Learning at the interstices; locating practical philosophies for understanding physical/virtual inter-spaces

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Abstract

Virtual worlds are relatively recent developments, and so it is tempting to believe that they need to be understood through newly-developed theories and philosophies. However, humans have long thought about the nature of reality and what it means to be ‘real’. This paper examines the three persistent philosophical concepts of Metaxis, Liminality and Space, that have evolved across more than 2,000 years of meditation, contemplation and reflection. Our particular focus here is on the nature of the interface between the virtual and the physical: at the interstices, and how the nature of transactions and transitions across those interfaces may impact upon learning. This may, at first, appear to be an esoteric pursuit, but we ground our arguments in primary and secondary data from research studies in higher education.

Keywords: virtual worlds, metaxis, liminality, space, place, situated learning

Introduction

This paper argues that at the heart of learning in virtual worlds is a sense of learning at the interstices of the virtual and the real that can be related to a range of early philosophical concepts, and that current literature and research studies that investigate learning in virtual worlds rarely refer to these themes, ideas and relationships. Our argument is that this is a missed opportunity to understand better the nature of the interface between the real and the virtual, and specifically how that understanding can affect teaching and learning practices. With particular reference to the themes of crisis in this journal issue, dehumanisation has been identified as one of the 'crises' facing the development of technology enhanced learning (e4c 2014), with particular concern expressed about the replacement of the person with the idea of the system and the replacement of human contact with mediated exchange. In this paper we challenge the notion of such a crisis in relation to virtual environments, and argue that recognising the applicability of ancient and current ways of thinking to these environments reduces the sense of negative disruption, and change that these environments can initially appear to pose.

Since the emergence of virtual worlds in the 1990s higher education has been awash with stories and legends. Although we have our own stories, we draw on the stories and concepts of earlier times as well as research narratives from staff and students. So whilst virtual worlds are relatively recent developments, and it is tempting to believe that they need to be understood through newly-developed philosophies, humans have long thought about the nature of reality and what it means to be 'real' and understandings of culture and reality emerged though narratives and story telling. Early stories appeared in religious texts and Dawn (2010) argues that a great deal of Western culture is built on stories or ideas that come from the Bible and the diverse narrative styles that appear in it. Stories have become enmeshed in Western culture and stories such as Adam and Eve, the ten plagues of Egypt and the Prodigal Son, have influenced everyone from Shakespeare to Monty Python. There are many theories about narratives. Many researchers view Aristotle's Poetics, for example, as a form of narrative theory in which Aristotle described the rudiments of dramatic texts. This paper examines Metaxis, Liminality and Space, three philosophical concepts that have evolved across more than 2,000 years of storytelling, meditation, contemplation and reflection. Creative minds from Siddhartha Gautama (the Buddha), through Plato and on to 19th and 20th century philosophers such as van Gennep (1909), Jasper (1953) and Lefebvre (1991), have constructed ways of trying to understand the 'real' which can reveal perhaps

surprising opportunities for understanding experiences in virtual worlds. However we have chosen to explore Metaxis, Liminality and Space because they are overlapping concepts that have emerged in recent studies in virtual worlds (Steils et al, 2014; Savin-Baden, 2013) but are ones that remain underexplored in terms of the impact on student engagement and learning in higher education in the context of the use of virtual worlds.

In this paper, virtual worlds are defined as having five main characteristics which separate them from other forms of social networking or gaming using computer technologies. For our purposes, virtual worlds are:

- Persistent, that is changes that are made in world remain, and the world continues to develop and be active, whilst individuals are logged off the world.
- Synchronous, so that participants in world are all present at the same time, regardless of their real-world location.
- Social, namely users interact with each other through various means of communication such as voice and text chat, and can also interact through experiences such as dance, making music, building and developing.
- Visually interactive, so that users interact with each other and the world through their avatars. It is important to recognise that those users need not be human; chatbots (computer programme designed to simulate an intelligent conversation) and non-player characters and avatars (translated from Sanskrit as incarnation is the graphical representation of the user) driven by artificial intelligence are commonly encountered in virtual worlds.
- Visually rich, namely they contain a wide range of visually detailed 3D environments, often enhanced by the ability to change time of day, the weather and the addition of sound and music.

Examples of proprietary and openly accessible virtual worlds include Second Life™, Kaneva™, Blue Mars™ and Active Worlds™. Our particular focus here is on the nature of the interface between the virtual and the real, namely at the interstices, and how the nature of transactions and transitions across that interface may impact upon learning. This is because it is often in these spaces in between the virtual and the real the students experiences stuckness in learning (Savin-Badem , 2010), feel immersed or become disengaged when learning in virtual worlds. We explore and explain our arguments using primary and secondary data from

studies in higher education. These exemplars include research in virtual worlds undertaken with staff, undergraduate and postgraduate students.

Outline of the concepts

This first section outlines each of the three concepts and discusses their relationship to the notion of learning at the interstices. These concepts are then expanded by applying them to case studies in educational environments.

Metaxis

Metaxis (or metaxy) is the word used by Plato to describe the condition of 'in-betweenness' that is one of the characteristics of being human (Allen 1993). Plato applied it to spirituality, describing its location as being between the human and the divine. Whelan (2008) expands the notion of metaxis in the modern age, claiming that '*...we humans are suspended on a web of polarities--the one and the many, eternity and time, freedom and fate, instinct and intellect, risk and safety, love and hate, to name but a few*'. Metaxis has also been defined as the state of belonging completely and simultaneously to two different autonomous worlds (Linds 2006). Although this notion of metaxis has recently begun to be rediscovered in relation to virtual environments, it is an ancient dualistic idea that disappeared for around 2,000 years in favour of an increasing sense of singularity, which developed in the Judeo-Christian tradition. In this paper we argue that the advent of virtual worlds and similar environments has provided a dual set of spaces that we can now inhabit; the virtual and the physical. As such, the notion of duality that metaxis explores becomes once again relevant, and such interstitial spaces become particularly significant when virtual worlds are used for education through simulations of real life experiences and activities. Learning about the physical world is increasingly being simulated in virtual worlds, with examples being developed in the fields of medicine (Honey et al 2012), construction, engineering, architecture (AbouRizk 2010; Ku & Mahabaleshwarkar 2011) and occupational risk management (Falconer 2013), amongst many others. The 'learning permeability', namely the ability for learning to cross the interface between virtual and physical worlds in both directions is therefore an important consideration in the design of learning activities which seek to enable students to apply theory in realistic ways. Yet moving between virtual and physical environments can be challenging for students, teachers and managers of education, if they lack a context in which to undertake that transition, and this in turn can increase a sense of dehumanisation when using virtual environments. The metaxis case study below is an example of a simulation that took place in

both physical and virtual worlds that embraced the sense of being in both places at the same time.

Liminality

Liminality is a term first coined by Arnold van Gennep and developed in his book *The Rites of Passage* in 1909. The term describes a psychological or metaphysical subjective state of being at the threshold of two existential planes, and although the term was originally applied to rites and rituals in small human groups, it was extended to whole societies by writers such as Jaspers (1953). Liminality also describes a sense of in-betweenness, but it has a stronger sense of shifting identity than the concept of metaxis, and this has significant resonance with activities in virtual worlds. As interactions in virtual worlds are undertaken through the medium of avatars (graphical representations of oneself) , the identities that users develop can be significantly different from the personas they adopt in the real world. A study by Ducheneaut et al (2009) examined avatar personalisation in *Maple Story, World of Warcraft* and *Second Life*. The findings, he argues, indicate a focus on common avatar features such as hair and experimentation with digital bodies. However, unlike studies such as Hemmi et al. (2009) and Bayne (2005), respondents saw avatar identity as an idealised version of their own personality. More recently, Steils (2013) developed a typology of learner identity in virtual worlds through showing how students seek to manage identity through the avatar. The typology portrays learner identity across five dimensions: dislocated avatars, representative avatars, avatars as toys and tools, avatars as extensions of self and avatars as identity extensions. Thus the range of the ways in which students engage and identify with their avatars represent forms of liminality and levels of embodiment.

Space

Lefebvre (1991) suggested social space might be seen as comprising a conceptual triad of spatial practice, representations of space and representational spaces. Spatial practice indicates the way in which space is produced and reproduced in particular locations and social formations. For example whilst a kitchen might be used primary as space for coking and serving food understanding the spatial practices of a kitchen means knowing that a kitchen is used for socializing, using and charging laptops and sharing stories. Yet in the context of virtual worlds it would seem that such a formulation of space has created different and diverse spatial zones along with imaginary geographies. Representations of space are, according to Lefebvre, related to the relationships between sites of production and the way in

which signs and codes are used within those representations. These spaces in the physical world are conceived spaces and are the spaces of the planners and architects. Yet in virtual worlds 'real' spaces are no longer defined by the physical world, such as the design of the buildings and the space that exists between and within structures shaped by the organization's function and activity. Yet buildings, space, terrain and territory in virtual worlds do exist as sites of contestation amongst lecturers, learning technologists and part-time tutors, and therefore the notion of representations of space now engenders the idea of a space of change. However, it is perhaps Lefebvre's idea of representational spaces which is of most concern when teaching in virtual worlds. These kinds of spaces embody symbolisms, some of which may be coded, but importantly the representation is linked to what is hidden, what is clandestine. The notion of representational spaces is symbolized by activities that necessarily occur within them, while at the same time they embody complexity and symbolism.

Case examples

In this section we describe and discuss case examples in each of the three philosophical domains introduced above, with a particular focus upon the student and tutor experiences of the physical/virtual interstices. The first case focuses on metaxis as a central component of simulation and the second case study suggests that liminality is an important concept for understanding identity exploration in virtual worlds. The final case suggests that space and spatial negotiation in virtual worlds need to be recognised and acknowledged more readily by those teaching in virtual worlds.

Metaxis

Background to the study

Simulations have long been recognised as an effective means of education, training and updating, from children's classroom role play in a variety of subjects (see, for example, Aubusson et al 1997) to full technological simulations of complex and high-risk activities, such as flying an aeroplane. The development of virtual worlds now enables the creation of easily-constructed and affordable simulated physical environments and social situations, in which students can take part in a way that mimics their likely activities in the physical world once qualified. This affords particular benefits when those environments and/or situations are unethical, dangerous or impractical to experience pre-qualification. If learning about the physical world can be simulated in a VW, the transferability between learning in the physical world and learning in virtual worlds (or the 'learning permeability' of the interfaces between

virtual worlds and the physical world referred to earlier), becomes a significant issue. This discussion of metaxis explores these themes using a case example of a risk assessment simulation undertaken by postgraduate students in a VW. These students were undertaking a Master's programme to qualify as an environmental health professional in the UK, and risk assessment in a wide variety of situations would be a fundamental part of their future careers.

Figure 1: here

In this study a boat hire premises (a place from which it is possible hire boats) was created in the VW Second Life™ (see Figure 1), which consisted of an office area, a workshop area, an open boatyard and a quay from which boats could be hired and pedalled around the immediate VW environment. The boat hire company documents such as a safety policy, accident book and minutes from various safety meetings were available to the students, through them clicking on a filing cabinet which caused the documents to open in their internet browser. The boat yard scenario contained many hazards, including improperly guarded drills and saws, trailing wires, oil spills, improperly stored liquefied petroleum gas and many others. The students were required to carry out a full risk assessment of the premises over the 12 week length of the environmental health principles and practice module, including a short interview with an artificial agent avatar and a full interview with a tutor avatar who took the part of the boat yard manager. The students then had to calculate likely risk ratios using a range of methods, identify active and latent conditions (both physical and organisational) that might lead to accidental injury, construct logic diagrams such as fault trees for example accident scenarios, decide upon the legislative consequences of the findings of their assessment, write a report and recommend further action as an enforcement officer under the UK Health and Safety at Work Act 1974. This scenario ran in parallel to an accident investigation in a neighbouring area of the VW environment; for a full evaluation of that scenario, see Falconer (2013).

The relevance of the interface between the physical world and the VW, and the importance of being present in both environments at the same time becomes clear when the activities that formed the risk assessment exercise are examined, as the students had to:

- take what they had learned about the nature of risk, calculation methods, assessment procedures, inspection and interviewing techniques from the physical world

- apply that knowledge and understanding of the theory during the assessment exercise in the VW,
- take what they found from the VW and apply analysis techniques in the physical world,
- as a result of that analysis, go back into the VW to further investigate, and
- come back into the physical world to write reports, discuss their assessments and reflect upon what consequential action they would take.

The exercise was closely evaluated both during its progress and upon its completion, with a particular emphasis upon the transferability of learning across the physical/virtual interface and any sense of metaxis experienced by the students. The evaluation included an assessment of the students' immersive tendencies (Witmer & Singer 1998), to investigate possible associations between the learning permeability of the interface experienced by students and their innate tendency to immerse in virtual activities. The evaluation was carried out through an immersive tendencies questionnaire at the beginning of the module, the students keeping reflective logs during the module and a questionnaire and cafe-style focus group at its conclusion. The two instruments at the end of the module both tested the construct of the students' opinions of their learning outcomes in relation to the VW exercises, with a particular emphasis upon the transitions between the physical world and the VW and how they coped with belonging simultaneously to these two worlds as they were learning. Associations between variables were calculated using Pearson's correlation coefficient (r), and following guidance in Cohen (1988) on interpreting correlation coefficients in the social sciences, values of r between 0.1 – 0.3 indicated a weak association, 0.3 – 0.5 indicated a moderate association and 0.5 – 1.0 indicated a strong association.

'Real people in a fake world'

In the evaluation of the post-questionnaire and café focus groups data, associations were investigated between prior familiarity with IT, including video gaming, and the students' perceptions of their learning outcomes. No statistical association was found between these two variables. But, when the responses from the immersive tendencies questionnaire were analysed and links between those tendencies and the students' perceptions of their learning outcomes were investigated, a medium to strong association was discovered. In this cohort, a student's immersive tendency was associated with their perception of their learning. As interactions in virtual worlds are mediated through the actions of avatars, it was proposed to

investigate how the students identified with their avatars as the exercise progressed, and if this identification might affect their sense of being in both physical and virtual worlds at the same time. When asked to choose the statement that best expressed how they felt about their avatar, 25% chose 'my avatar is completely alien to me', 66% chose 'I feel a sense of ownership of my avatar' and 9% chose 'I can identify with my avatar'. There was overall disagreement with the statements 'my avatar resembles me' and 'I become part of the VW through my avatar when in Second Life™.' The strongest agreement was with the statement 'my avatar becomes part of the VW when in Second Life™'. Initially these responses may look like strange signals, in some ways almost contradictory. However, when compared with the responses that related to the realism and sense of immersion in the risk assessment activity itself, which demonstrated a strong sense of engagement and belief in the exercise, an interesting dichotomy started to emerge. The students exhibited little sense of identification with their avatars at all stages of the exercise, but did demonstrate a strong sense of being a part of the scenario in the VW and commented upon how real the scenario felt. There was no evidence of a sense of dehumanisation which, on first inspection, may appear surprising, as past research has shown that the sense of reality and immersion in virtual worlds and in similar video games is closely related to a person's relationship, and sense of identity, with their avatar (see, for example, Taylor 2002, Waggoner 2009). This would suggest that metaxis may help to explain the apparent contradictions in this case example. As a single case example, theses findings are not generalizable to other specific cases, but add to current understanding of VW education design.

The students demonstrated a strong sense of being present in the physical world and the VW at the same time, and so the nature of the interface was fluid, meaning that the students were not dependent upon strong identity with their avatars to be able to move between the two worlds comfortably. The students maintained their own identities, rather than developing avatar identities. Also, it is likely that the relatively short length of time to identify with an avatar (12 weeks) militates against a strong feeling towards it. But, again perhaps in contradiction to this, the students spent most of the first two orientation sessions experimenting with and changing their avatar appearance, and some even went to the trouble of getting white coats for their avatars for the risk assessment activity. So they showed signs of projection into the VW, but it is not clear that the immersion they reported in the exercise was linked to a strong sense of identity with their avatars. The student quote at the head of this section sums up the general sense well. The students felt they were still 'real people', i.e.

not dehumanised, but in a ‘fake world’. So they could feel part of the VW and part of the exercise, but not need to identify with an avatar to gain an effective learning experience. Much of the literature on immersion and avatar identity links the two closely, suggesting that immersion cannot occur unless a strong sense of identity is felt with one’s avatar; almost the sense of ‘leaving’ the physical world and ‘joining’ the VW (e.g. Guitton 2010, Wigham & Chanier 2013). However, in this case, the students exhibited more metaxis than identity, by being part of both worlds at the same time to differing degrees, and moving their learning activities between them seamlessly. It may be that the ability of humans to inhabit two worlds at once is underestimated in VW education design, where the emphasis is currently placed upon significant orientation leading to immersion, as a key factor of success.

Liminality

This example of liminality draws on a study that used narrative inquiry to examine staff and students experiences of teaching and learning in virtual worlds. Study participants spoke of a sense of everything seeming or feeling provisional and this in turn resulted in a sense of liminality. Liminality is a betwixt and between state often spoken of in studies or rituals or rites of passage as a kind of in-between state. For example, Mandela (1994: 33) described his own experience of the Xhosa rite of passage into manhood, which requires payment by animals, whisky and money. In his biography, Mandela speaks of the rituals, where after the circumcision ceremony in which he was declared a man, he returned to the hut. Clearly the position in which Mandela found himself after circumcision was a liminal space; although declared a man, this was the space in which he was located before he would enter manhood properly. This theme captured the idea that the liminal quality of Second Life™ and the sense of chronic uncertainty challenged students to consider how to live, work and learn with provisionality. For example, the location of one’s avatar in spaces such as Second Life™ poses particular complexities, because of the interaction of five interrelated concerns that play out in the ‘social space’. These are:

- the ‘real’ body, in the sense the interlocutor of the avatar, the ‘author’;
- the choice of physical representation and the way the avatar is presented to others;
- the relationship between the avatar and the author;
- the author’s lived experience and the social representations made through the avatar;
- the intentional meanings represented through the avatar.

Student experience seemed to indicate that language and speech were not only representations that mirrored experience, but also created it, thus the meanings ascribed and inscribed in and through avatars are always on the move. For example, Ken found that Second Life™ opened up possibilities for creativity and freedom for students:

> If you let your restraints go and see the funny side of it then it becomes imaginative fun and very creative. I once answered a questionnaire Dave had and it asked how you would feel if your avatar died. I said it would be like losing a sort of artistic creation like a good painting. So I think it can help you to be creative. The format allows you to try out new problem solving skills. I also think it could be good for those who are shy of public debate and discussion. They can just watch and join in a disguised way.
>
> (Ken)

For Ken, the lack of restraint allowed for experimentation in new learning spaces and the opportunity to explore and play with learner identity. Further, the notion of avatar as art indicated a sense of it being both a creative expression and an extension of one's self. It might be that liminality could be seen as a trope for understanding avatar identity/pedagogy, or possibly that provisionality and representation might be seen as subcategories of liminality itself. Working and learning in virtual worlds seems to bring to the fore a sense of liminality between our various identities, in-between identities. Such identities would seem to be provisional, constantly changing and thus are always necessarily on the move. Yet, student identities did not always sit easily with one another, therefore collision and uncertainty result in disquietude and a sense of fragmentation.

Yet there also appear to be forms of liminality that can be seen in different studies in the field of threshold concepts that might have some application to virtual worlds. For example, Sibbett and Thompson (2008) suggest that in professional development, *moratorium status* is similar to adolescence where different identity status might be experienced. However, a moratorium status is where delay occurs so that exploration may occur in order to develop, create and form an identity. This, the authors suggest, might be seen as a form of liminality, since by negotiating this process, what they term 'identity achievement' (p234) occurs. However, if identity work does not take place then it would seem that mimicry may occur, leading to a sense of fragmentation. This fragmentation seems to happen in many curricula that are educating students for the professions and certainly there is evidence for this in the stories of student experience. (Savin-Baden, 2007). A further type of liminality would seem to be that delineated by Trafford (2008), who explored threshold concepts in PhD supervision

and offers some fascinating insights into threshold encounters. What is poignant is the consistent sense of conceptual lostness that students experience, as if they were slipping in and out of liminal variation and across diverse forms of liminality. This sense of being lost and looking for something seems a shift away from liminal variation. This is a response to both preliminal variation in terms of encountering the portal, and liminal variation in terms of how the liminal space is entered and negotiated. Yet it would seem that here students speak of the realisation of being lost and needing to look for something that is there, or having an expectation that this sense of lostness will disappear. Here students seem to almost value doubt as a means of moving away from a liminal space. Instead of trying to eliminate the lostness, they appear to believe it is better to value it as a central principle of learning.

Space

What is perhaps particularly interesting about virtual worlds as spaces is that they introduce questions about the mobility of virtual worlds as social spaces. For example, there does appear to be cross over and even collision between physical world and VW practices and spatial use. Spatial practice virtual worlds in Lefebvre's terms would seem to be both a representational space, in which the use of symbolic images is encouraged, and also a representation of space. Spatial practice is defined here as the way in which space is produced and reproduced in virtual worlds. Yet, boundaries around conceptions of space have moved, and so in virtual worlds different kinds of 'spaces' have been created. What was of particular note was the issue of the way in which staff 'negotiated space' in this study. The study, (Savin-Baden, 2013) explored staff experiences of teaching in virtual worlds. This 'spatial negotiation' was defined as participants' engagements with others in virtual worlds in terms of the cultural use and management of space, which is often ignored in teaching and learning in face-to-face learning. As Temple has suggested, 'The connections between the design and use of space in higher education, and the production of teaching and learning, and of research, are not well understood (2007, 2008)'. For example, Kay reflected on a virtual worlds meeting undertaken as part of this study:

> I was conscious of somebody getting up and moving away from me because I was behaving oddly … and when I went in, I thought, right, I need to go and sit there and it does look like one person per chair and it's the sort of spacing you do when you're on the beach and you work out exactly what the halfway space between the two people on either side of you is and you do this in Second Life™ as well, so you position yourself, you're not encroaching other people's space too much. (Kay)

Whilst her self-consciousness related to an overarching discomfort with virtual worlds, her awareness of her behaviours and real-world proxemic beliefs were applied to virtual worlds. However, a different stance on spatial negotiation was raised by Pete, who spoke of the collision of VW and real life spatial practice in terms of hybridity:

> … what's going on is people are constructing very hybrid relationships, complex new kinds of spaces that involve a mixture of adjacency and overlays. So in some of the artistic works like Uncle Roy All Around You ™, you've got at some point a sense that a virtual world is overlaid on London or whatever but at other points a much more sense that you're looking into something through the screen. And the artists … create a complex hybrid spatial structure and this requires new kinds of understanding of space

Adjacency as referred to by Pete emerges from the idea of the concept of a mixed reality boundary which is where there is a two-way portal between the physical and virtual worlds. In practice, this means that in a physical office, it is possible to make it appear to be adjacent to a virtual office; it is as if the virtual office is an extension beyond the screen: they are not overlaid; they are next to each other. Such in-between world collisions (symbolised by adjacency and overlay) would seem to point to the need for increasing understanding of the relationship between spatial practice, spatial structures in SL and issues of identity. However, in terms of pedagogy the relationship between learning in face-to-face settings compared with VW is important in relation to spatial negotiation because in face-to-face teaching, proxemics spatial relationships are rarely recognised or valued (Temple 2008), whereas in Second Life ™, they are because space is seen and used differently, as participants pointed out. Therefore, issues of spatial negation tend to interrupt learning in diverse and both helpful and unhelpful ways.

Discussion

What is seen in virtual worlds then are diverse forms of metaxis, liminality and space reflected and created by the values of in-world activities and practices, rather than a mechanical dehumanisation that is concerned with replacing the idea of the person with the idea of the system. For example, innovative and interesting architectured spaces are prized, talked of, copied and visited, often. Yet what still seems to be missing from *knowing* about metaxis, liminality and space in virtual worlds is the understandings of in-world practices and the ways these are played out, and affect everyday activities in higher education. There also seem to be design or architecture issues – not just about how VW spaces are designed, but the

assumptions that are made about learning, teaching, space and places in virtual worlds in relation to practice. One of the difficulties in virtual worlds in many ways is that they are allegorical, and neither controlled nor operated in ways that are necessarily similar to real life physical thinking, activities, practices and philosophies. Thus it would seem that notions of metaxis, liminality and space might be considered to be new ways of understanding these spaces of interruption in a world of higher education in crisis. But, of course, they are not new, as we have argued here, and is there currently a dehumanisation crisis, or merely the fear that one may develop? If we understand crisis to mean a point where a decision needs to be made (from the original Greek 'krisis' meaning decision), to what decision are we referring? Developments in technology and learning are rarely the result of deliberate decisions, but tend to be the result of evolution of practice, technology and thinking. For example, currently we have, on the one hand, benchmarks and locked down objectives in traditional, controlled courses and syllabi, and on the other MOOCs and disruptive media. There have also been critiques of the ideology, practices and language of technology enhanced learning. For a number of researchers, Technology Enhanced Learning (TEL) is seen as a series of practices that have rather swept across higher education with relatively little critique, along with other terms such as engagement, quality and harnessing. Bayne (2014), for example, has argued that technology enhanced learning is more about technology than learning. Further, strong arguments by Selwyn (2013, 2014) suggest neutral forms of educational technology have resulted in educational provision and practices with neo-liberal values. This, he believes, has changed the nature of education away from a public good and instead moved towards the individualistic tendencies of twenty-first century capitalism. Rather than crisis, perhaps we need different perspectives: one such idea is that we are digital tethered, which for some brings with it the idea of a dehumanisation crisis. Digitally tethering is defined:

> as both a way of being and a set of practices that are associated with it. To be digital tethered would generally associated with carry, wearing or holding a device that enables one to be constantly and continually in touch with digital media of whatever kind. Practices associated with digital tethering include the practice of being 'always on'; 'always engaged': texting at dinner, or driving illegally while 'facebooking'.
>
> (Savin-Baden, 2015, forthcoming)

For example, in the media there has been considerable criticism about school children's use of mobile devices, along with anecdotes across education about students being continually

distracted by technology. Further, many university staff and school teachers are concerned about technological determinism: the idea that those who have grown up in a digital age are necessarily different and that their persistent 'connectivity' damages them. Yet we suggest that perhaps what we are really dealing with is context collapse rather than crisis. Not having opportunities to explore identities and operate differently in different spaces, as Fliordi (2011) suggests, or only operating with identity components as suggested by Kimmons and Veletsianos (2014), rather seems to lock down the freedoms inherent in living online. Authors such as Seymour (2001) have suggested that although the physical body is invisible, meanings, mannerisms, behaviours and unstated assumptions are clearly visible in online communication. Further, studies suggest that users of immersive virtual worlds may adjust their identity to match that of their avatars, yet amidst all these shifting identities it would seem that issues of context are no longer as useful as they once were in helping to locate and position identities. Boyd coined the phrase context collapse and has argued

> The underlying architecture of the digital environment does not provide the forms of feedback and context to which people have become accustomed. The lack of embodiment makes it difficult to present oneself and to perceive the presentation of others. As people operate through digital agents, they are forced to articulate their performance in new ways. Additionally, the contextual information that they draw from does not have the same implications online. Situational context can be collapsed with ease, thereby exposing an individual in an out-of-context manner.
>
> (Boyd, 2002: 12)

Whilst contexts may have collapsed as Boyd suggests, it is evident that those using social networking sites do have a sense of their (imagined) audience. Yet the varied, mainstream and often linked (Facebook and Twitter) sites could be said to be resulting in multiple context collapse. Thus articulating performance in new ways can be seen as a means of enacting different forms and types of status online rather than some kind of dehumanised enigmatic crisis.

Conclusions

Learning in virtual environments may risk creating a sense of collective crisis, resulting in a sense of technological panic as subtextually indicated by Turkle (2011), although there is little clear evidence that this has happened so far. Turkle suggests that we are controlled by technology, which rather seems to be harking back to technological determinism. Instead we suggest we need to shift away from such a stance as well as the notion of fixed threshold

concepts. Instead, in VW learning, we need to focus on conceptual threshold crossing (Wisker and Savin-Baden, 2009) and thus by building on philosophies such as metaxis, liminality and space and not seeing them as static concepts it will be possible to recognise 'learning leaps', through which pedagogical shifts occur in the context of VW learning. We suggest therefore that:

- Recognising these concepts and using them when teaching in virtual environments can improve learning design. Indeed, the notion of mixed reality, where elements of the physical and the virtual interact, is becoming increasingly achievable with wearable devices such as augmented reality glasses and haptic devices.
- Explaining these concepts to students can help them to engage better with the disjunction that may emerge when learning in virtual worlds and reduce the fear of dehumanisation when interactions are taking place through the agency of avatars
- Unpacking and understanding these areas is vital to improve teaching, learning and design of curricula if we are to move away from performative practice in higher education.

Such borderland engagement will require a greater need to embrace liquidity and augmented existence - the idea that it is not just the tagging and integration that is affecting our lives, but the fact that the meta systems themselves become a new means of categorization (Thrift 2006a; Thrift 2006b). Thus a sense of engaging with a world of liquid crises might bring to light new understandings of 'the liquid' (Bauman, 2000), new notions of community, different understandings of space and spatial practices, and recognition that VW spaces are increasingly hybridized, extended and mixed in ways we are yet to understand fully.

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Figures

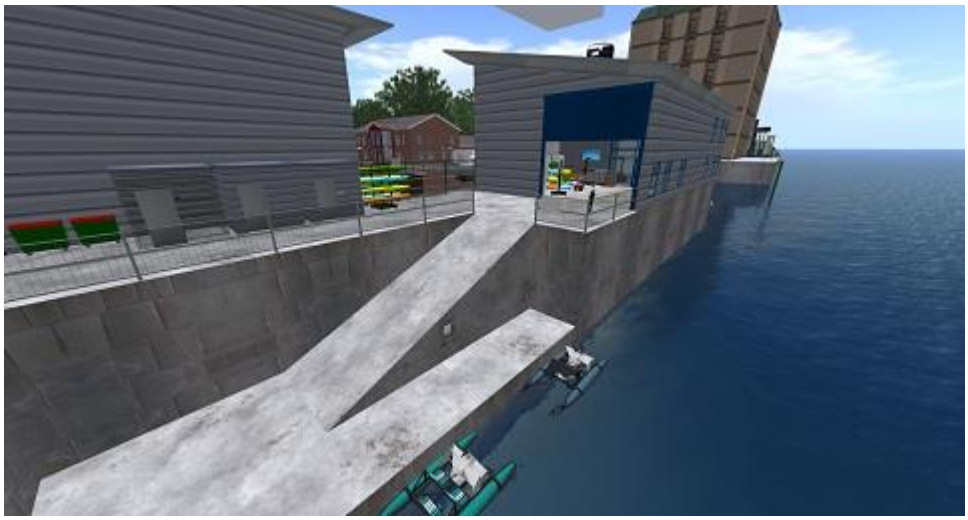

Figure 1: Boat hire simulation in Second Life