and educational philosophers (e.g. Malpas, 2004; Burbules, 2004) respectively, geographers (e.g. Crang & Thrift, 2000; Castells, 1996; Thrift, 2006; Lefebvre, 1991) and many others, but perhaps less so by educationalists, with some exceptions (e.g. Nespor, 1994; Edwards & Usher, 2003; Mcgregor, 2003). Massey (2005) and Burbules (2004) make the distinction between the abstract concept of space and the personalised notion of place: a space becomes a place when it becomes socially relevant and meaningful to a person. The more pedestrian notion of space/place is "as closed. Coherent, integrated as authentic, as 'home', a secure retreat; …as somehow originarily regionalised, as always-already divided up" (Massey 2006, p.6). However, Massey points out that we have failed to think explicitly about space and to take on board and deal with its "constitutive complexity" (Massey, 2005, p.8). We need to move beyond the "distinction, all too appealing it seems, between place (as meaningful. Lived and everyday) and space (as what? The outside? The abstract? The meaning*less*)?" (Massey, 2005, p.6). This means moving from the "single narrative" to "a multiplicity of trajectories" to consider the readings of what space might be in its multiplicities and its constant construction. Massey's conceptualisations of space/place provide generative relational views to consider a space–time dynamic, where space is not out there to be experienced, but rather is co-constructed or performed relationally, and is in a constant process of being made and remade.

This relational view also invokes a material turn towards space/place (Thrift, 2006) to open up other sensibilities that look at the world socio-materially. By using the tool of Actor-Network-Theory (ANT) with its Latourian origins and multiple iterations (e.g. Callon,1986; Latour, 1987; Law & Hassard, 1999; Latour, 1997; Latour, 2005; Law, 1999), the focus is on the socio-material relations or processes, which provide analytical power through socio-material assemblages. So instead of a world of essentialised categories and binaries, the world is a 'heterogenous' world of 'hybrids' (Bingham & Thrift, 2000, p.287), where entities of things, people, and nature combine in network assemblages. So what does this open up for us − this view of space and the world as relational? Basically that "There is much more 'space' than our old discontinuous ways of thinking have allowed us to see" (Bingham & Thrift, 2000, p.287), it restores the notion of "multiplicity of the world…" (Bingham & Thrift, 2000, p.289). It is in this vein that I want to address 'spatial imaginings' of the practices and relations that construct online learning spaces/places and learners. But first, we need to consider identity constructions in this world-view.

Relationality – spaces and identities

From a relational perspective then "identities/entities, the relations 'between' them, and the spatiality which is part of them, are all co-constitutive", where identities become "*spatio*-temporal", and "identity may be conceived as an ongoing process of hybridity, in which one's sense of self is continuously made and re-made" (Massey, 2005, p.10). This means that identities are performed, and represents what is known as the performative turn (e.g. Nash, 2000; Gregson & Rose, 2000; Goffman, 1971; Thrift, 2006). And so, here "Relations are … materially heterogeneous. They take the forms that they do, if they do … because they are performed, held in place, in a variety of different media: words; bodies; texts; machines; buildings. All mixed up. Materially heterogeneous" (Law, 1999, p.7). This surfaces events in their complexity rather than in reductive simplified manners. Another way of saying this is through a geographic lens as Crang and Thrift (2000, p.9) creatively describe:

> … the world has become full of things, objects of all sorts that can be taken up and used to create senses of the self. For example, bound together as (in most cases) shifting and incomplete projects, collections of objects offer ways of connecting to other times and places, to shape a sense of ourselves. These personal material maps, these 'autotopographies' (Gonzales, 1995), bind the self into the world. Selves do not occur

performed, nor do they even 'interact' with the world as though self and world were pre-existing entities rubbing at the edges. Rather selves are created through as Heidegger would have it, being-in-the-world. Boundaries are not the limits of self but rather they create the sense of self.

By using the concept of hybridity to explore space as flows, we can enrich conceptualising the world of learning as the boundaries of home, work, study and retreat spaces/places are being reconfigured where "some borders are being dismantled, some renegotiated, and yet others being created (Massey, 2005, p.179). And so what of these online learning spaces/places?

Pedagogical online learning spaces/places

Online learning spaces (cyber and physical) challenge the traditional notions of habituated everyday bounded learning environments. Land (2004) notes the complications that are rendered when the "digital page" or online university disrupts the "immured academy" and suggests that cyberspace or online space "remains difficult to define as a learning space" (Land, 2004, p.530). And that indeed "Cyberspace could well be a non-space" (Land, 2004, p.532), but as I will suggest it can certainly multiply beyond that if we take on Massey's conception of space/place and the hybrid possibilities. It is the richness and multiplicity of the intersections of online and physical spaces that is generative. As Kitch (1998) aptly highlights that:

> cyberspaces do not replace geographic spaces, nor do they destroy space and time. Rather, cyberspaces coexist with geographic spaces providing a new layer of virtual sites superimposed over geographic spaces. Geographers are well placed to study the interplay between virtual worlds and geographic spaces. At the points of this interplay, spatial transformations are affecting social relations while simultaneously social transformations are affecting spatial relations.

Here the notion of co-constituting components is a crucial feature of a relational socio-material world-view. Consequently 'cyberspace' or online space can be seen as different kinds of spaces as "internally multiple" (Bingham, 1996 cited in Massey, 2005, p.91). Massy invites us to consider "what kinds of multiplicities (patterning) and relations will be co-constructed with these new kinds of spatial configurations" (Massey, 2005, p.91). It is armed with these definitions and conceptualisations that I move from theoretical conceptualisations to their practical applications.

Exploring online learning spaces – spatial imaginings

This research draws from a larger ethnographic study (in a large Australian university) (as part of my PhD study) of four fully online postgraduate subject modules with no face-to-face interaction. The study used ethnography to provide rich data, and the data collection methods included interviews, participant observation, photographic data and reflection over a period of 6–10 months, with data collected from 24 participants, 19 postgraduate online learners and 5 staff (names disguised). Studies so far have been sparse on exploring intersections of identity, spatiality and online learning experiences, with a few exceptions (e.g. Paechter et al., 2001; Edwards & Usher, 2003), and rarely from a socio-material perspective, which is why the relational methodology framework of ANT was chosen, to surface the material, the socio-material and the 'missing masses' (Latour, 1992), to move beyond the purely social or the purely technical and surface complexity as distinct from reduction. I now concentrate on three illustrative multi-textual data vignettes which together convey a brief relational socio-material analysis of the intersections of spatiality, identity and learning in online environments.

Vignette 1 Regionalised spaces – "This is the house of learning where desks and books shape you"

Robert emphasises the importance of learning to his family: "I mean both our kids, all through their life, they're 18, 19, have seen us [referring to his wife also] we've always had our own desks our own study environment, so to actually study is a bit of a way of life in our family."

Figure 1: Robert's study spaces

Robert says about his study spaces in figure 1 *"426, 425 & 424* [referring to images] are of the 'study nook' made out of a cupboard in the hallway. As I said this is supposed to be my study but as the computer is there (and everyone wants to use the compute/internet) I did most of my study on the dining room table!! 422 is the dining room table!!"*

Robert in an interview segment about his online learning experience says:

> You're a bit powerless; … it's take it or leave it, you know. This is the way we do business…And I suppose that's like home because we've only got one computer in a little ... and this is between my wife, and myself, and two boys, we've only got one computer. But the interesting thing is that we've actually got our own desks and our own study areas. My wife's got a desk, got desks in our room, the two boys have got desks in their rooms, and then there was this study that we've converted out of a cupboard, which was my study but I've never been able to [access it]… I mean that's why I get cross from time to time, because 'Everyone wants my study' where the computer is. I've actually over the last twelve months, I've actually had to do all my study on the dining room table …but my study, our study, we've got quite a wide hall, with three cupboards … and I've converted one of these cupboards, into a little study nook, and that's where the computer is.

Robert talking about the online learning space in an interview says:

> It's just a maze trying to find…Navigating your way through, from the previous year in there and I just found it, it's probably me, because I'm a bit older, but I just found it a real maze and it took me a couple of weeks to remember, how I got through to the site where it actually had the tasks and to actually post your task responses, you know what I mean, the activity responses, to do the online chat in just this teeny poky little box, that you had to write in, um you know if you wanted to highlight things or it didn't have the functionality of something like Word…

Robert mentioning the possibilities of the WWW which he doesn't explore though but is keenly aware of:

> …and if you wanted to…I mean the power of the web in terms of actually being able to go out into the world and access a whole lot of different material is just incredible and my guess is…you probably don't need to go to libraries anymore, you can just wander around the world. But I'm sure you could find other material, other course notes from all around the world…

Robert who is a senior manager living in a rural region of Australia, is a highly and multiply qualified lifelong learner. Roberts' vignette starts with the importance of desks and books and learning as having always been a part of his family's life ever since he could remember. His physical space is highly regionalised or territorialised, with each family member having their own study space, this so to speak has been part of their family structure for as long as he can remember. However, his 'pride and joy' study that he built in the hallway within a cupboard houses the computer which becomes a contested region fought over by other family members. So even though physical spaces are territorialised as belonging to different

family members, Robert seems to end up studying at the dining room table, as there is only one computer to share amongst the family! The physical spaces demark belongings amongst his family members and he acquiesces to their needs. Robert is extremely protective of the boundaries of home and work, inside and outside, in that he tries not to bring work home. Similarly his view of the online learning space he inhabits is one of territory and boundedness, ensuring that he remains within the online pedagogical space, where he refers to the online world as a maze with possibilities of getting lost in the online space. Even though he confines himself to the online space of the subject course, he comments on his full awareness of what the web can offer in terms of "wandering around the world", but he doesn't venture through "the maze" for fear of getting lost. So for Robert there is this demarcation of inside-outside in his physical and online space habitations. He sets clear boundaries in these spaces that are important for preserving roles, identities, responsibilities and work modes. His positionings are inward and more reminiscent of "spaces of enclosure" (Lankashear *et al*., 1996). His appropriation and learning practices of the online learning space is that he 'moving through' space, as Maglio and Matlock (1999, p.67) comment "(a) *web space is physical space*, which reflects how users view the web as a place; and (b) *obtaining information is moving through space*, which reflects how users view themselves as moving along paths to information objects" (emphasis in original). The notions of bounded regions and territories for Robert help keep the family roles and spaces stable, although he expresses the desire to be "forced/coerced" to explore other online spaces. For Robert, keeping the boundaries stable and less porous provide him with structure and capacity to sift through and order information and his spaces to allow him focus − for him there is an outside and inside world of boundaries that remain distinct. In this sense, in ANT terms this can be viewed as a regionalised topography (Law & Mol, 2001; Moreira, 2004).

Vignette 2 Networked spaces – "The sad and the sacred"

Paul's insights are revealed below:

> And in martial arts there is, it comes from a Buddhist tradition of the almost you could say the sanctity of the learning space and I really value the traditions that are associated with that, which is that you bow at the entrance to the learning space and that is a demonstration of your respect for the space, and for the process and the teacher and everything involved in it and so I am very conscious in my own language teaching of the space that has been created in the class. The physical space of the classroom and of, I suppose, the energetic space that the teacher creates and holds in teaching. And yes, I am not conscience of that stuff happening when I am in an online environment. I think what can happen, I think what a good teacher can do, not just online but in any sort of distance learning situation, is create some sort of relationship with the students and I think that is what Marvin [one of the online educators] did quite well, so that the student in some manner feels like … the verb that, the best verb for me is that they are being held in some manner. And I guess that is what value in a course when you don't have the possibility of a teacher to stand there, is that somehow you replicate that personal relationship that a teacher brings to the classroom.

In another interview segment:

> Yes, and it's … you know, what works for me as a learner, as a student, is to … it is almost the ability to rest in space that has been created for me by a teacher. And so that, you know, I know when I go to my martial arts club that I am entering a space that someone has created for me, that the teacher has created for me, and that I … there is something very … I feel very supported in that environment and I can feel cared for and I feel that some of my responsibility is taken away. My responsibility to be a functioning self-directed, self-determining adult, professional, parent – all those things that I have to do, all day, every day and it is not that it is a child-like position but it is that somehow some of my kind of … the baggage, the weight of the self is removed and I can just kind of go and do what I do without having to particularly think and take responsibility for myself and … I find that to be very valuable. And I think I do some similar sort of thing for my students, and it could be just a phase that I am going through in my teaching, but it is what I have been doing for the last few years. It is about creating a safe place for my students, a safe, predictable space, where they come in … where I'm … it's not the fact that I'm in charge, it's not the fact that I am directing and controlling it, but it's that I am kind of holding it and taking

responsibility for it, and kind of inviting people to come and rest in that space. And that sounds very space, cosmic, you know, touchy feely …but…

And from an interview segment, Paul highlights

…that notion of holding the class, I think, is really important, and you know, think actively about how you can achieve that effect online.

In a further interview segment, he says:

Yes, being a novice and being in someone's territory that wasn't my own and that, you know, maybe I was a bit of a fraud by being there because I was just desperately trying to work out what was expected of me and not really knowing. Whereas Part Z, and perhaps this sort of, you know, what I was saying before about the professional persona that I was embodying in the forum, it gave me, you know, I was more comfortable in that. So, yeah, Part Z was … I think it has been fairly important for me in the other coursework that I have done, that, you know, because it is not an undergraduate subject, it is a, postgraduate subject and I have been a teacher for 20 years and so it is actually fairly important to me that … I can bring that to what I am doing. And there was that opportunity in Part Z and I felt that Marvin was quite respectful of our experience and knowledge… That would've been nourishing is the word that comes to mind.

What of Paul's home learning spaces? Paul comments in an email on his home study space where he accesses the online subject:

The space in which I work is located at the back of the house. It is essentially a thoroughfare – the door behind the desk in the photo leads into the laundry. The space also opens onto the kitchen, the toilet and the back yard. It is, in a word, unsatisfactory: too much noise, constant traffic, no privacy and insufficient space, a product of too many people living in too small a house. The advantage – perhaps not the right word – is that its proximity to the rest of the house means I am perhaps more inclined to sit down and work for ten minutes on some small idea that occurs to me while cooking, cleaning etc. Indeed I tend to study that way, in numerous short spells, rather than for a concentrated, prolonged period. It is quite ironic that I should bang on about the sacredness of learning space, when my own 'refuge' is so beleaguered – or maybe it's no coincidence at all.

Figure 2: Paul's home learning spaces

And Paul's response when commenting on the online subject:

… it was the over here, separated from everything else that is going on in my life and my work and everything else, is this little nuisance sits on the computer that has to be got through. Yeah.

When asked about where he felt he was in the online subject? Paul comments:

…That's an interesting question …[deep thoughtful and reflective pause] That's a very interesting question. There was, I mean it was … the forum was an interesting sort of thing because, I mean, you were … I was writing to other people who were presumably … professionals and postgraduate students so, yeah, there was a bit of "this is my professional environment" and there was some status and pride to be protected in talking about that.

> Yes, that is interesting. I think I realise, and I hadn't thought about this before but I guess what I was doing in writing those forum entries each time was being fairly careful to show that I was, you know, competent and articulate and thoughtful and that this was my domain that I was working in and I have quite a bit of expertise about this and you know, I'm a teacher and I'm a professional. So, yeah, there was that element of ' performance' …

When Paul is asked about his perception about the online learning space, he comments:

> I don't actually know that I have a sense of being in a space when I am in the virtual world. I don't really …That I am working at the time? I find it hard to find an answer to that question I would have to say. I think I probably, I mean I think the computer for me is … yes I don't know. I don't know if I can answer that…It is, yes, and I realise that and I think for me, I have a very strong sense of the teaching space, of the physical teaching space. For me it is a really critical part of my teaching …

Paul is a professional teacher with over 20 years experience in teaching and also in martial arts. He provides some very rich descriptions of his learning spaces in the physical and online worlds. For Paul, the 'sacredness of the teacher–student relationship' is fundamental and should be the basis of any learning interaction. However, he points to the difficulty in producing that in an online learning space, or its lack in his particular online learning experience because there are no relations based on rituals of "creating" or co-constituting a respectful 'space' that becomes a sacred learning place to enter. Drawing on ANT terminology and metaphor, the notion of network where different entities that are distant and close come together (here for example, the martial arts class of 20 years ago and the online subject and physical space, his martial arts teacher, his student identity and his professional identity, to name a few) can be one way to describe Paul's experiences. In network topology, people and things establish their relations with others through circulations of networks. Paul connects or translates his martial arts views of the teacher-student relationship expectations to the online environment, but finds it lacking to a large extent. He talks about the importance of creating a space to be "held" to be "contained", but for Paul the online learning space he inhabits doesn't reach this ideal. His sense of being in a "place" is absent in the online learning environment. In some way, the contrast with his physical space, which acts as a thoroughfare, seems to create this yearning perhaps for the ideal. His need is for embodied online relational presence of the teacher to engage in creating a sacred learning-teaching place. But for Paul, the online space never becomes a learning 'place', and he remains with feelings of extreme isolation and loneliness during the online subject.

Vignette 3 Fire spaces – "The flickering nomad – no one in particular to multiple hybrids"

> My study is a bit like my whole being, it's a space where lots of different work gets done. Yes the online subject space, but I also accessed that from other university spaces or friends' homes if I was away for a weekend. But my study space is a kind of everything space where all parts of my life come into it – the academic, the social, the professional, and sometimes the space just blurs and I have to decide that I'll only stay in an academic space or whatever, but more often than not I furiously multitask. It's also a creative space…It has books, papers, and all sorts of artefacts in it too. I like to have a lot of stimulating things around me to inspire me…

Figure 3: Maheen's study space adjacent to her computer desk in her study

She also comments:

> Inevitably for me there is great resistance to feeling confined in an online subject space. I don't like feeling restricted by a structure … it must be the radical element in me. I guess I want to explore, to travel to move to other worlds, to maximise the whole experience of being on the Internet.

> …For me I loved being able to flick in and out of the online space and the physical space, so yes I would take walks and think about what I had read just to get away from feeling like a 'cyborg' I really started to live online almost while I was doing the subject as an online student!

> …It's funny I think I did more surfing [online] when I was doing the online subject because I felt that I should keep exploring, and I would meander and explore other sites related to the subject. Although because I spent hours exploring the subject and other resources that I'd find, I would also take breaks online! I would equate these to coffee breaks or something like that. In fact, I really did go to a place called "Soul Food Café" which is a fantastic creative writing space. I also ended up finding academic blogs and other blogs related to the subject area and yet all of these were well beyond the boundaries of the online course…

Maheen responding to the question: And who did you feel you were in the subject online space?

> ...In some ways it's a bit like this neutral mask in my study, I could be no one in particular or a take on any of my identities from learner to professional to expert and so on…or a multiple of them…blurring in and out...if you like…or blending them…morphing them so to speak…I tend to feel quit comfortable with hybrid moves if you like…don't really like singularity…it eliminates possibilities for me…

Maheen's ability to multitask:

> The interesting thing was I was somehow present and yet absent, so I could be sitting in the study space inhabiting the online learning space, but I would simultaneously be multitasking or something, so for me the learning process became multiple, reading 3 separate email interfaces, doing the online subject, taking online breaks, and then physically leaving the space…

Maheen comments on the need to create a sense of liveliness in-the-moment feel in her online course:

> It was in some ways quite intense and yet I needed that to give me a sense of dynamic in-the-moment feel, when so much of the interaction was asynchronous. It gave me a sense of being able to network and a sense of breathing space, I guess I was looking for sources of inspiration …For me the virtual space was a place to transcend and be suspended in a space…it somehow felt like I was in this other space, I would forget that I was in a physical space and be in a state of 'flow' almost or transported to these other fascinating websites… I'm not sure if everyone feels that…there were times where I was so immersed that I'd forget the boundaries of my skin…quite an extraordinary experience, as if I'd dissolved, but not due to anything I was reading in the subject site…as if my eyes were not just glazed by the screen but mesmerised by where I was suspended and going online…I kept thinking of Donna Haraway and would joke to friends that I was becoming a 'cyborg'!

Maheen is a full-time postgraduate student who recently gave up her full-time work position, but continues to work professionally and teach at tertiary level. Maheen's spaces are indeed multiple and hybrid. One way of viewing her experiences of her spaces drawing on generative ANT metaphors can be through the topology of fire (Law & Mol, 2001; Moreira 2004), as this best describes her movements in the hybrid spaces. Whilst she is bounded in a regional physical study space, also multiple though, which she describes as having multiple spaces imposed on it − the creative, professional and academic − this multiplicity is reflected in how she experiences the online subject and her online movements and

meanderings. She flicks in and out of online sites to get further resources, to be inspired and to create a sense of the 'dynamic' − needing to move beyond the static − to feel a sense of liveliness to accommodate the asynchronous text-based interactions. Her flickerings between the various spaces, her absences and presences are fire-like in an ANT sense, where "in a fire space a shape achieves constancy in a relation between presence and absence: *the constancy of object presence depends on simultaneous absence and alterity*" (emphasis in original) (Law and Mol, 2001, p.161). The topology of fire allows one to 'flicker' between worlds. Maheen epitomises the hybridity of her spaces and identities, and the blurring and blending, where she even loses the sense of skin boundary at times with "dissolving" of her skin. This is akin to what Haraway asks: "why should our bodies end at the skin, or include at best other beings encapsulated by skin?" (Haraway, 1991, p.178.) Maheen's hybrid spaces can be seen as a "partial connection in which all kinds of constantly shifting spaces can co-exist, overlap and hybridise, move together, move apart" (Bingham & Thrift, 2000, p.299). Space and places multiply in different hybrid forms depending on presencing and absencing, the notion of "flickering topographies" (Thrift, 2006, p.140). For Maheen, her spaces indeed become places because of their significance and their meaning because of their functionality as places to take breaks, explore, travel and so on. In Maheen's learning spaces, there are nomadic fire movements that fan the dynamic feel of presence in her multiple hybrid learning spaces to become learning places.

Conclusion − spatial imaginings, so what?

In summary, some important conceptualisations can be drawn, namely that a socio-material lens can provide additional ways, beyond the cognitive and the technical, to analyse online learning in terms of spaces, identities and learning practices. This relational socio-material approach helps lift the 'invisible' masses to view and highlights the '*hybrid collectifs'* (Callon & Law, 1994) of learning-identities-spaces as co-constituting, where the boundaries of each can be (re)made. The notion of boundary can serve as a useful device for thinking of the process of enclosed locales and open spaces as it allow us "to compartmentalize to find order and yet it is also in the transgression of boundaries that we find creativity…"(Zerubavel, 1991, p.118). The notion of boundary creation is what helps us view the online vignettes described as processes of (re)configuration that move from enclosed boundaries in the first vignette to transgressing boundaries in the third vignette. The notion of how the boundary is formed and transgressed is what makes online environments as "'neither here nor there but both here and there' a (dis)location − something that is both positioned and not positioned, (dis)placed but not replaced, a diaspora space of hybridity and flows where one and many locations are simultaneously possible" (Usher & Edwards, 1998, p.3). Consequently online environments can be viewed as a heterogenous spaces of hybrid 'flows'. To map these flow patterns/processes between stasis and movement, the ANT concept metaphors of regions, networks, fluids and fire (Law & Mol, 2001), can be productive to look at online learning processes with a socio-material sensibility. Using these metaphors allows for conceptualising the internal dynamics of spaces as the effect of interferences/intersections between different types of spaces and entities and are generative of the learning event. What becomes clearer is that learners in online spaces inhabit various spaces − institutional spaces to non-institutional spaces and spaces "in-between" (Bhabha, 2001). The use of electronic media provides for this "pluralizing 'setting'" where "place is instantaneously pluralized" (Moore, 2005; see also Moore, 2004). We need to understand much more about the dynamics of plurality, hybridity and the complexities of online learning environments, and as Goodyear (2006) points out, "We need appropriate physical spaces, as well as appropriate digital ones. We also need a better integration between the material and digital world…" (p.95).

In conclusion, online learning can be viewed with a new imaginary that takes in the socio-material world to provide new spatial imaginings through Massey's powerful notion of space as 'flows'. By drawing on the rich areas of sociology of Science and Technology Studies and new geographies of space and place, we can open up different ways to think of learning, spatiality and learners in online environments. What these brief introductory vignette analyses show is that spaces/places are in fact hybrids and it is generative to view them relationally. It is no longer productive to think in binary terms of offline/online spaces (Leander & McKim, 2003), but rather of hybrid spaces of flow. These ANT topological metaphors allow for enclosed and open spaces, and 'spaces-in-between' "based on 'points of encounter', contact zones, 'borderlands' and 'hybridity'…" (Crang & Thrift, 2000, p.19), which can provide a way "To live, to know and to practice in the complexities of tension" (Law, 1999, p.12).

This paper has sought to explore the intersections of the who, where and how of online learners and online learning related to the conference theme, aiming to open up "spaces which have been closed down" (Bingham & Thrift, 2000, p.299). If we take Massey's relational view of space seriously then we are always, "inevitably, making spaces and places", where these spatial forms shape and shift our identities (Massey, 2005, p.175), in a world that is made up of places (Snyder, 1990, p.25). These notions of space/place, identity and learning intersections can inform online educators, educational designers and philosophers of the need to consider complexity and hybridity issues in designing and analysing online learning environments and experiences. So for example, how might we be able to provide online environments that allow for public and private spaces, for 'sacred rituals' of entry beyond passwords, to open, creative, inspiring and exploratory spaces? How might we change online learning spaces into places? We need to find ways to imbue our online learning environments with a liveliness of space (Massey, 2005, p.189), by invoking Lefebvre's notion that: "To change life is to change space; to change space is to change life" (Merrifield, 2000, p.173). Finally, having started with my fascination for Massey's words, I want to end with her enticing words to invite further explorations of spatiality, identity and online learning, because "What space gives us is simultaneous heterogeneity; it holds out the possibility of surprise" (Massey, 2005, p.105). Let us open up the spaces for these spatial imaginings.

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