Students’ experiences of learning in immersive spaces

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Introduction

To date learning in immersive spaces is under researched and the extensive possibilities for its use need to be better understood in order to realise its potential. Furthermore, the impact of learning in such worlds in terms of students' conceptions of reality, their relationship between in-world and real-world behaviour and issues of representation and collaboration, bear further research. This keynote will present a study that used the methodological approach of narrative inquiry to examine students’ experiences of learning in Second Life. The findings indicate that play, disjunction and liminality are all useful for enhancing student engagement and promoting effective learning. The study suggests that future research needs to examine the impact of different types of scenarios used in simulations and virtual environments and examine what works for whom and why.

Background

Much of the recent research to date has been undertaken into students' experiences of virtual learning environments, discussion forums and perspectives about what and how online learning has been implemented; (for example, Sharpe et al, 2005; Creanor et al, 2006; Conole et al, 2006). These studies, although using relatively small data sets, would seem to indicate students’ experiences of e-learning are more complex and wide-ranging than many university tutors realise. Much of the recent research into learning in immersive worlds centres around cognitive learning theories. Laurillard, in particular, argues for an information rich environment in which the student has control in discovering knowledge, but the discovery is supported and scaffolded by extra guidance functions (Laurillard, 2002). Yet virtual world learning seems to offer new perspectives relating to the study of the socio-political impact of learning in higher education. This is because spaces such as second life are universal, not bounded by time or geography, and in particular adopt different learning values from
other learning spaces (Savin-Baden, 2007). The overall aim of the study presented here was to explore the impact of learning in immersive worlds on end users and their practice. The focus in this paper however, is on the student experience and the challenge of designing suitable problems scenarios that facilitate learning.

Methodology

Data were collected from diverse disciplines which enabled the research themes to be explored across disciplinary boundaries. Research sites were chosen to reflect a range of uses of virtual worlds across a variety of disciplines. Data were acquired through narrative inquiry, since stories are collected as a means of understanding experience as lived and told, through both research and literature. However, narrative inquiry is seen in a variety of ways and tends to transcend a number of different approaches and traditions such as biography, autobiography, life story and more recently life course research. Narrative inquiry is used to study educational experience since it is argued by those in this sphere that humans are storytelling organisms who lead storied lives. Those who use this research method argue that stories are the closest we can come to shared experience. For example, Clandinin and Connelly argued:

> Experience. . . is the stories people live. People live stories and in the telling of them reaffirm them, modify them, and create new ones.  

(Clandinin and Connelly, 1994: 415)

Some researchers would argue that narratives are structured with a beginning, a middle and an end, held together by some kind of plot and resolution. However, we would argue against this, suggesting instead that narratives do not necessarily have a plot or structured story line, but are interruptions of reflection in a storied life. What counts as ‘story’ varies within methodological fields. We suggest that when using narrative inquiry it is important that the researcher is not only able to ask questions that elicit stories but also that they are able to position themselves so that stories can be analysed effectively. Further, we increasingly believe that the distinction between different types of narrative inquiry tends to be in the co-construction and strategies for
interpretation rather than between the traditions; in other words ethnography can be carried out with a modernist (non-interpretive) stance or with an interpretive one.

Methods

**Data collection**
An initial review was undertaken of existing data available, via databases and ESDS Qualidata. Data were collected through semi structured interviews face to face, by telephone and in-world with 10 staff and 10 students, and analysed interpretively to examine the subtext of data.

**Ethics**
Ethical approval was sought from the relevant University ethics committees. Data collected were confidential. Safeguards to confidentiality included the coding of data and the code was kept separate from the raw data. All names used throughout were fictitious to preserve the identity of participants. However, it should be acknowledged that the individuals concerned might recognize some excerpts within the text used to illuminate the interpretation of data.

**Trustworthiness, honesties and informed consent**
In the context of a study such as this, a shift was needed away from validity or trustworthiness, and the assumption that it is possible to find shared truths and clear themes and categories. Instead ‘honesties’ was adopted – a category that allowed for the acknowledgement that trust and truths are fragile and encourages engagement with the messiness and complexity of data interpretation in ways that reflect the lives of participants (Major and Savin-Baden, 2010). Honesty allowed for recognition of not only the cyclical nature of ‘truths’ but also that informed consent is not unproblematic. Participants signed informed consent forms and were supplied with information sheets.
Findings

Learning in immersive worlds appears to change the nature of social interaction and affects learning practices. For us it introduced questions about immersive virtual worlds and learning in such spaces that may or may not change communication, collaboration and learning practices in higher education. The findings presented here represent the themes and issues that emerged from student narratives, but just two of the themes are presented here: Playing to learn and Dialogic Learning.

Playing to learn

Issues were raised by students about learning, play and fun and how we also play in and through our identities in virtual spaces. Rieber et al (1998) have suggested that the notion of ‘serious play,’ which is characterised as an intense learning experience, involves considerable energy and commitment and suggests that serious play is important for the development of high order thinking, commitment and engagement. Playing to learn seemed to enable an exploration of the ways in which past, current and future identities are present and embodied and multiply interacting with each other in these spaces. Yet the notion of playing to learn seemed to be at odds between staff and students. Students saw play as part of or integral to learning whereas their perception was that staff did not always see it as such. Chris and Meg both saw SL as space for play and experimentation which they felt was unexpected by staff:

I was instantly engaged. I like debating and this fitted the bill. I also don’t mind a bit of humour and a few jokes and that is inevitably involved in SL . . . There is a real dimension there to do all sorts of creative things you might not have thought of. . . For some a few the whole thing is off putting, not really serious, you know odd boy, that sort of thing. When I speak to friends who are teachers you have to overcome their prejudice that it’s all just a joke (Chris).

I think the course tutors, they are supportive but they can be quite directive on the course at points and I think their understanding of what education in an online space was quite different from mine. And also I was being quite experimental and in a way I think they hadn't expected and I think they were quite thrown by that (Meg).
The sense of doing things differently, playing with learning, playing around and exploring were all seen as advantages to learning in IVWs. Yet these advantages were often seen by staff as troublesome in the sense that the learning boundaries were not necessary controlled and managed by them, but by the students. Yet for students it was the opportunity to play, which challenged the immutability of knowledge and the perception that learning was static and tutor centred. Yet such liquidity in the learning also brought with it a sense of unease about the provisionality of learning and identity in such spaces.

**Dialogic Learning**

Dialogic learning (Mezirow, 1985) is learning that occurs when insights and understandings emerge through dialogue in a learning environment. It is a form of learning where staff and students draw upon their own experience to explain the concepts and ideas with which they are presented, and then use that experience to make sense for themselves and also to explore further issues. The promotion of such forms of learning can encourage both staff and students to critique and challenge the structures and boundaries within higher education and industry, whether virtual or face to face. This is because learning through dialogue brings to the fore, for students and tutors, the value of prior experience to current learning and thus can engage them in explorations of and (re)constructions of learner identity. However, Flecha (2000) has developed the concept of dialogic learning further, suggesting seven principles which include egalitarian dialogue, the valuing of cultural intelligence and transformation.

In this study SL was seen as a more informal learning space by students than a discussion forum, and therefore students felt more able to ask questions about assignments and tutor expectations of both the standard of work expected and their participation in seminars. However, it also allowed opportunities for students to question what counted as learning and what learning meant for them. For example, Kay’s learning and dialogue was something that was continually changing and on the move:
I find that throughout this course and other things that I do that people talk about learning in lots of different ways. So it means the same thing every time they're using it and actually when you try and pin it down it disappears, what we're talking about. We're not quite talking about the same thing. And the learning for me that's coming from Second Life, it doesn't quite answer your question I don't think, but it's giving me almost, not quite a mirror but something, a trigger to look at other things, why am I reacting in this way, to what I'm seeing? Some of the things I've been saying to you. And it's forcing me to look anew at things, looking in a different way at things and I think that's quite powerful.

Such a sense of liminality prompted her to question her own pedagogical stance and explore issues of agency and identity in both RL and SL. Yet thinking of the impact of learning in such spaces and the shift in dialogue occurring also raised issues for students in terms of the imposition of pedagogic frameworks and models by staff on students. For example Meg argued:

I don't know whether it will or whether it won't – *(virtual worlds will enhance learning in the future)* - I think it's here to stay but I think the problem is that it can go the same way as virtual learning environments and be very contained and linear and I know there are projects that are already doing that, - they're moving Gilly Salmon's five steps to good e-learning or whatever she calls it, um into Second Life and I'm not sure that's what it's about, so I'm kind of quite unhappy with some of that - I do think it's quite experimental and I do think that people are being prepared to take risks and I think it's starting to interrupt knowledge and what learning means a bit more in higher education and I'm glad about that because I don't think there's enough of that going on. We're too obedient –

For Meg the imposition of frameworks from virtual learning environments seemed to restrict dialogic possibilities and impose containment that was seen as unhelpful and unnecessary. For her the linguistic and dialogic shifts were coupled with a sense of pluralism and chaotic-ness, and a sense of things being out of control was something she valued in a way that others perhaps did not. Yet across the data there was a belief
that such chronic liminality led to staff and students speaking as if they were in a runaway world.

Liminality
What all of this does seem to point to is a form 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. When students are exposed to the SL environment they necessarily add a range of SL identities to their established RL identities such as family member, ethnicity, religious affiliation, together with such temporary RL identities as student, part-time job holder and entrant to their chosen profession. Students had a significant variety of SL identities ranging over the findings, from being positively playful and / or mischievously subversive through to being confused or interrupted, and at worst disempowered and demotivated. It is the positively playful and / or mischievously subversive identities which may offer the best way that SL can help RL sufferers, as this liminality starts by being positive: students are initially excited rather than being worried about their new experience.

These varied identities seldom sat easily with one another, therefore collision and uncertainty resulted in disquietude and a sense of fragmentation. Such disquietude served to confirm that identity work was not only an ongoing task but also a form of musical chairs:

There are ‘musical chairs’, of various sizes and styles as well as of changing numbers and position, which prompt men and women to be constantly on the move and promise no ‘fulfillment’, no rest and no satisfaction of ‘arriving’, of reaching the final destination, where one can disarm, relax and stop worrying.

(Bauman, 2000:33-4)
There was a sense then that there were variations in liminality as defined by Meyer et al. (2008). For example they suggest there are four progressive steps towards and through the portal\(^1\), namely:

- Subliminal variation - variation in students’ ways of knowing and understanding the underlying game of the discipline
- Preliminal variation – variation in how students perceive or encounter the portal
- Liminal variation – difference in the way in which the liminal space is entered and negotiated
- Postliminal variation – difference in ways of moving out of the liminal space and into a new terrain

(Paraphrased from Meyer et al, 2008: 68)

Playing to learn and dialogic learning would seem to introduce new spatial zones and practices which need to be explored in relation to learning and learning design.

**Learning and Learning Design**

One of the difficulties with using problem-based learning, designing interaction learning in virtual worlds and developing simulations is the ability to design and build effective complex and challenging scenarios. There is a tendency to focus on knowledge and content coverage, rather than the way learning will be managed and the complexity of the problem scenarios. Schmidt and Moust (2000) suggested a taxonomy for using problems in order to acquire different kinds of knowledge, rather than solving problems or covering subject matter. The importance of the work undertaken by Schmidt and Moust (2000) is not only the way they provide and explicate different problem types, but also their exploration of the way in which the questions asked of students guide the types of knowledge in which students engage.

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\(^1\) In the threshold concepts literature the argument is that following a period of being ‘stuck’, prompted by the threshold concept, one passes through a portal into a space beyond the threshold

Table 1 Types of knowledge and types of problems

<table>
<thead>
<tr>
<th>Types of knowledge</th>
<th>Explanatory knowledge</th>
<th>Descriptive knowledge</th>
<th>Procedural knowledge</th>
<th>Personal Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of problems</td>
<td>Explanation problem</td>
<td>Fact-finding problem</td>
<td>Strategy problem</td>
<td>Moral dilemma problem</td>
</tr>
<tr>
<td>Examples</td>
<td>People in the 15th century used to believe it was possible to fall off the edge of the earth</td>
<td>Following recent political changes relating to land use in Zimbabwe many internal borders have changed</td>
<td>A 43 year old woman cannot lift her right arm more than 45 degrees and she complains of pins and needles in her hand</td>
<td>A mother breaks into a chemist’s shop at night to obtain life saving drugs for her baby. She contacts her local physician the next day to explain what she has done</td>
</tr>
<tr>
<td>Example of question</td>
<td>Explain why.</td>
<td>What would a legal map look like?</td>
<td>If you were this client’s physiotherapist what would you do?</td>
<td>What should the doctor do?</td>
</tr>
</tbody>
</table>

(Adapted from Schmidt and Moust, 2000: 68)

Ten top tips for scenario design

Taking into account the work by Schmidt and Moust it is therefore important to scenario design, whether for problem-based learning or for simulations by considering what it is you want students to learn – not what content you want them to cover. The following issues may help:

1) Decide how this learning will be assessed
2) Make a list of what you want them to learn (your learning intentions)
3) Think about the learning context – what the space in Second Life will look like
4) Ensure the students know what they are supposed to do - are there instructions and do they know where these are?
5) Try and make them interesting enough to be a challenge but not so controversial that students become side-tracked
6) Explore the extent to which formal knowledge is being provided in the course and examine how students will transfer the knowledge into the scenarios and how you will enable them to make links.

7) Consider how scenarios fit in with the rest of the programme

8) Locate ways of enabling them to illustrate what they have learnt, this may be thought of in terms of assessment or in other ways

9) Provide learning intentions that show how students may have moved beyond the intentions specified

However, in terms of learning design it is important to consider not only the purpose of using the medium but also the pedagogy. There is a tendency to just adopt the approach of saying to colleagues that learning in Second Life or simulation is ‘just experiential’, whilst nodding towards Kolb’s learning cycle as a point of reference. Perhaps a better approach is the one exemplified by a colleague who recently asked, ‘how can I ensure that what I plan and design in Second Life will work effectively?’ The way forward is to consider the relationship between the media and the pedagogy. The following table may be useful for designing for learning:
Table 2 Theories to inform design

<table>
<thead>
<tr>
<th>Pedagogical approach</th>
<th>Related theory</th>
<th>Theorist</th>
<th>Types of Second Life activities that match</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBL Constellation 9</td>
<td>Critical pedagogy and social action</td>
<td>Freire (1972, 1974) hooks (1994)</td>
<td>A scenario that prompts students to examine structures and beliefs, such a scenario about Second Life being a panoptican</td>
</tr>
<tr>
<td>Problem-based learning for transformation and social reform</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity-led learning</td>
<td>Complexity model</td>
<td>Barnett and Coate (2005)</td>
<td>Team-led activities such as designing a set for a production of Hamlet</td>
</tr>
<tr>
<td>Dialogic learning</td>
<td>Community action</td>
<td>Mezirow (1985) Flecha (2000)</td>
<td>Student-led learning teams that focus on discussion and reflection</td>
</tr>
<tr>
<td>Action Learning</td>
<td>Change management</td>
<td>Revans (1983)</td>
<td>Group-led discussion and reflection on action</td>
</tr>
<tr>
<td>Project-based learning</td>
<td>Cognitive learning theories</td>
<td>Vygotsky (1978) Ausubel et al. (1978)</td>
<td>Tutor-set, structured tasks, such as building tasks</td>
</tr>
<tr>
<td>Inquiry-led learning</td>
<td>Discovery learning</td>
<td>Bruner (1991) Dewey (1938)</td>
<td>Students decide on their own about issues that emerged during a practice or fieldwork component of their course, and they set their own objectives as to what they want to learn.</td>
</tr>
<tr>
<td>Leaderless group discussion</td>
<td>Humanism</td>
<td>Rogers (1969)</td>
<td>Student-led discussion</td>
</tr>
</tbody>
</table>
Conclusion

Designing learning in higher education has often focused on covering content and ensuring that discipline-based pedagogies are adhered to. What these data appear to indicate is that although liminal states may share certain characteristics, the experience of liminality differs between people, and invariably relates to identity transitions and transformations in IVWs. Thus it would seem that liminal states are not only affected by the spaces in which they occur but also the pace of change. Yet in recent years governments worldwide have taken a more performative stance focusing not just on learning objectives but learning outcomes. To promote teaching and learning in Second Life there needs to be a move away from such a stance and instead an examination of what it is that students should be learning and how best to facilitate that process in challenging and interesting ways.

Yet in many ways perhaps this is too simplistic, perhaps what we are seeing in SL is really the creation or location of ‘junk space’. The argument is that this space has emerged through the process of modernisation. Koolhaas (2004) uses the analogy of space junk (that is, debris in outer space floating free of any context or control) to describe this: ‘If space junk is the human debris that litters the universe, junk-space is the residue mankind leaves on the planet’ (Koolhaas, 2004:162). SL life is a space of experimentation and often of subversion; it is often a hidden and/or closed space. So perhaps then it is a higher education junk space, a space where the residue of real creativity in teaching and learning occurs. Perhaps too avatar identities might be seen as junk identities, the residual components left over from being asked to work and teach in the increasing performative culture of higher education. In-world identities still seem to be an area of difficulty - in terms of unpacking and understanding them. It is not clear if people are just adopting different in world roles, whether there are indeed strong identity connections or there is a spilling over between worlds - both ways. Collision and overlap occurs in SL in terms of physical positions, customs, cultures and ways of operating. For example, there is often a perception by university staff that they live and work in separate worlds, and that to go from one to another is almost like passing through the wardrobe into a Narnia world (Lewis, 1950).
Yet these are not separate worlds but are spaces that have to be managed in relation to one another – a little like our new government, perhaps we can dream that blue and yellow really might become green.

References


Rogers, C. (1969) Freedom to Learn Columbus, Ohio: Merrill


