Implications of Placedness for Learning in Multi-User Virtual Environments

Kenneth Y T Lim
Learning Sciences Lab
National Institute of Education
Singapore

This article considers some of the unique affordances that Multi-User Virtual Environments—in particular, Second Life—present to the design of learning environments. Drawing upon some preliminary experiences of acquainting teachers in several schools in Singapore with Second Life, specific attention is paid to the inherent spatiality of the Second Life grid, and the implications the consequent sense of place imparts on traditional notions of the content of any given subject domain, as well as on how the understanding of learners can be facilitated and subsequently assessed.

Social Mediation and Place in Second Life
The American writer Gertrude Stein (1937) famously commented of the city of Oakland that “there is no there there.” Writing in Everybody’s Autobiography in 1937, her words form a useful lens through which to examine twenty-first century multi-user virtual environments in general, and Second Life in particular.

It might seem a far reach from the California city of Oakland to the sub-Saharan expanse, but such a conceptual leap in landscape would be appropriate in a metaverse where teleportation is a reality. The geographical indulgence is justified because it is in sub-Saharan Africa that the humanist ethic of ubuntu originates. The Wikipedia entry (2007) on ubuntu defined it as the belief in a universal bond of sharing that connects all humanity—such a bond is manifested, for example, in the Zulu maxim umuntu ngumuntu ngabantu, which is to say, “a person is a person through other persons.”

If one accepts—at least for the moment—this conception of humanity as defined in relation to the other, then it is not too much of a cognitive jump to make, that what is true of flesh-and-blood human beings, is also true of their avatar representations. Such a framing is consistent with a learning sciences trajectory, as it circumscribes the dialectical interactions within which Bakhtin’s (1981) heteroglossia takes place.

While it is beyond the scope of this article to engage in a debate about the metaphysical constructs of sentient beings and the nature of identity, a point of relevance to the present discussion is that, as humans, we find virtual representations of self meaningful and believable only to the extent that these same representations are able to participate in constructions and collaborations with other avatars.

Indeed, this very point was made by Cory Ondrejka—former Chief Technology Officer at Linden Labs—in an interview with Edge magazine in 2004, when he contrasted socially-focussed virtual environments such as Second Life with visor-based Virtual Reality (VR) tools. Ondrejka referred to social collaboration between non-co-located humans as “a hook—you experience that, and you want it everywhere else...collaborative, realtime, realtime, realtime...it’s part of what makes this so different.”

A second strand which serves to define the boundaries of this article is more explicitly geographical in nature. The conjecture that distance is dead, in a metaverse in which avatars can reliably and safely teleport, has already been alluded to in the preceding outline. If this conjecture were indeed true, it would have far-reaching implications to the relevance of geographical understandings and skills in Second Life (and, by extension, other virtual environments). Superficially, pronouncements of the death of distance in Second Life appear reasonable, not least because it is extremely difficult—if not impossible—to gain an appreciation of the sense of spatial layout and orientation of any one sim (region) to another. There does not appear to be a publicly accessible master-atlas of the thousands of sims in Second Life, and even if there were, the sheer number and spread of these sims would present significant challenges to interface design and user-intelligibility, not to mention timeliness of updates.

However, it is this author’s contention that reports on the death of distance in Second Life have been exaggerated, or—at the very least—ill-considered. If distance were indeed dead in Second Life, avatars...
would be able to be in multiple places synchronously. Indeed, such a virtual learning environment does exist, in the form of a technology infrastructure known as the Croquet Project, developed by the Croquet Consortium (a not-for-profit foundation). Although the Croquet environment superficially resembles that of Second Life, it attempts to go one better by enabling portals to be opened, which essentially serve as wormholes connecting various parts of the Croquet world.

For better or worse, Second Life does not (yet) have a similar implementation of such portals. If an avatar needs or wishes to be in a place other than the one in which he/she/it presently finds itself, then that avatar would have to remove itself from its present location to walk/fly/teleport to the new one. Unlike in the Croquet environment, the avatar could not simply just call up a door to step through and maintain visual contact and some degree of physical presence with the original location.

This is not a trivial difference, for it means that (for the foreseeable future, at least) Second Life is constructed as a world in which one's physical location, vis-à-vis other locations in-world, matter; and as long as one inhabits a world in which relative locations matter, distance cannot be meaningfully proclaimed to be dead.

Place and the Design of Learning Environments in Second Life

This article draws upon the present author's experience of working with the Ministry of Education in Singapore on an on-going project to design a series of focus-group discussions, workshops, and infrastructural supports for teachers in several local schools, with a view to helping the latter interrogate—from the perspective of the learning sciences—the affordances of virtual worlds for learning. The fact that locations matter relative to each other in Second Life is important to educators and instructional designers. To elaborate, because learners, through their avatars, cannot be in more than one place at a time, they need to decide where—at any given moment—they wish to be.

To the extent that the learner has some control over his or her time (and place), then instructional designers in Second Life need to take extra care to ensure that the learning environments are not just defensible from the point-of-view of the subject-discipline itself, but also provide opportunities for learners to invest meaning (and therefore time and effort) in. It is worth noting that this point is arguably more critical in presence-based learning environments, such as Second Life, than in Web-based environments. This is because the latter (by definition) are hyperlinked—or, at the very least, part of a loose and larger network which allows simultaneous multitasking on the part of the learner—whereas the former are not.

The corollary of the preceding argument is that, of course, learning environments in Second Life should potentially be designed according to the same principles that have been tried and tested in Real Life (simply because in Real Life, one cannot be in two or more places at the same time—one has to choose, and therefore, to prioritize). However, to take this too literally would also be self-defeating, because the creative and inspired instructional designer could well conceive of, and design, environments in Second Life which enable engagement and interaction which are simply not possible (without great cost, however defined) in Real Life.

To take a trivial example, the possibility of personal flight permits learning environments to be structured and differentiated not only across latitudinal space, but also altitudinal space. Put another way—and this would be of relevance at the very least to teachers of mathematics and/or geography—Second Life (and mapping/terrain-modelling software such as Google Earth) have precipitated a discovery anew of the z-axis.

Other examples of the way in which Second Life permits learning environments to be designed differently from those in Real Life include the alteration of physical parameters (such as how solids behave, how gravity changes) to the extent of altering basic shape and size, such as avatars assuming non-human form, e.g., a golf ball, or a pollinating bee, and the modeling of biological organs in the body.

Learning in and About Space and Place: Geography Education in Second Life

Learning interventions representing a range of traditional subject disciplines have been built in Second Life, from health education, literature, language learning, to genetic biology. Despite this diversity, all these interventions have at least one common factor, and that is namely that the places in which they are situated within the Second Life grid are populated with content.

In an earlier article (Lim, 2009), I introduced a so-called Six Learnings framework that might be applied to the planning of and design for curricular interventions in-world. The framework consists of six lenses through which curricular interventions designed for virtual worlds might be analyzed and critically evaluated, hopefully even during the early planning stages. These lenses—termed the six 'learnings'—are not conceived of as either hierarchical or mutually exclusive. Instead they serve the twin purposes of at once highlighting to the curriculum designer the breadth of potential learning designs in Second Life (so that, for example, the design team not be lock-stepped into conceptualizing designs which might have been transposed more or less wholesale from contexts dissimilar to the immediate one), while at the same time providing a constraining focus on the scope of
individual interventions as they are situated within the broader gamut, so that the criteria by which these individual interventions might be evaluated could be much more tailored and targeted. In turn, such tighter criteria would serve to inform subsequent reflection and redesign, so as to increase the likelihood of the interventions meeting their design goals.

In this way, it is hoped that the schools and institutions applying the Six Learnings framework to in-world curricular design would get their money's worth with interventions designed from the start to closely align with the mission statements and values systems of the respective schools, rather than be encumbered under a one-size-fits-all intervention adopted out of inexperience and to some extent ignorance of in-world cultures and educational affordances.

Briefly, the six learnings are:

- learning by exploring;
- learning by collaborating;
- learning by being;
- learning by building;
- learning by championing; and
- learning by expressing.

These six lenses can be applied to understanding how content is critical to the effective working-out of the learning design in virtual worlds. Thus, for example, because language is best learned through practice in authentic context, the content in a language-learning intervention would seek to replicate various historically accurate Real World environments (such as can be found in the English Village sim). In science, an example of content could be models of chains of organic molecules. For the purposes of the present argument, however, four of these six learnings, in particular, are pertinent.

Learning by Exploring

By 'learning by exploring' is meant the learning that results from explorations (structured or otherwise) of installations, communities, and landscapes within the virtual world itself. Depending on the nature of the learning task, such explorations could be scaffolded to varying degrees, and could possibly include inferential tasks to do with the conduct and subsequent analysis of fieldwork within the virtual world. For example, a class of students might be divided into groups, with each group assigned a particular height along which to map out contours as they explore a mountainous landscape in-world. Such an activity would not be feasible in Real Life for several reasons, not least of which being the inability to zoom out and pan around the entire landscape in order to compare the emergent contours being charted against the landscape itself.

Learning by Collaborating

By 'learning by collaborating' is meant the learning which results when students work in teams, either on problem-solving tasks or in other forms of structured inquiry. The focus here would be on helping the learners increase their metacognitive habits as well as their understanding of distributed cognition and the social dynamics of groupwork in general. This learning draws, of course, on the rich body of established literature on the benefits of learning collaboratively, as opposed to learning competitively (e.g., Johnson & Johnson (1986)). The example described in the preceding paragraph could also be used to illustrate learning by collaborating, should the teacher wish to foreground this particular affordance.

Learning by Being

By 'learning by being' is meant the learning which results from explorations of self and of identity. This type of learning is congruent with Brown and Duguid's (1994) understandings of 'learning to be.' Such learnings involve the assumption of identities and dispositions through enculturation. Once again, the example of having groups of students distributed at various points in a landscape in-world pertains. As the example describes the students measuring and plotting contours along a landscape through the deduction from the grid- and altitudinal positions, they would actually be appropriating the epistemic frame of geographers as they empirically deduce contours from first principles. Such an exercise is presently not possible to be replicated in fieldwork in Real Life because of the built-in imprecision of longitude and latitudinal coordinates on consumer GPS units.

Learning by Expressing

Finally, 'learning by expressing' focuses more on the representation of in-world activity to the 'outside world' (that is, to an audience who are not necessarily in-world). This kind of learning, which includes but is not limited to the authorship of blogs and the production of podcasts, is congruent with Hung and Chen's (2008) notions of the dialectical interaction which they term 'self to reification.' They elaborate thus:

...technologies—at the cognitive, emotive and social levels—can be used to allow learners to articulate their understanding by externalizing. When meanings are made overt through multi-modal forms of expressions, these constructions can be brought into the open for individual and social reflection, and knowledge is built upon by others. (p. 92)

Geography, because it is inherently the study of place, can potentially afford effective learning interventions within Second Life, even before the learning space is populated by what is ostensibly considered to be content (such as representations of flora and rocks and the built-environment). Because the "fundamental
stuff of geography is land (and man’s relationship with it), and because land is also the ‘fundamental stuff’ of elaborately-designed virtual worlds, such as Second Life, the whole notion of what content is, what documents are, and what artifacts of learning are, can potentially be interrogated in an unprecedented manner.

To elaborate, it is acknowledged that land is fundamental stuff of Second Life for the very good reason that the geography and physics modeled within the Second Life grid (even before any content population) is so closely modeled after the geography and physics of Real Life (for example, the effects of gravity and wind are simulated within Second Life, akin to how gravity and wind affect Real Life). So, an argument could well be made that it is no great revelation to realize that the fundamental stuff of geography (land) and the fundamental stuff of everyday experience (land) is one and the same—from the point-of-view of geography education.

The critical difference, however, is that in Real Life, while yet knowing that they are studying land, and the man–land relationship, students of geography (and their teachers and curricular designers as well) are quite unable to truly “mess around” (Ito et al., 2008) with the land in any way that would enable them to meaningfully gain first-hand experience at shaping geomorphological features or influencing and interacting with orogenic processes.

It is these selfsame messy interactions—that result not only in deep learning through learning by exploring and learning by being (geographers in the field), but also clearly raise to the fore the preconceptions and misconceptions that learners bring—that a well-designed learning environment which is designed to teach geography in Second Life would afford and encourage. Thus, for instance, in the region in Second Life set aside in the aforementioned project for the learning of geography, care has been taken to design the landscape in such a way that the latter provides a rich tapestry of learning through which learners—individually and collaboratively—have the potential to dialectically engage with, to construct, de-construct, and re-construct their collective narratives of and from the land itself.

In this scenario, the land—the fundamental stuff of the Second Life grid, even more basic than the building-block prim—would have become the content, the ‘textbook,’ the document, and the artifact of learning, as expressed through the learners’ own evolving performative understandings of the discipline. Not only that, but this conflation would be represented at a scale of time and a scale of space that is intelligible to the novice geographer, as opposed to being experienced through the vicarious and passive medium of, say, watching a video of geomorphological processes accelerated over geologic time-scales and/or over continental space-scales.

The significance of this change—which is at once a conflation and yet a nihilistic reduction—to the design of effective learning environments cannot be overstated.

**Concluding Remarks**

The English poet W.H. Auden wrote in 1968, “Every human being is interested in two kinds of worlds: the Primary, everyday world which he knows through his senses, and a Secondary world or worlds which he not only can create in his imagination, but which he cannot stop himself creating.” The prescience of Auden, as reflected in this quotation, is remarkable. It is this author’s contention that looking toward the not too distant future, the most exciting learning experiences will be crafted at the nexus between Auden’s Primary world and the Secondary.

As researchers in the learning sciences continue to design spaces for learning which situate themselves at the nexus of Auden’s Primary and Secondary worlds, we and our avatars would be more fully actualizing *ubuntu* as we jointly construct and explore the there that is there.

**References**


