Journal of
•Virtual Worlds Research

Volume 2, Number 1.

Pedagogy, Education and Innovation in 3-D Virtual Worlds.

ISSN 1941-8477

**Vol. 2. No.1
"Pedagogy, Education and Innovation in 3-D Virtual Worlds"
April 2009**

Guest Editors
Leslie Jarmon
Kenneth Y. T. Lim
B. Stephen Carpenter

Editor
Jeremiah Spence

Technical Staff
Andrea Muñoz
Amy Reed
Barbara Broman
John Tindel
Kelly Jensen

Editor's Corner
The six learnings of Second Life:
A framework for designing curricular interventions in-world

By Kenneth Y T Lim, Nanyang Technological University, Singapore

Abstract

In this paper, a framework for facilitating effective and targeted planning and design of learning environments within Second Life and other similar virtual worlds and environments will be shared. A possible scenario faced by school-leaders and teachers, with respect to thinking about incorporating virtual worlds as a complementary pedagogical strategy alongside traditional classroom environments is first described and then the Six Learnings framework will then be elaborated upon, including its use discussed as a metric against which such learning interventions can be planned and subsequently evaluated.

Keywords: Second Life; six learnings; curriculum design.

Editor's Corner
The six learnings of Second Life:
A framework for designing curricular interventions in-world

The past few years have seen a surge of interest in Multi-User Virtual Environments (MUVEs) and virtual worlds – such as Second Life and World of Warcraft (WoW) – especially in terms of the unique affordances these worlds potentially offer to education. There is now an extensive representation of universities, schools, and libraries in Second Life, and this representation has been supported by communities of educators that have emerged and grown around social software tools such as Ning and Plurk.

Policy makers and senior management in these schools and institutions suffer a high opportunity cost to spending much time in-world themselves because of the very seniority of their respective positions. One consequence is that despite the investments in time and money that are committed to such projects, these senior positions might not reap as many dividends as could reasonably be expected. That is to say that because senior management are not likely to be natively literate in operating and navigating in virtual worlds, they are somewhat at the mercy of the vendors and service providers who are competing to help these very institutions establish presences in these environments. Concomitantly, it cannot be assumed that these service providers – technically competent though they are likely to be – have had formal training in either the learning sciences or in curriculum design.

Social mediation and place in Second Life

The American writer Gertrude Stein famously commented to 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 Californian suburbs 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. While it is beyond the scope of this paper 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-focused 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 that serves to define the boundaries of this paper 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 ironically 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.

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. Depending on the nature of the learning activity (for example, informal self-paced tutorials versus highly-structured mandatory group activities), the very decision-making process implied by the preceding sentence might itself be worthy of investigation.

To the extent that the learner has some control over his 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 that 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 is 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) has 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).

The Six Learnings framework

To address the gap between the needs and resources available to school management on the one hand and the likely profit motives and relative lack of professional training in pedagogy of the technology service providers on the other, a theoretical framework is proposed that might be applied to the planning of and design for curricular interventions in-world. This so-called Six Learnings framework has been derived after careful consideration and relatively extensive and sustained in-world experience over sixteen months by the present author. The author has conceptualized the framework after bringing to bear his own professional training and experience as a classroom teacher, curriculum designer, and academic researcher in the learning sciences. It is suggested that the probability of effectively meeting learning goals through in-world interventions be maximized only if there is an equal and mutually respectful multi-partite relationship between school management, content developers and service providers, and curriculum designers (i.e., the teachers), as informed through the Six Learnings framework.

The framework consists of six lenses through which curricular interventions designed for virtual worlds might be analysed 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, 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.

Although the preceding framework was developed through the present author's experiences and metacognitive reflections in Second Life, it seems likely that many (if not all) of the learnings might equally be applied to other virtual worlds such as There and WoW.

It is important to understand that it is the professional opinion of the author that no single in-world curricular intervention be designed to meet all six of the learnings in the framework. It is likely that such an intervention would be unwieldy and ultimately fall between six stools, not to mention costing the parent department/institution, its clients, and stakeholders a great deal of time, money, and other resources. Instead, it is recommended that such interventions be planned to target just one or two of the six learnings and that these selected learnings be chosen on the basis of how well they align with the mission and values of the school and the learning objectives as decided upon by the curriculum designer/teacher. Each of the six learnings will now be considered in turn.

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. Thus, for example, a group of learners in a geography class might collect data on wind patterns at various parts of the Second Life grid so

that they could subsequently test their hypotheses on various aspects of meteorology and climatology.

Learning by collaborating

By 'Learning by collaborating' is meant the learning that 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 group work in general. This learning draws on the rich body of established literature on the benefits of learning collaboratively, as opposed to learning competitively (e.g., Johnson & Johnson, 1994).

Learning by being

By 'Learning by being' is meant the learning that results from explorations of self and of identity. This type of learning is congruent with Brown and Duguid's (2000) understandings of 'learning to be.' Such learnings involve the assumption of identities and dispositions through enculturation. Role-play is a common learning design in Second Life, as witnessed by the use of holodecks in English as a Second Language (ESL) learning at the English Village sim, for example. Another example would be the performance of the works of Shakespeare by several groups within Second Life, to varying degrees of authenticity. The relative ease with which avatars can be customized and changed facilitates 'Learning by being' to the extent that this be a specific learning goal of the design intervention.

Learning by building

By 'Learning by building' is meant the learning that results from tasks that require the learners to build objects and/or script them. Such activities could potentially involve the demonstration of mathematical understandings of trigonometry and physics, the learners' sense of aesthetics, as well as their grasp of the logical algorithmic flows inherent in a scripting language. Departments in a school that might wish to focus on 'Learning by building' include the design and technology department and the mathematics department, as well as the computer Club.

Learning by championing

'Learning by championing' refers to the many initiatives by various communities in Second Life to adopt, champion, and evangelize causes from Real Life. Especially active in this regard are groups to do with health education, such as the Heron Sanctuary. 'Learning by championing' could easily be a focus of a school's social studies/humanities department, in which, for example, learners might be tasked to design an installation/exhibit in-world which sought to raise awareness and educate the general public about particular causes that might be meaningful to them.

Learning by expressing

Finally, 'Learning by expressing' could be argued to be distinct from the preceding five Learnings, in the sense that while the five are to do very directly with the learnings that results from activity in-world, '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 is congruent with Hungs and Chen's (2008) notions of the dialectical interaction which they term 'self to reification.' They elaborate thus:

[T]echnologies – 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).

Thus, for example, 'Learning by expressing' would encompass the authoring and editing of blogs, podcasts, and machinima about in-world activities and tasks. The learning that results would encompass storyboarding, the technical aspects of audio- and video-editing, as well as the principles of literary critique and creative writing. 'Learning by expressing' is an obvious 'learning' to be adopted by a school's media department and/or languages department.

Compatibility of the Six Learnings framework

The Six Learnings framework can be applied to virtual worlds other than Second Life. The success to which it is able to be thusly transposed would depend on several factors, such as the maturity and extent of the building tools, the affordances for collaboration, and the richness of the cultural economies within those worlds. The framework also facilitates an understanding of the differences between what might be termed virtual worlds and virtual environments. The present author suggests that the former is a term most accurately applied to environments with robust economies and diverse cultures; thus, for example, Second Life and WoW are virtual worlds in a very literal sense. On the other hand, a good example of a virtual environment would be Lively by Google, which resembled more closely a 3-D chat environment. In such virtual environments as Lively, few of the Six Learnings would seem to apply.

It is of course recognized that the Six Learnings framework is but one way of deducing a taxonomy of virtual worlds/environments with respect to education. At a level of abstraction higher than the Six Learnings, an educational technologist whose avatar is Topher Zwiers has devised a threefold classification known as content-class virtual worlds (e.g., Second Life), business-class virtual worlds (e.g., Croquet), and scenes (e.g., Lively). Topher's classification is not incompatible with the Six Learnings, as he focuses more on the defining characteristics of the respective worlds/environments.

Another framework has been put forward by Rafi Santo (SL avatar: Bhikku Beeks). Santo's "Program Models for Education in Second Life" lists various so-called 'set-ups' one could have for education in Second Life. These include face-to-face settings, distance-learning settings, combinations of face-to-face and distance-learning settings, and asynchronous learning. Again, Santo's conceptualization and the Six Learnings are compatible, as the former focuses

more on the logistical structure around which learning environments could be designed, while the Six Learnings focus more on the nature of the learning that such environments promote.

Finally, in the July 2008 issue of Daden UK's newsletter *Datum*, an article entitled "Building Schools of the Future" sought to offer policy makers and educators a description of learning spaces as the 'conventional classroom,' the holodeck, and the bespoke space. Once again, such a conception of learning spaces is compatible with the Six Learnings framework.

To summarize, not only are there various classifications within a typology of virtual worlds, but there are quite a few ways of cutting the cake, too. In truth, from the point of view of a policy maker thinking seriously about investing significant amounts of money and training time, among other things, into an educationally-focused intervention in virtual worlds, one could do worse than to use a combination of typologies, at the very least describing the nature of the learning outcomes, the logistical structures, and the types of learning spaces. As to which would inform the other, decisions taken with respect to the logistical structures and the types of learning spaces should be congruent with the desired learning outcomes of the intervention. Tempting as it may be, policy makers, school management, and curriculum designers should steer clear of trying to reduce the decision-making process into a pat series of universally-applicable steps which follow a strict linear rationality. Such is not the nature of new media nor new literacies.

Concluding remarks

The theoretical framework proposed is deliberately broad and largely generic in its envisaged range of application. Arguably, such is the nature of many proposed contributions to a nascent corpus of theory (in this case, the theory informing the design of pedagogies for virtual worlds). As such, while no specific rungs on the education ladder were borne explicitly in mind during the conceptualization of the framework, it is the contention of the present author that – based on his own career-experience with learners aged thirteen to sixty, the framework is sufficiently encompassing as to be more or less equally applicable across several sectors of education.

The overall intention of the proposed framework, after all, is to help policy makers, school management, and teachers make more informed choices as to the nature and extent of curricular forays in virtual worlds.

The English poet W H Auden wrote in 1968 that "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.

The term 'quantum classroom' has been used to describe learning environments in which the protagonists operate simultaneously across various spatial scales (Lim, 2007). In the context of Second Life, such inter-operationality would also describe scales between the universe of real life and the metaverse. Already, there are real life–Second Life installations which permit humans in real life to interact with avatars in Second Life in socially-constructed environments and spaces. Two examples include the Chillerie gallery installation at Amsterdam (real life) and in-world at the Lhotse sim; and the afore-mentioned visit of Gee to Teen Second Life, which was telecast not only into the main grid of Second Life, but also live over the internet of real life. As we continue to design more such quantum classrooms – as we continue to design learning spaces 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.

Bibliography

Auden, W. H. (1968). *Secondary Worlds: Essays.* Random House.

Brown, J. & Duguid, P. (2000). *The social life of information*. Boston, MA: Harvard Business Press.

The Croquet Consortium. Retrieved July 26, 2007 from http://www.opencroquet.org/.

Daden Limited .(2008). Building schools for the future. *Datum,*8.

Hung, D. W. L. & Chen, D. T. (2008). Learning within the worlds of reifications, selves, and phenomena: Expanding on the thinking of Vygotsky and Popper. *Learning Inquiry*, 2, p. 73-94.

Johnson, D. W. & Johnson, R. T. (1994). *Learning together and alone: Cooperative, competitive and individualistic learning*. Needham Heights, MA: Allyn and Bacon.

Lim, K. Y. T., Oei, G. L., Chatterjea, K., and Chang, C. H. (2007). *Geographies of a changing world: Global issues in the early 21st century*. Singapore: Pearson.

Ondrejka, C. (2004). An interview with Cory Ondrejka. *Edge*,142.

Santo, R. (2008). Program models for education in Second Life? Retrieved August 18, 2008 from http://www.rezed.org/profiles/blog/show?id=2047896%3ABlogPost%3A7945.

Stein, G. (1937). *Everybody's Autobiography*. Random House.

Topher, Z. (2008). Your thoughts? Scene vs. business vs. content. Retrieved August 18, 2008 from http://muveforward.blogspot.com/2008/07/your-thoughts-scene-vs-business-vs.html.