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FACULTY OF LAW, ARTS AND SOCIAL SCIENCES

SCHOOL OF EDUCATION

Learning Archetypes as tools of Cybergogy for a 3D Educational Landscape:

A structure for eTeaching in Second Life

By: Lesley J.M. Scopes BSc (Hons) PGCE

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Abstract

This paper considers issues of validity and credibility of eTeaching using a 3D Virtual World as a delivery medium of eLearning pertaining to the transfer of authentic real life skills. It identifies the game like qualities perceived therein, recognising that these very attributes may, when experienced superficially, be a contributing factor to the potential educational demise of the platform.

It goes on to examine traditional educational theories in the light of the affordances of a virtual world seeking to adapt and apply them to the construction of a new conceptual framework of a pedagogy reflecting the affordances and understanding of on-line learning which incorporates the implementation of Learning Archetypes (models of activities) to maximise the essence of a virtual world, in as much as it is able to facilitate learning experiences delimited by physical world constraints.

It builds upon these ideas to develop a working model of Cybergogy and Learning Archetypes in 3D with a view to making it available to people who wish to demonstrate theoretically robust lesson and course planning. The model is then applied to three examples of eTeaching, developed as Case Studies for the purpose of critically evaluating the model, which is found to be operationally effective, accurate and flexible.

Conclusions are drawn that identify the merits and challenges of implementing such a model of Cybergogy into eTeaching and eLearning conducted in Second Life®.

Keywords

Andragogy, Co-Creation, Cybergogy, Desktop Virtual Reality, Distributed, Distance Learning, Education, Game, Learning Archetypes, Mixed Reality, Pedagogy, Second Life, Serious Games, Social Constructivist, Synchronous, Taxonomy, Virtual World

Learning Archetypes as tools of Cybergogy for a 3D Educational Landscape:

A structure for eTeaching in Second Life®

Introduction

"Educational philosophies evolve in response to the needs of each era and in harmony with available technology" (Schneiderman 1998)

This dissertation is focused upon a theoretical body of knowledge based around current applications of new technology in education. Bringing together current trends and traditional theory it examines Taxonomies of Educational Objectives as they evolve to accommodate transformations in the educational horizon and reflects upon an established model of Cybergogy. The principles explored enable the author to create a model of Cybergogy more specific to 3D interactive Virtual Worlds.

It explores three Case Studies drawn from Second Life® and describes aspects of them in conjunction with the new theoretical model. This provides the basis for an analysis leading to identification of elements that can be seen to establish standards to which validity and credibility can be matched.

Is it a game?

Electronic games have been evolving with advances in technology from early games such as the mid 1970's 'Pong'® throughout the late 1980's 'GameBoy'® series through to console games such as the mid 1990's 'PlayStation'®. The late 1990's saw the arrival of interactive CD Rom games played on a PC such as 'Age of Empires'®. The common thread between these examples is that they are composed of story metaphors authored by the developers to engage the player in challenges, usually competitive often combative, with levels of difficulty increasing incrementally.

Since around 2000 widespread broadband uptake and increased PC processing power along with improved graphics abilities has meant participation in real time online gaming environments has become increasingly popular and easily accessible, some of which now advertise their web presence in television commercials.

Massively Multiuser 3D interactive Virtual Environments (MM3DiVE) loosely described as networked desktop virtual reality are seen by some as games, as some indeed are. Also referred to as 'Virtual Worlds', they can be differentiated from the style of computer based games described above by the element of persistence. Virtual Worlds cannot be paused or restarted. They continue to exist, functioning dynamically whether the user is there or not. The context of this paper is based heavily in the cognisance of the reader as to the application and implementation of 3D virtual environs.

'Everquest'® (1999) 'Runescape'® (2001), 'EVE Online'® (2003), 'World of Warcraft'® (2004), are examples of web-based game-centric 3D virtual

environments in which the player represents themselves by means of an Avatar, a digital personification of themselves, to undertake tasks and challenges. Players can operate individually or interact with other players in real time, forming teams, tribes and clans with common predefined objectives. Successful completion of tasks usually culminates in the amassment of riches and trophies within the context of the game; consequently the player is able to develop the credibility or worth of their Avatar in terms of skills, abilities, strengths and achievements.

On the other hand, the online virtual 3D world of San Francisco based Linden Lab™ 'Second Life'® (SL™) first launched in 2003 is intended primarily as a social space and the user interface presents no such gaming scenarios. This is not to say that they are not available. Second Life® users represented by highly modifiable Avatars, referred to as 'Residents' as opposed to 'Players', are able to create almost any object that can be conceived of using a palette of tools provided within the user interface by Second Life's developers. These can include fantasy role play paraphernalia as well as more 'normal' virtual items such as trees and flowers, clothing, vehicles and buildings or equipment needed to showcase a product, service or innovation.

The important difference to note is that Second Life® is open-ended. No predesigned outcomes or formulaic scenarios exist, neither is there a predefined social order or character to develop. There is no way to 'win' although conversely, as noted by Malaby (2007) it is possible to fail quite spectacularly in many ways! I suggest it is the distinct absence of designer orchestration that is one defining factor separating social-centric virtual worlds such as Second Life® from game-centric virtual worlds such as World of Warcraft. So, while I posit it is true that Second Life® is not a game per se;

rather, a persistent synthetic, immersive milieu which users can visit at any time – wherein games of any nature, for any purpose, whether for entertainment, gratification or education can be exercised within it.

Games which possess an educational quality also termed 'serious games' are becoming part of the future landscape for education. Of potentially many examples of how Second Life® can be used to provide learning opportunities by means of serious games I highlight one here which I feel serves to demonstrate how it is being used for delivery of training using the application of role play: The University of Illinois have created Ceasefire Island within Second Life®. Its primary goal is to stop real (physical) world gang shootings and killings. The island simulates a Chicago urban setting complete with litter, graffiti and boarded up windows where street level outreach workers, some of whom are themselves, ex gang members, train to be 'violence interrupters' learning in a simulated environment which is safe (in that it provides the opportunity to rehearse without dangerous consequence) how to anticipate and diffuse situations that normally lead to violence, practising conflict mediation skills and other forms of intervention. The U.S. Department of Justice have evaluated the physical world effectiveness of implemented Chicago Ceasefire Zones and published encouraging findings.

Some strengths of 'Game Based Learning' (GBL) lie in aspects such as equipping the teacher with facilities to provide an enriched, personalised experiential learning experience, the application of unique methods of differentiation, support for both formal and informal learning opportunities and the potential for social networking. I suggest that social interaction between participants is almost inevitable within the Second Life® environment which facilitates communication and social networking between friends and groups also

strangers, with access to multiple communication channels, both synchronous and asynchronous. To demonstrate an example of the potential of Social Networking within Second Life®, I draw from a personal experience; whilst researching potential Case Studies for this paper I was recommended by a third party to contact a specific avatar who is using Second Life® regularly to teach English Literature and African American Culture. The physical person driving the avatar revealed himself to be an Associate Professor of English at the University of Central Missouri, USA who grew interested in the topic of my research. Subsequently, he invited me to co-author a paper (Carter & Scopes, 2009) (Appendix B) for planned future publication, which merged his and my own conceptualisations. We collaborated inside Second Life®, holding a series of face-to-face virtual meetings using the spatial Voice channel (VoIP) to discuss our planned approaches and externally, using a web-based collaboration tool, Adobe Buzzword, to compile our paper.

Users can communicate with Second Life® objects that have been scripted in Linden Scripting Language (LSL) to perform certain functions on touch such as dispense a notecard or open a door, (this project will capitalise on this facet). Similarly, Second Life® Objects can communicate externally linking to web sources such as YouTube® to enable external data to enter the Second Life® world. Linden Lab's™ most recent addition to the communication toolset is an alternative downloadable Viewer which extends the range of communication opportunities, the 'SLim' viewer allows users who are currently 'in-world' to receive instant messages from users who are not currently logged in to the world but who are able to receive a reply via email from a user within Second Life®. In effect, communications channels which were once contained entirely within Second Life® are now capable of extending between both worlds synchronously.

Pedagogy, Andragogy and Cybergogy

Both Pedagogy and Andragogy are terms representing the science or art of teaching. Pedagogy can be described as a teacher dominated learning situation which traditionally is most commonly used in the instruction of children, whereby the teacher assumes responsibility for decision making regarding lesson content and the pace and sequence of activities within the learning situation wherein the students role is usually fairly passive. The Joint Information Systems Committee (JISC) practitioner educational programme describes Pedagogy as the 'process of designing, planning, sequencing or orchestrating learning tasks which may include the use of e-Learning tools'. E-Learning is an overarching term to describe learning that is facilitated by and supported through the use of information and communications technology (ICT) and is generally regarded as that which has also been referred to as Distance Learning. Pedagogy, summarised by Stevenson (2007) as, "any conscious activity by one person designed to enhance learning in another". Andragogy is a term commonly used to describe a more learner centred setting based upon a set of generalised assumptions made by Knowles (1983) as being more appropriate for the learning styles of most adults owing to their preference for self-directed learning rather than total dependence on a teacher. However, as pointed out by Connor in 2004, the original description of Andragogy has now evolved into a broader alternative to the term Pedagogy in that it is '*learner-focused education for people of all ages*'.

Cybergogy is an adaptation of Pedagogy and Andragogy designed to accommodate the requirements of eTeaching, that is to say teaching that is computer mediated, usually conducted at a distance. Cybergogy embraces

cognitive, emotional and social domains aspiring to provide an engaging online learner experience, recognising that teaching strategies employed in face to face situations may not be appropriate or effective in online settings.

Learning Archetypes

As a Cybergogic rationale, Learning Archetypes are pedagogical building blocks described as “Instructional strategies, methods or archetypes for facilitating learning”. Archetypes fall into categories of differing activity types some of which may have game-like aspects; others which can present an entirely different aspect such as discussion and debate. Archetypes can be sculpted to elicit differing behaviours, learner experiences and learning outcomes. The design of Learning Archetypes should take account of motivating factors that are pertinent to the environment whilst mapped to the requirements of the learning outcomes at an appropriate level of attainment, and designed to be scalable and reusable. Activities, as archetypal content should address the learning domains identified in the model of Cybergogy of Learning Archetypes presented later in this paper, and be performed within a carefully designed environment that supports the requirements of the activity and, as a result, can be expected to lead to effective attainment of skills, knowledge and understanding grounded in meaningful theory and practice conducted synchronously with a group of learners who are in some cases widely distributed in the physical world. In some cases Learning Archetypes can be composed of activities which are equally effective asynchronously enabling individual learners to revisit a learning opportunity for self-paced acquisition of learning.

Literature Review

A review of existing literature reveals evidence that social-centric Virtual Worlds are emerging phenomena engaging the imagination of early adopters from education and commerce with their potential to revolutionise the reach of teaching and training. Because these nonconventional environments are still embryonic, there exist opportunities to experiment with new and different techniques in order to develop best practices in eTeaching and optimise new opportunities inherent in a world without familiar physical constraints. It is opportune to explore consequences which may result from the omission of some traditional teaching strategies while retaining validity and credibility of the learning process. The literature looks backwards to Schneiderman and examines how the educational application of new somewhat radical technology of the past, 1998, was proven to be acceptable. The literature reflects the emergence of game-like qualities into the educational vista, qualities which in themselves may personify one of the major obstacles that conflicts with mainstream acceptance of the potential paradigm shift in academia.

Serious Games

Serious games are becoming part of the future landscape for education, defined by Wexler et al (2007 p17) as “An optimised blend of simulation, game element and pedagogy that leads to the student being motivated by and immersed into the purpose and goals of a learning interaction” and described by Hackerthorn (2007) as “a game which has enduring value beyond that of entertainment” going on to explain that for a game to possess enduring value it should demonstrate a direct relevance to the real world as opposed to being

based in pure fantasy, preferably with an explicit connection to a real world system.

It has been suggested by JISC (2007) that the integration of GBL into formal learning contexts is likely to provide 'interesting challenges' as well as benefits however, in the case of eTeaching, (described as “a mode of teaching enhanced by the use of communication and computer-based technologies”, by the University of Wollongong, 2008) using the Second Life® platform, aspects of game based learning can and indeed should be integrated advantageously.

From an educationalist's perspective, eTeaching in a virtual world can benefit by embracing facets of game based learning and that the Second Life® environment more closely supports this recipe than it supports a synthetic replication of a real life class scenario and as such leads this author to agree with Warburton (2008) who expresses “It is a mistake to be seduced by real world parallels and assume learning and teaching can be readily transferred to a 3D virtual space” and O'Driscoll (2007) who protests; “The classroom paradigm is so pervasive it is in fact limiting our ability to take advantage of technology”.

Virtual World Features

Virtual Worlds are defined by six prominent features (Book, 2006).

These are:

- | | |
|------------------------------|---|
| ● Shared Space - | Many users participate at the same time |
| ● Graphical User Interface - | World is depicted visually |
| ● Immediacy - | Actions take place in real time |
| ● Interactivity - | Users are allowed to develop content |

- Persistence - World exists when a user is not present
- Community - Formation of social groups is encouraged

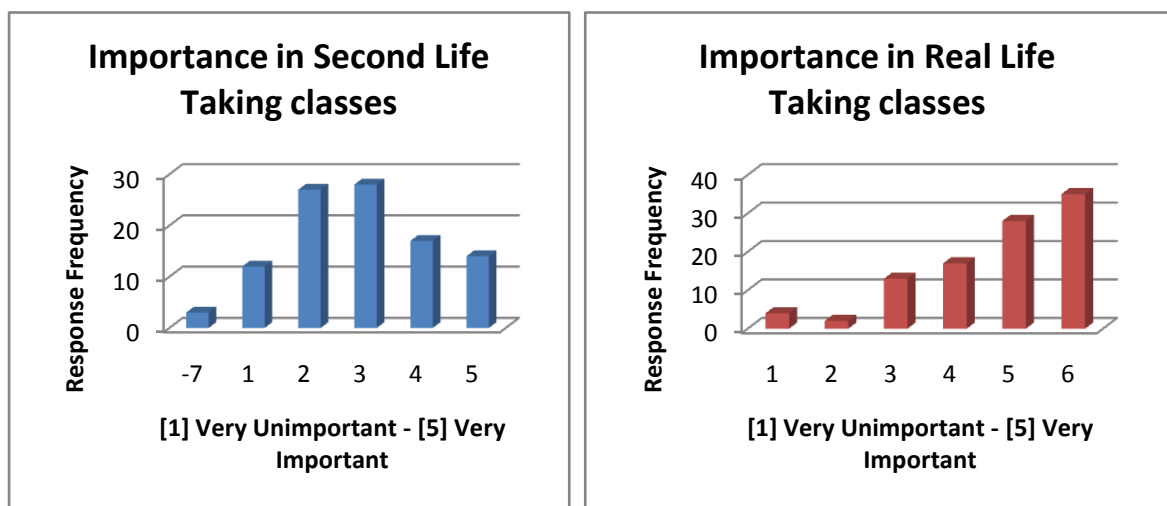
Virtual, Digital or Synthetic Worlds are simulated environments made accessible to multiple users through an online interface possible owing to increased broadband access and more powerful computers along with emerging mobile access. Book (2004) claims there are hundreds, if not thousands of virtual worlds in existence currently and with a view to differentiating between those which are purely game-centric, for example 'World of Warcraft' from those which are not, for example, Second Life® offers a generalised guideline of categorisation between 'gaming' worlds and 'social' worlds. Book (2004) argues Gaming Worlds differ from Social Worlds in that they focus on a fictional theme through an interactive narrative storyline whereas Social worlds tend to function as a less structured large-scale online community retaining deep ties to the 'offline' or real world.

Various organisations and businesses have a presence in Second Life®. Wikipedia.org non-exhaustively lists Education, Religion, Embassies, Live Sport, Gaming, Arts, Live Music, Theatre and Public Appearances. Michels (2008) cites Linden Lab's Claudia L'Amoreaux who claims at least 300 universities worldwide are using Second Life® currently for teaching courses or conducting research.

Barriers to adoption: Authenticity and Credibility

Until the distinction between game-centric MM3DiVE's and Second Life® as identified earlier here becomes more widely acknowledged the perception that they are one and the same will inevitably serve as a barrier to adoption by

those in possession of the commonly held notion that games are fundamentally opposed to serious endeavours; superfluous, frivolous, lacking morality, games are often regarded as violent in nature and are perceived to encourage aggressive, anti social behaviour or desensitised responses to scenes of violence as reported in 'New Scientist' (2005). Notions such as these are not without substance and there is a lack of research to counter such arguments. Therefore, despite the fact that Second Life® offers a neutral framework which is intended to promote in-depth user co-creation of content, it does, nevertheless, have game like qualities borrowing concepts from real-world physics, simulators, streaming data, audio and video technologies therefore it is likely that its acceptance as a viable platform for eTeaching will face similar opposition by sceptics as do the theories supporting games as a useful and effective tool for learning. Results from recent surveys of 138 resident's perceptions of Second Life® (Messinger et al 2009, Fig. 1) show that for most residents, taking classes is more suited to the physical world and 'stepping out' from normal behaviour is more suited to Second Life®.



(Fig. 1) Findings of Messinger et al 2009

Attendance at regular weekly gatherings of teachers from academia and trainers from commerce held within Second Life® has revealed to this author a common barrier is experienced by many people keen to harness Second Life®

for teaching and training. Scepticism is commonly voiced by organisation's senior managers which, in turn fuels opposition to financial backing. In an effort to phase out notions such as those described above, the eLearning Guild (Wexler et al 2007, p7) have suggested the term 'game' (but not the concept of a game) is replaced entirely from the educational lexicon, suggesting the term 'Immersive Learning Simulation' (ILS) be adopted instead where 'Simulation' is defined as: "A model to describe a situation, event, program or phenomenon", and "An interactive simulation allows people to manipulate variables that change the state of the model" (Weksler et al, 2007, p10)

Immersive Learning Simulations

There exists an apparent lack of structure of the oft time chaotic, non-linear virtual world, Cross et al (2006) make satirical reference to how Second Life® might be perceived as a "*computer-generated mass hallucination*", a subliminal indication intimating a real likelihood that the authenticity of activities conducted within Second Life® might be considered to be of questionable legitimacy. The American Society for Training and Development published an article by Kapp & O'Driscoll (2008), identifying four specific steps to overcome resistance to the acceptance of what may currently be considered 'revolutionary' virtual worlds in the area of education and training.

These are:

- Learn the terminology, jargon and acronyms which accompany the technology,
- Address the misapplication of the technology,
- Become aware of the appeal of virtual worlds,
- Choose the right training scenario for maximum effectiveness.

Further challenges exist such as the performative demands made upon users attempting mastery of the 3D interface in as much as the honing of fine motor skills required for navigation and avatar movement and sharpening of spatial cognition, aspects which often require a steep learning curve particularly by those who do not share the acumen of others who have prior experience of manoeuvring in a synthetic 3D space such as those provided by contemporary digital gaming environments. Difficulties can become compounded by frustration caused by common misinterpretations of the interface along with challenges presented by a new lexicon to absorb. Effective functioning within the Massively Multiuser 3D interactive Virtual Environment (MM3DiVE) requires that common reference terms are known and applied owing to the existence of a purpose-specific set of linguistics which is in common usage (Some examples are included in Appendix A). Second Life® also has its own set of cultural rules, norms and etiquette which are not necessarily straightforward to read and can be inadvertently or deliberately flouted by users. These are a few factors serving as examples of barriers to adoption which affect teachers who are inexperienced just as much as learners who are naive to the environment.

Further to this there are issues regarding the stability of the platform which is streaming server based. As user numbers ratchet up to in excess of 85,000 (April 2009) concurrently online, the system infrastructure often becomes fragile and tools are liable to fail. Failures such as these are disruptive, sometimes destructive, completely outside the control of the user and as such can be responsible for the loss of interest or confidence of some individuals and organisations who are not willing to take a leap of faith in order to witness how new technology is born into the physical world. Further common barriers include the gate keeping philosophy of many institutions that are reluctant to

open up their firewall policies thereby preventing the download and installation of the Second Life® Viewer along with denied access to its streaming content. Users who are not confined by Institutional policies will perhaps use personal equipment and may not initially be aware of the demands made upon hardware and bandwidth by the amount of data driven down from the virtual world in the course of rendering its various, rich, usually dynamic environments.

Schneiderman once set out a pioneering philosophy which incorporated the integration of Digital Technologies into the teacher's toolkit of ten years ago. With benefit of hindsight, the technologies he was referring to seem implicit now; computer-rich networked classrooms, collaborative use of software and the integration of email and bulletin boards to support communication along with the then time 'novel' use of the World Wide Web as a tool for research and as a publishing medium. It is evident that Schneiderman was aware of the issues surrounding authenticity in relation to the adoption of new technology within education which subsequently led to his 1998 publication 'Relate, Create, Donate' within which Schneiderman introduced the notion of the application of technology to support collaborative team working (Relate), the development of ambitious projects (Create) and the production of end results that are meaningful to some portion of society external to the classroom (Donate). The implication of Schneidermans' work is that while the adoption of new technology is in its tentative stages it is the end product which gives authentic focus to the learning process leading ultimately to acceptance of new technology into mainstream mentality. Authenticity is a central issue presented here concerning the application of one of the newest technologies, 3D Virtual Worlds such as Second Life®. Methods to install elements of authenticity and validity into eTeaching conducted within the virtual world will

be intrinsically worthwhile in establishing its credibility as a platform for education into the future. It is argued (Hiltz & Turoff, 2005) that the current evolutionary changes in educational technology will be viewed in the future as revolutionary changes in the very nature of education and institutions operating locally and regionally in that they will transform typical face to face pedagogy with online hybrid courses offered by 'mega-universities' operating on a global scale. De Lucia et al (2008) claim that virtual worlds represent the future of human-computer interaction and in a similar vein, economist Edward Castronova speculates there will be a mass exodus to virtual worlds of one type or another based on the attractiveness of a fantastical alternative to ordinary life, the promise of a 'fun revolution' which will create a change in the social climate having far reaching effects on governments, policy making, the economy, culture, education and family life. Malaby (2007, p67) claims "There is no reason to believe that the role that virtual Worlds such as Second Life® will play in economic, political and cultural innovation will be anything short of monumental".

Transfer of learning

There exists friction among researchers as to the value of the transfer of learning undertaken within virtual environments for example some are proponents of a theory of situated learning (such as that of Lave, 1998) in that knowledge acquisition is context bound and as such transfer of learning from within a virtual environment is difficult to apply in differing contexts contrasting with the views of McLellan (2004) who claims that virtual worlds can be designed to support situated learning if they provide a highly realistic 'surrogate' environment such as those used to train Pilots in team building and crisis management, or athletes to improve their game. Both the United States

Army and the British Army conduct military battlefield training within a 3D virtual environment (Virtual Battle Space 2) which also provides a setting for veterans suffering Post Traumatic Stress Disorder to re-experience unsettling incidents in a more positive light. The Faculty of Medicine at Imperial College London is using Second Life® to enhance face to face delivery of clinical teaching following a game-based learning model using 3D virtual patients, owing to the decreased opportunities for building learning activities around real patients, the shortage of doctors and the increase in numbers of students, all are factors which contribute to a reduction in time for teaching, (Toro-Troconis et al, 2008). Virtual World News (July 2008) report on Case Western Reserve University's use of a MM3DiVE called 'DentSim' used to train Dentists in physical dexterity and special procedures and who are now utilising Second Life® as an opportunity to incorporate face to face training in live patient interaction (using actors avatars as patients) which is to include exposure to various ethical issues that arise in real life practice. The University reports that training is proving to be effective to the extent that it could parallel standard instruction.

Bossard et al (2008) suggest that evidence of knowledge transfer from a virtual environment to the real world could be the best way to assess the usefulness of such an environment, however, the environment under investigation in that instance is one which simulates (virtual) reality, taking advantage of full immersion using the special devices of haptic systems that incorporate tactile feedback which is not what Second Life® currently does. Instead, Second Life® can provide a degree of verisimilitude where appropriate for enabling delicate or dangerous operations to be practised in a safe environment; conversely Second Life® can provide aesthetic experiences conjured from fantasy or hypothetical scenarios to facilitate learning. Chittaro & Ranona (2005) also

referring to fully immersive virtual reality, state that three main factors are pertinent to the evaluation of training in a virtual environment, these being 'Understanding, Transfer of Training and Retention', claiming that sensory motor tasks such as vocational training are a fairly valuable training substitute in terms of transference and that 'understanding' can usually be assessed. They suggest the lack of empirical evidence is probably due to the expense of equipment needed for experiments using fully immersive virtual reality and that 3D Web technologies such as MM3DiVE's may provide an opportunity to extend empirical evidence relating to this area of inquiry.

Montoya (2008) has led recent research into developing a metric to measure how 'real' virtual worlds feel to users. Montoya argues a case for implementing the scale of 'Perceived Virtual Presence' (PVP) at the design stage of a virtual space in that users' sense of presence correlates directly with the effectiveness of educational and collaborative activities conducted within a virtual world leading to better comprehension and retention of information.

Kapp (2007) presents evidence of transfer and retention in learners using a 3D Interactive virtual environment developed by 'SimuLearn' called 'Virtual Leader' which is 3D simulation software allowing learners to practise, for example, sales and sales closure techniques using Avatars. The software is more closely structured by the developers than Second Life® as the simulation plays out according to pre-ordered branching of possible responses to statements or questions. Citing the findings emerging from a case study conducted at Troy University (USA) two groups of adult learners were in receipt of a programme of study related to organisational behaviour. Group A used traditional curriculum which consisted of reading case studies and writing papers whilst Group B received the same programme via 'Virtual Leader'. A

poll of the students after six months revealed significant differences in that the traditionally taught group were able to recall some portions of the material, contrasting with Group B who demonstrated significantly elevated abilities to recall, explain and apply the course content.

In summary, existing literature suggests there is an increase in opinion that 3D Virtual Worlds can be used to supplement blended learning and to bridge the gap between asynchronous online course participation and the physical classroom experience (Berger, 2008) thereby possessing the potential to radically change the face of Distance Learning and that Second Life® in particular can be, and is being, adapted to accommodate the needs of educators but it is not necessarily a straightforward procedure, neither is it *“free of aggravation”* (Berger 2008)

Social Constructivism

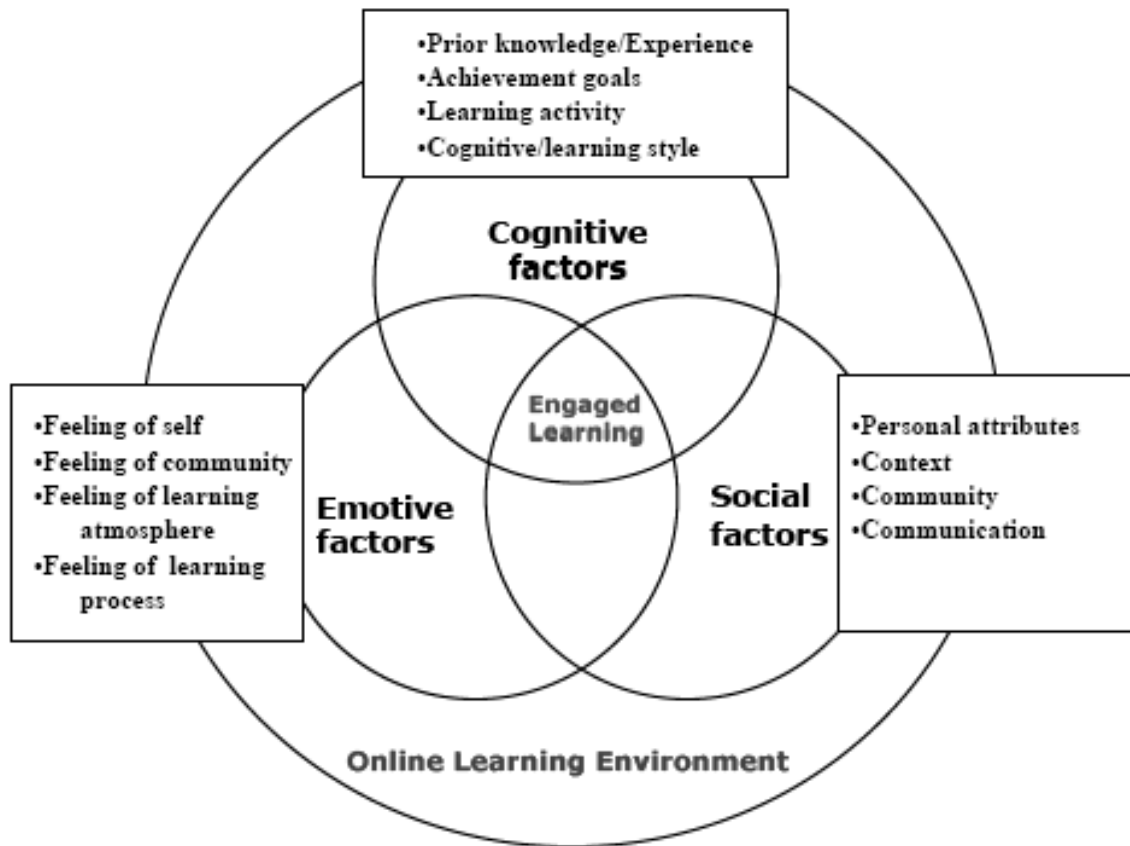
It is this author’s considered opinion that education and training events conducted within Second Life® fall intuitively, within a Social Constructivist Learning Epistemology which contends that knowledge is constructed and internalised by the learner (not simply transmitted by an Instructor) and is sustained by social processes, leading to the notion that knowledge and social interaction are inseparable. Given that Second Life®, by construct, facilitates social interaction most strongly with advanced facilities in place to support communication and social networking opportunities (outlined here later), collaboration and communication should be leveraged as primary tools toward the attainment of successful training and education within Second Life®.

Vygotsky's (1978) Developmental Theory lays the foundation for Social Constructivism in that the underpinning theme is based upon the social aspects of communication and human interaction. Within the Developmental Theory exists Vygotsky's concept of the Zone of Proximal Development which argues that learners can be aided to master concepts and construct or scaffold knowledge by 'benefactors' such as teachers or by collaboration with peers who possess more advanced knowledge. This process can be expedited in a socially mediated setting, optimised to facilitate collaboration and communication between the benefactor and the learner, enabling individual skills and abilities to be built through social support and informal learning opportunities. This is where a platform such as Second Life® splices eTeaching and eLearning away from classical methods of online delivery of education and training in that 'distance' learning need no longer feel remote and isolating, victim to the 'tension of humanness and technology' (Evans et al, 2008) rather, replaced with immersive, dynamic, unscripted, shared experiences allowing users to both project a presence into the environment and to be perceptually aware of the physical, visual and audible presence of others and as such, meets 'human needs for belonging, esteem and self-actualisation' (Evans et al, 2008).

Features of Andragogy and their transposition to a Cybergogy of Learning Archetypes

The main features that compose Knowles' (1978) concept of Andragogy are as follows: People prefer to know why they *need* to learn something prior to committing to learning. The focus of attention is on the learner who takes responsibility for their own learning by drawing on prior experience to support the assimilation of new learning. (Knowles concedes that a child with lesser life experience to draw upon would benefit from stronger pedagogic direction

than an adult). People have a *Readiness* to learn a subject matter that is relevant and timely to their needs in that it can enable them to meet various challenges being faced at different stages in their lives; therefore it is important that the knowledge gained possesses an obvious ability to deliver pragmatic benefits which, in turn, fuels the Motivation to learn. From a human psychological perspective '*Motivation*' is defined by Gross (1999, Chapter 5) as goal-directed purposeful behaviour an aspect usually driven by external or internal influences such as meeting professional or personal goals, the social aspects of learning as part of a group, in a pursuit of special interests or for the love of knowledge itself. The application of digital technology to facilitate eTeaching and eLearning presents the opportunity to derive a model of Cybergogy which is described by Wang (2005) as 'generating learning experiences that are cognitively, socially, and emotionally engaging for distance students with diverse backgrounds with learner engagement at the core' and as such, the term Cybergogy is in concord with the potential affordances of Second Life® as a platform for delivery of eTeaching. Wang's (2005) model of Cybergogy (Fig. 2) was devised to create a state of Learner Engagement within a 2D online Learning Environment. It contends that if a learner is active in a culmination of cognitive, emotional and social states of immersion, then a condition of learner engagement will be attained which promotes deeper learning and retention (Wang 2005, Wang et al 2006, Wang, 2007, Montoya, 2008).



(Fig 2) Wang et al (2006) Model of Cybergogy for Learner Engagement taken from <http://edutechwiki.unige.ch/en/Cybergogy>

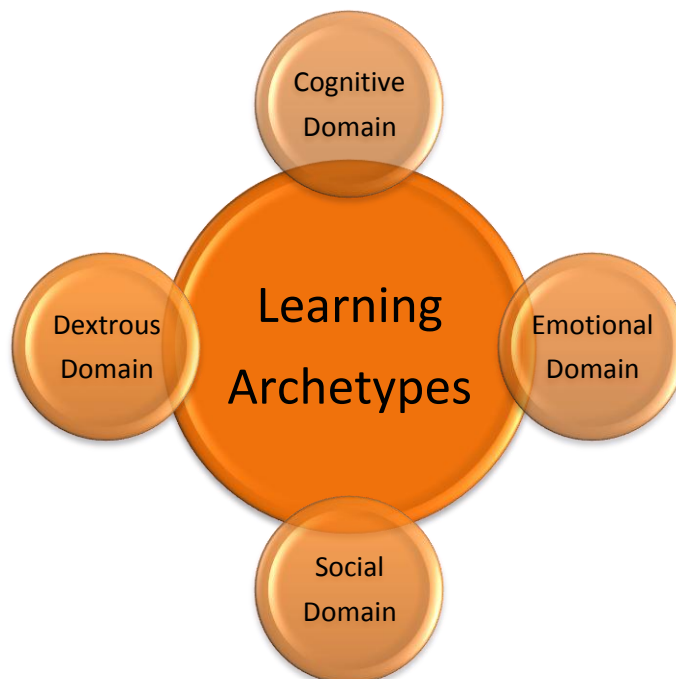
Conceptualisation

By drawing upon aspects taken from both Pedagogy and Andragogy, pivoting upon the concept of Learning Archetypes, (Kapp, 2007; Woollard, 2005) practical, theoretic and metaphoric learning activities can be structured into a Social Constructivist model of Cybergogy for implementation in 3D inside Second Life®.

Structure of the Cybergogic Framework

The new model of Cybergogy presented here (Fig. 3) will comprise of four intersecting domains:

- Cognitive
- Emotional
- Dextrous
- Social



(Fig 3) Social Constructivist Cybergogy of Learning Archetypes for 3D Virtual Environments (CLA3Di)

The model will represent a foundation for a lesson plan or Scheme of Work lending structure and transparency to learning activities and will demonstrate planning, purposeful content creation, suitable evaluation and authentic assessment techniques that are learning outcome targeted, learner engagement focused, delivering transferable skills, knowledge and understanding therefore as a consequence, valid.

The Learning Archetypes re-presented in this paper are the fundamental tools of Cybergogy. They can be crafted in terms of type of content and degree of sophistication and complexity to generate the desired learning experiences at the correct level of skills by drawing upon a classification of learning levels taken from the Cognitive (Intellectual), Affective (Feelings/Emotion) and Psychomotor (Manual) domains as identified by Bloom et al (1956, 1960) Taxonomy of Educational Objectives (cited by Reece & Walker, 2000 p70). Bloom's original 1950's Taxonomy of Cognitive Objectives and the subsequent revision of same (Anderson & Krathwohl, 2001) in which Bloom's original use of nouns to describe the categories was replaced by the use of verbs. (Table 1)

Bloom's original Taxonomy: (Bloom, 1956)	Bloom's revised Taxonomy: (Anderson et al, 2001)
<i>Higher Order Thinking Skills</i>	
• Evaluation	• Creating
• Synthesis	• Evaluating
• Analysis	• Analysing
• Application	• Applying
• Comprehension	• Understanding
• Knowledge	• Remembering
<i>Lower Order Thinking Skills</i>	

(Table 1) Blooms original and Blooms Revised Taxonomy of Order of Thinking Skills

Further revision by Churches (2008) serves to expand the learning activities (in the Cognitive domain) to include digital aspects of Web 2.0 technologies currently available to teachers and learners such as Social Networking websites, Search Engines and presentation tools, as well as channels for communication made possible by the Internet such as Skype™, blogs and wikis. Churches refers to the product as 'Bloom's Digital Taxonomy'. From Churches work, it is possible to identify verbs to describe digital activities and map to them a vocabulary of significant verbs which are related specifically to activities that can be performed in Second Life® (and some other virtual worlds) and from which grows the framework for a Cybergogy of Learning Archetypes for 3D immersive Virtual Worlds, (CLA3Di).

The Taxonomy of the Affective Domain has been examined and re-focused here to accommodate the affordances of a virtual world and to provide a measure of level of thinking skills attached to the complexity and sophistication of the content of the Learning Archetypes, serving as a checklist to enable facilitators to pitch learning experiences and assessment methods to the desired level of instruction. Levels of Thinking Skills within the Affective Domain have been replaced in the new model by aspects transported from The Ability-based model of Emotional Intelligence (Salovey and Mayer, 1994) and relabelled 'Emotional Domain'. Emotional Intelligence is described as "The ability to perceive emotion, integrate emotion to facilitate thought, understand emotions and to regulate emotions to promote personal growth" therefore, this author subsequently re labels Affective Domain to 'Emotional Domain' within the new model of Cybergogy presented herein.

Since the category of psychomotor skills is pertinent only to the physical body in the physical world it is not applicable to retain the label in this model of Cybergogy since Second Life® does not facilitate physical movement, or provide haptic or tactile experiences however, concrete activities of doing, being, moving and making (Woollard, 2005) can be conducted by learner's avatars (e.g. Dentsim) therefore some levels of learning from the Psychomotor domain are to be included in the framework under the domain label; Dextrous. Dexterity includes precision of Avatar movement, modes of travel, ability to zoom, pan and orbit the camera, deal appropriately with objects of different types, save, organise and retrieve inventory items, manage multiple simultaneous multi-modal communications, co-ordinate global time zones, these are a few examples of ways in which the learner has to become dextrous at the interface with the virtual learning environment.

In addition, a further domain is imported from Weng's (2006) Model of Cybergogy for Engaged Learning. The 'Social' domain (Personal, Contextual, Community, and Communication) is to be addressed by Learning Archetypes so that the strength of a sense of community and collaboration can be fostered as a facet of the learning experience and the social networking capabilities supported by Second Life® become leveraged as a pertinent factor in a structured learning plan that adopts the principles of a Social Constructivist Learning Theory.

Learning Archetypes as Content for a 3D Educational Landscape

Learning Archetypes (O'Driscoll, 2007), (Kapp, K., O'Driscoll, T, 2007) are pedagogic metaphors, a variety of activity types which can take a kinaesthetic approach comprised of concrete, physical actions such as doing, being, moving

and making, or a theoretical, conceptual approach composed of the cognitive processes of thinking, writing, describing and imagining (Woollard, 2005). Some archetypes can display elements of combined metaphors for example a theoretical metaphor such as thinking or creative imagining promotes and strengthens a resulting literal, kinaesthetic activity such as a persona dramatised in role play conducted within a 3D teaching and learning environment. The teaching design strategy that employs the integration of Learning Archetypes should take full advantage of the affordances of Second Life® such as the opportunity to provide synchronous experiences for learners who may be separated by great distance allowing for interaction that feels very real, to provide a social networking opportunity promoting collaboration and the sharing of information and to create an alternative backdrop for learning that can break away from traditional settings providing the opportunity for unique immersive experiential learning experiences.

Kapp (2007) identifies ten fundamental main categories of Learning Archetypes:

- Role-Plays
- Treasure Hunts
- Guided Tours
- Conceptual Orienteering
- Operational Application
- Co-Creation
- Critical Incident
- Group Forum
- Small Group work
- Social Networking

Following an in depth review of Kapp's classification of Learning Archetypes, there appears to be areas of crossover therefore this paper posits a variation on the Learning Archetypes theme whereby Learning Archetypes will fall into five main categories of activity types which are subsequently composed of Frames and Sub-Frames:

- Role Play
- Peregrination
- Simulation
- Meshed
- Assessment and Evaluation

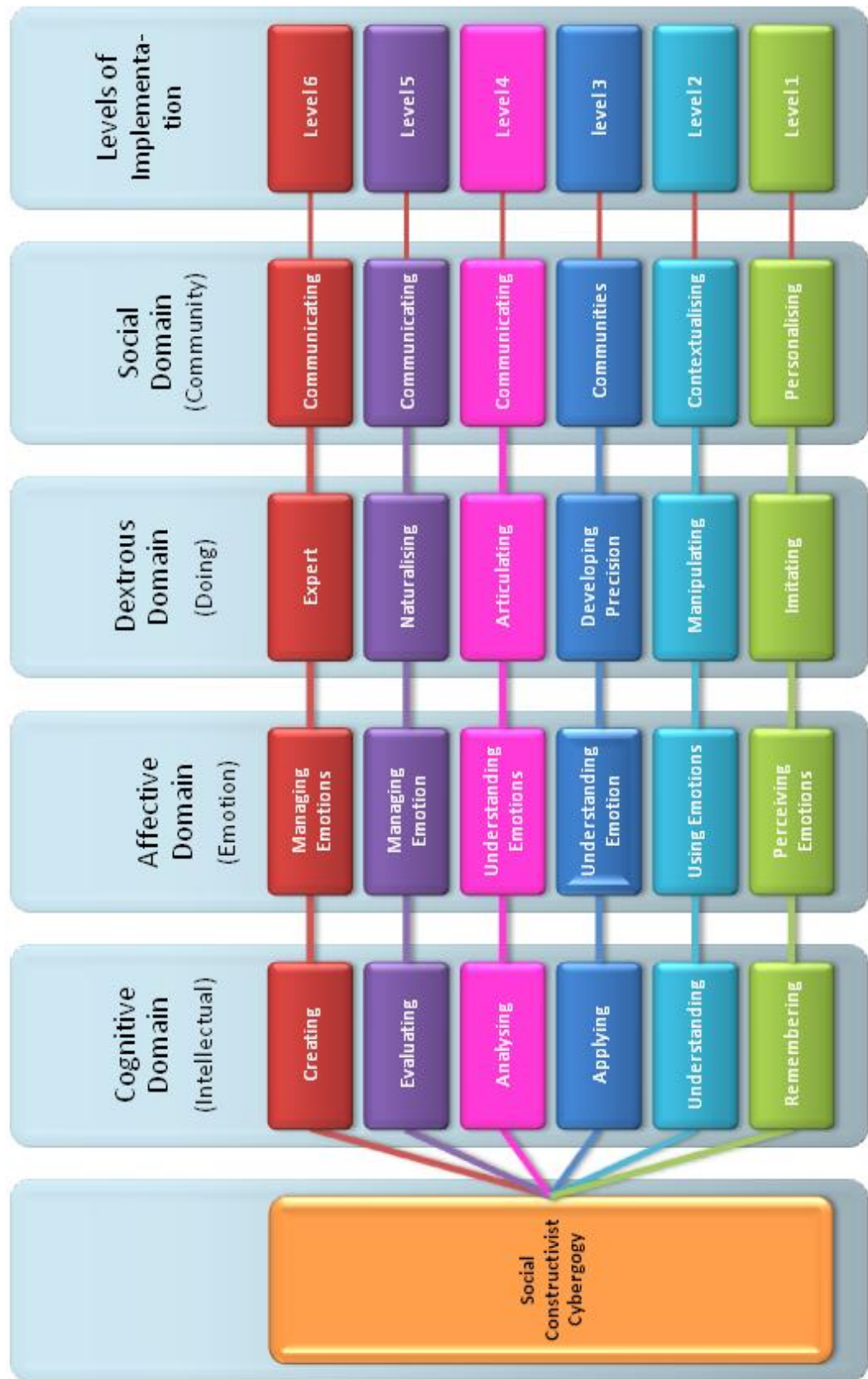
Not included by Kapp but to be considered for inclusion here is an Assessment Archetype, one that can be placed in summative or formative positions.

Summative Assessment is commonly required prior to certification whereas Formative Assessment is useful for progress checking by the instructor and allows the learner the ability to monitor, manage and self-direct their own learning in line with the 'Re-engineering Assessment Practices' (REAP model). REAP emphasises student's responsibility for their own learning and, by method of ongoing formative assessment, raises learners awareness of gaps in their knowledge enabling them to self-correct.

The illustration 'Blended Taxonomy of Social Constructivist Cybergogy' (Fig. 4) provides column 1 labelled 'Levels of Implementation' which has been assimilated from the horizontal rows across learning domains enabling a match from the levels of learning to the recommended appropriate. Churches (2008) selection of verbs is listed in column 2, labelled 'Bloom's Digital Taxonomy'. These verbs suggest appropriate levels of activities utilising web 2.0 applications (those that help to promote social networking). Constructed upon

these is a selection of verbs in column 3 labelled '3Di Virtual Activities' which encompass activities that can be conducted within, specifically at this time, Second Life®. The forth column, labelled 'Archetype Application' is used to suggest the genre of Archetype that is deemed here as appropriate to facilitate the learning activity at a specific level of Implementation. It is believed this approach will serve to enable teachers from all disciplines to identify the learning opportunity inherent within each archetype and to assess the potential of a single one or a structured array of several in a progression of levels of skills to optimise delivery of scaffolded course content or by retaining a single level throughout enabling reinforcement or practise.

(Fig 4) Blended Taxonomy of Social Constructivist Cybergogy



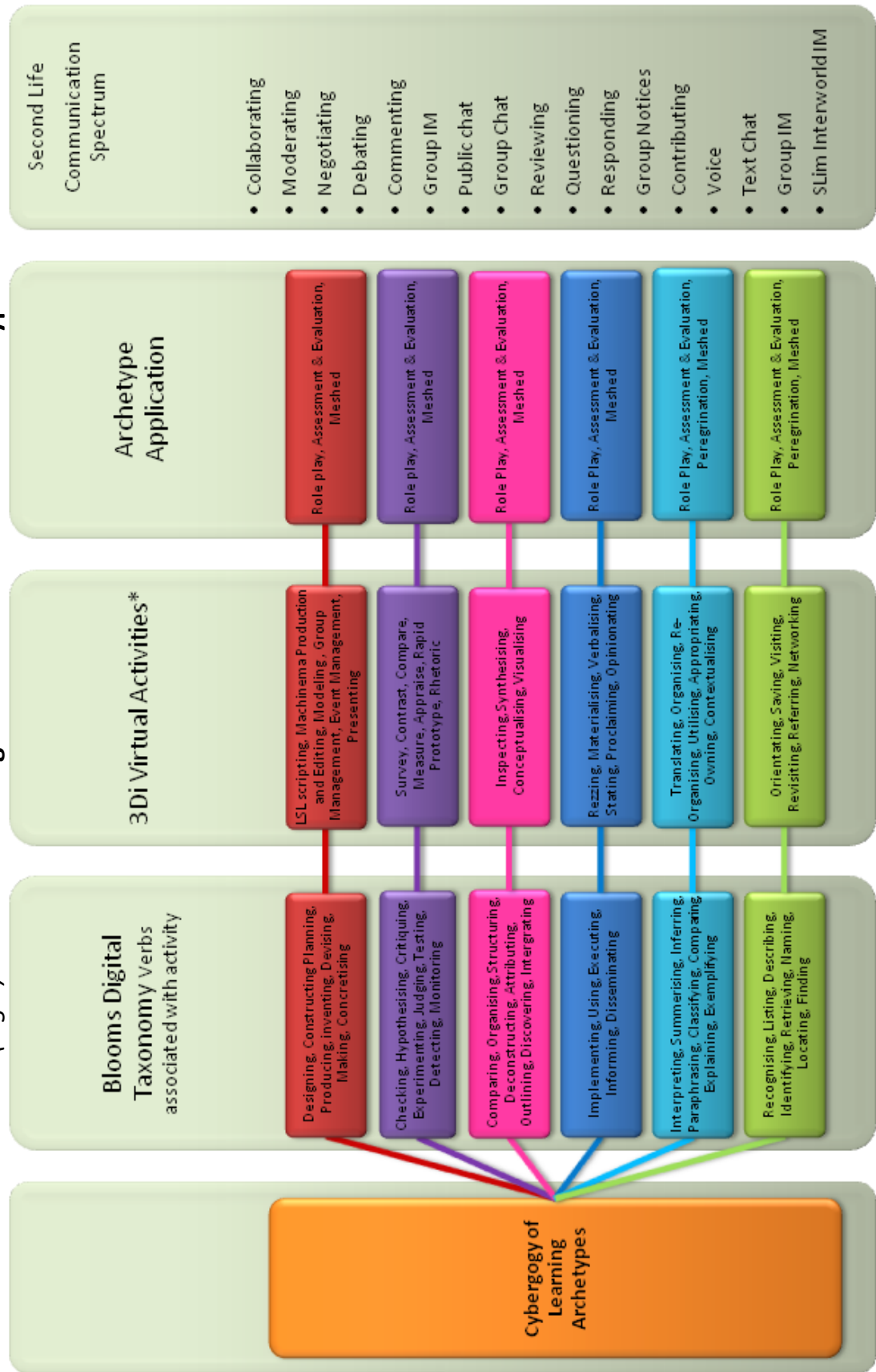
Terms presented as Verbs

It is possible to compile several different Learning Archetypes to orchestrate a series of activities at the appropriate level of learning from the lowest level (level 1) of skills across all domains addressed; remembering (cognitive), perceiving (emotional), imitation (dextrous), personalising (social) through to higher levels (level 6) of creating (cognitive), managing (emotional), expert (dextrous) and communicating (social) thereby resulting in a rich Cybergogy composed of varied learning experiences forming the content of a single lesson or the structure of an entire course, long or short. The Illustration (fig.5) has been created to illustrate how progressive levels of learning can be identified to address each of the four domains for the purpose of structuring appropriate content contained within 3D Archetypes.

Having indicated the specific genre of learning archetype provides the overall framework for the nature of activities to be conducted, the introduction of the concept of a 'frame' proposes a deeper internal structure by providing activities that are closely associated with the Archetype. The purpose of the 'frame' is to set the scene and general environmental conditions as a backdrop for the activity and seeks to primarily support Cognitive and Dextrous domains of the CLA3Di. The 'sub frame' in turn provides finer focus addressing the Emotional and Social domains of the CLA3Di in the composition of the activity.

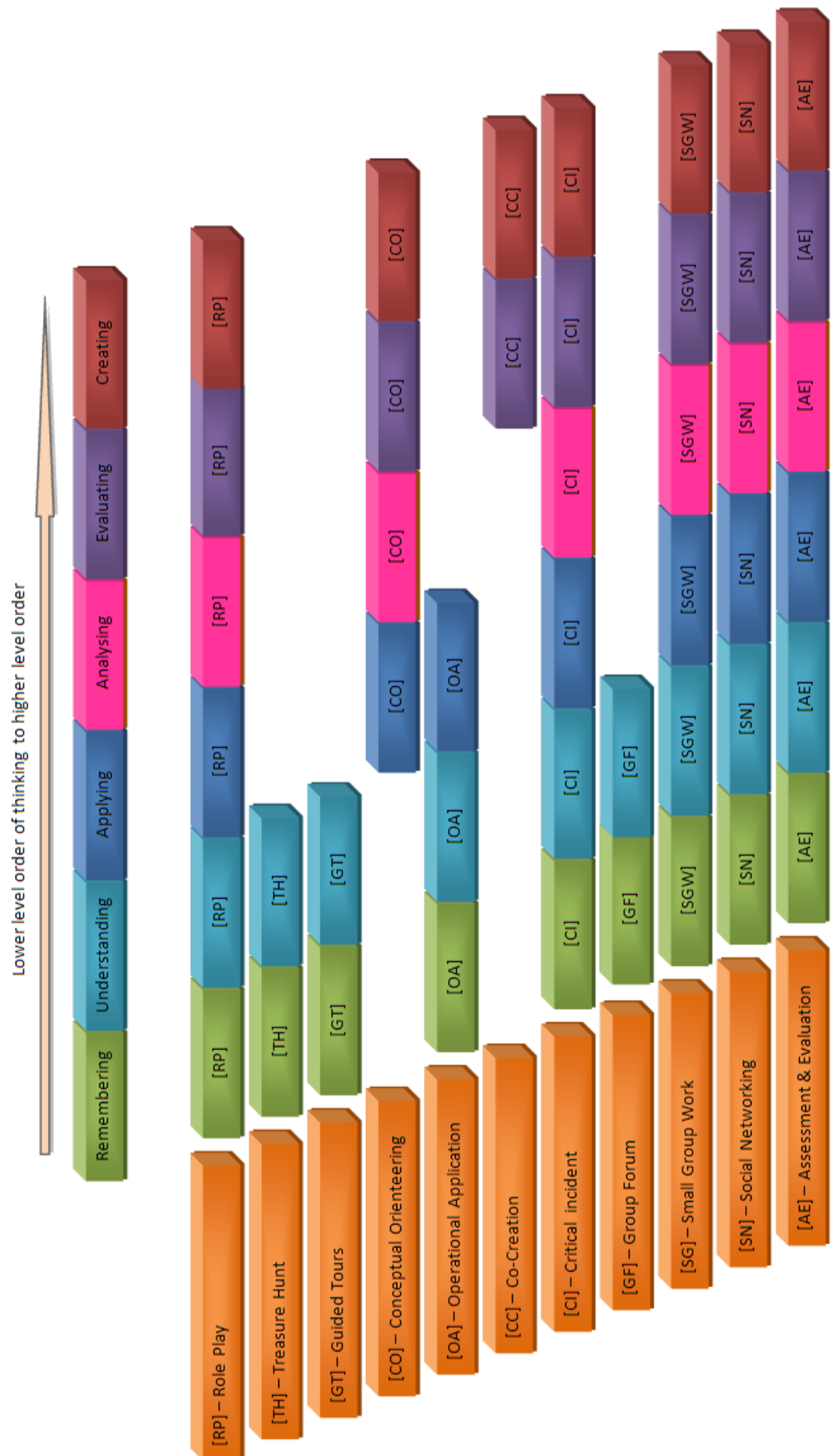
The illustration 'Learning Archetype Frames mapped to Levels of learning in the Cognitive domain' (Fig. 6) shows levels of learning in the cognitive domain mapped to the fully revised Learning Archetypes, this process of in-depth mapping can also be achieved for each domain, but is considered not necessary to pursue further here but will be fully realised in the CLA3Di model presented for implementation in Second Life®.

(Fig 5) Levels of Learning matched to Activities and Archetypes



* The Verb associations in some cases are Second Life specific, but the model can be extended to other Virtual World platforms

(Fig 6) Learning Archetype Frames Mapped to Levels of learning in the Cognitive domain



It should be noted that archetypes can be blended together, to enrich an activity and as a result should not always be considered in isolation. This is an important factor and one that has been introduced into each archetype in the sub frame identified as Synergetic. Its position here is to prompt and promote a combining of archetypes to provide the opportunity to correctly structure and manage the blending (synergy), rather than the clashing of activities. The Archetypes are described below:

Role-Play Archetype (Ref Table 2)

Author's Definition: To assume a role in an alternative form (living or inanimate) with the objective of undertaking aspects of action, interaction, portrayal of feelings/ emotions, subject to the level of implementation.

Archetype	Frame	Sub frame
Role play	Free Form	Individual
	Structured	Multiple
	Dramatised	Synergetic
	Morphic	

(Table 2) Breakdown of Role Play Archetype

There are several justifications for the introduction of the role play archetype into a program of learning: Role play allows a learner to experience a perspective that otherwise might be difficult to attain such as a different gender or race (Kapp, 2007) or to allow people to rehearse a required dialogue without any real life risk (e.g. Ceasefire Project). Role play techniques can be designed to suit the experience or outcome desired.

Free Form Frame:

Author's Definition: Not organised or planned in a conventional way

Free form role-play allows participants to spontaneously co-create and act out a scenario.

Structured Frame:

Author's Definition: Organised according to a plan

Structured role play acted out according to a scripted narrative (as tightly or loosely scripted as required) can be utilised for delivering knowledge or training at lower levels of end of the blended taxonomy. Role-Play could be played out with an experienced trainer who is able to guide an individual, steering the role play toward an instructional conclusion. Kapp (2007) emphasises an advantage of synchronous 3D role play over pre-programmed branching scenarios such as 'Virtual Leader', outlined earlier, in as much as the designer of Virtual Leader, limited by resources is able to program only the most likely branching scenarios where exceptions or variations need to be kept to a minimum.

Dramatised Frame:

Author's Definition: A presentation of a vivid expression of informed performance.

An augmented rendering of Dramatised Role Play can provide learners with higher levels of learning experiences. Role-Play, enhanced by comprehensive research into the background of the scenario paves the way to, for example, use of appropriate language, inclusion of relevant ambient sounds or music, clothing, equipment and other artefacts to emphasise the acted out persona

and to support the authenticity of the scenario as has been applied in Case Study 1 to an extent (later in this paper).

Morphic Frame:

Author's Definition: To assume a role in an alternative form (living or inanimate) with the objective of undertaking aspects of action and interaction, subject to the level of implementation.

Simulation Frames extracted from the simulation archetype can be combined to become Synergetic Role Play (as indicated in the table above). Simulation as a facet of role-play allows learners, for example, to experience interaction with a 3D model of a real life object which can be scripted to respond to the learner's actions. Consider incorporation of interaction and dialogue with actors representing the role of people who may be encountered during the operation (as described in Case Study 1). Roles can be interchangeable allowing all learners to experience the scenario from all perspectives.

'Morphic' Role Play presents an opportunity for a learner to 'morph', (that is to assume an entirely different form such as that of a blood cell) to travel through a 3D model of a human heart.

Peregrination Archetype (Ref. Table 3)

Author's Definition: The application where by travel to locations or by the very action of to travelling or journeying to a destination provides the circumstances under which learning can take place.

Archetype	Frame	Sub frame
Peregrination	Treasure Hunt	Escorted
	Guided Tour	Guided
		Adventure
		Factual
		Contextualised
		Historical
		Phantasmagorical
		Morphic
		Synergetic

(Table 3) Breakdown of Peregrination Archetype

Treasure Hunt Frame:

Author's Definition: The interaction of individuals or groups in either freeform or prescribed environments with the intent of developing knowledge based on simple inanimate or pre programmed interaction with the environment.

Treasure Hunts, also called Scavenger Hunts, enable learners to explore an area searching for specific objects or information. This frame of the peregrination archetype is useful as it can serve as an aid to orientating users to a localised environment, or as applied in Case Study 3 (presented later in this paper) journeying to several different regions to collect information, clues or evidence encouraging them to dig below the surface of the initial visual impact presented. Treasure Hunts can be timed and/or rewarded to add an edge of competition (adding motivation through collecting points for example) or to enhance the sense of playfulness and can be useful for forging communication and collaboration skills within team working. Kapp (2007) emphasises this frame's usefulness for orientating new employees into an organisation, or familiarising them to a city in which they will be required to physically operate or to a facility such as a virtual factory in which various machinery is located.

Guided Tour Frame:

Author's Definition: A formalised, escorted situation based construct designed to facilitate interaction of individuals or groups with various environments.

Guided Tours or Field Trips to visit areas of pertinent or general interest serve to broaden awareness of the work and interests of other Second Life® contributors who are often available to speak with authority on the subject matter in hand. Learners can visit replications of places not necessarily possible to visit with such ease in the physical world, learners can travel forward or backward in time to get a 'feel' for some event, item or environment it would not otherwise be possible to experience.

Simulation Archetype (Ref. Table 4)

Author's Definition: The implementation of an environment for the purposes of representing real or virtual condition for the purposes of imitation or enactment, or to represent the behaviour or characteristics of a system for interaction, exploration, rehearsal and evaluation.

Archetype	Frame	Sub frame
Simulation	Conceptual Orienteering	Physical interaction
	Operational Application	Interpersonal interaction
	Critical incident	Hybrid simulation
		Blended interaction – (RW/VW) Synergetic

(Table 4) Breakdown of Simulation Archetype

Conceptual Orienteering Frame:

Author's Definition: Activities or situations in which learners are presented with examples and non examples of environmental or situational conditions for the purpose of discrimination.

Objects or events can be sorted into categories according to their critical attributes. Within this Frame, students can be presented with examples and non examples of concepts to compare their attributes for similarities. Students can learn skills that help them to perform diagnostics in a variety of differing situations by determining if critical attributes are present or absent.

Operational Application Frame:

Author's Definition: Interaction and manipulation for the purpose of functionality and performance

This frame can be used to practice skills needed for the physical world work place. Further, this archetype can be applied to practise skills needed within Second Life® such as learning to use the Second Life® interface or 3rd party tools available within Second Life®. It is perhaps the most experiential learning opportunity of all the frames and can comprise of opportunities for simulation also. Students could be required to perform a task within parameters governed by physical world rules such as those of physics, economics, time, gravity and such or to perform tasks within Second Life® constraints.

Critical Incident Frame:

Author's Definition: Plan for or Conduct activities considered to be dangerous when practiced in the real world.

This frame centres on teaching the proper response to events in the case of any foreseeable crisis. Possible applications are in areas such as: emergency planning, safety critical operations, industrial health and safety, medical training, natural disaster survival, terrorist threat, and epidemic/pandemic outbreak. This frame will benefit by combining synergetic role play to increase realism and learner immersion. If this frame is used to test prior learning of procedures and rules the assessment archetype can be synergistically introduced and could be designed to engage at all levels of Implementation.

Meshed Archetype (Ref. Table 5)

Author's Definition: Creation of opportunities to not simply network, but to combine and interconnect individuals and groups in various ways for desired purposes and outcomes.

Archetype	Frame	Sub frame
Meshed	Co-Creation	Classroom Emulation
	Group Forum	Lecture
	Small Group work	Demonstration
	Social Networking	Presentation
		Single discipline
		Multi discipline
		Synchronous
		Asynchronous
		Single thread
		Multiple thread
		Coexisting interaction –
		Blended
		Peer to Peer
		Structured

		Unstructured Target Based Synergetic
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(Table 5) Breakdown of Meshed Archetype

Co-Creation Frame:

Author's Definition: Social facilitation enabling two or more individuals to work together with a view to contributing to the formation of something new.

The primary objective of this frame is to charge two or more people to work in collaboration to produce a new object, idea or design. Roles of learners within the Co-creation team can be allocated by the facilitator or be allowed to evolve organically based on individual's personality traits, strengths and skill sets. It is proposed this frame would ideally facilitate the manifestation of a combined project whose ultimate product is focused on being of benefit to the residents of Second Life® or to the physical world and as such has the potential to fulfil the 'relate, create, donate' aspects visualised by Schneiderman (1998) adding authenticity to learning activities conducted virtually.

Group Forum Frame:

Author's Definition: The congregation (by design) of large numbers of participants into one cohesive group for the purpose of sharing, contributing to the body of knowledge of, presenting or soliciting information.

Group Forums are opportunities to bring larger numbers of people into a shared space. This might serve to optimise the visit of a guest speaker's address to a wider audience or to facilitate a mixed reality event whereby

avatars in Second Life® can gather together to watch and listen to the proceedings of a physical world event such as a conference via a simultaneously streamed broadcast. It is also possible to stream video from the Second Life® forum into the physical world conference venue thereby enabling Second Life® avatars to interact with questions and comments to be addressed by the physical world speaker.

Small Group work Frame:

Author's Definition: The bringing together by design small numbers of participants into one cohesive working group for the purpose of sharing, contributing presenting or soliciting information, allowing for spontaneity in group communications.

Small group sessions can be used for purposes such as brain storming or discussion using VoIP or text chat. An advantage of using text chat in these circumstances is that a log of the chat content is automatically generated and can be saved or printed for future reference. VoIP allows for spontaneity but often requires facilitation to assist in turn taking.

Social Networking Frame:

Author's Definition: Utilisation of assorted modes of communication for the facilitation of social networking.

Social Networking is an important frame to incorporate into any learning event serving to maintain the overarching Social Constructivist episteme. People have a natural tendency to want to share information and exchange ideas,

(Kapp 2007) and Second Life® comprehensively facilitates communication and social networking between friends and group members by providing access to multiple communication channels, both synchronous and asynchronous:

- Synchronous public text messaging using 'Say' in the Chat Line, text entered appears on all users screens who are within approximately 20 metres of the 'speaker'
- Synchronous public text messaging using the 'Shout' option in the Chat Line, text entered appears on the screens of all users who are within the region of 65,536 metres squared, an area referred to also as a 'Sim' or Region for example, a private island.
- Synchronous Instant Messaging (IM) allows users to contact one another privately. Through this mechanism users are able to exchange objects from their Inventory, (the repository of all objects owned by the user) to another user by drag and drop.
- Asynchronous Instant Messaging, if the user is not in-world at the time of being messaged, the IM persists to be read at next log in. Further, it is possible to configure Second Life® to forward IM's to a specified email account external to Second Life®.
- Synchronous Group Instant Messaging allows all members of a particular group to IM all other members simultaneously.
- Group Notices can be issued by authorised group members. Group Notices are not the same as Group IM's in as much as they are not interactive. They serve to communicate notifications to group members and can be either kept or discarded by recipients.
- Notecards can be created from the user's Inventory. They are simple text documents to which a user can enter content. Notecards, currently, may not contain images but can contain a SLurl, (Second Life® Uniform Resource Locator). Activation of a SLurl by a user will trigger the receipt

of a 'Landmark' which serves as a hyperlink to a specific location within the entire 'grid', the term used to represent the unified network of Linden Lab servers which stream all regions of Second Life®, and to which the user can travel by means of teleportation. Notecards are saved back into the creators Inventory and can be distributed to other users to disseminate information.

- Synchronous voice conversation using VoIP in which it is possible to address an individual user in a private call.
- Synchronous 3D Spatial Voice enables a speaker to publically address a group of almost unlimited size using the dependant upon 'physical' sharing of a reasonable proximity of the speaker and listener's avatars. 3D audio spatiality is created by directional audio point source originating from the avatar who is speaking.

By building in a time allocation and providing conducive areas for learners to interact with one another it is possible to trigger an exchange of information and ideas by asking expansive, general questions. Palloff & Pratt (2007 p171) suggest that the instructor should facilitate this dialogue without dominating it to allow for a 'volley of views' in response. All levels of Implementation will benefit by integration of this frame. The words of Etienne Wenger (1991) serve to encapsulate the value of Social Networking in the learning process: *"Be aware that the social world is where work gets done, where meaning is constructed, where learning takes place every day, where innovation originates and where identities are formed"*.

Assessment Archetype (Ref. Table 6)

Author's Definition: Execution of appropriate methods of assessment, evaluation, and feedback as part of the learning process (REAP).

Archetype	Frame	Sub frame
Assessment & Evaluation	Formative	Presentation
	Summative	Multiple Choice
	Criterion	Alternate Choice
	Performance	Matching Blocks
	Reviews	Short Answer
	ePortfolio	Essay Answer
	Learning Contract	Synergetic

(Table 6) Breakdown of Assessment & Evaluation Archetype

Optimistically, Practitioners will be aware of which method of assessment is appropriate to evaluate the extent that learning has occurred and that which can be scaffolded upon. Assessment methods should be pitched at an equivalent level of implementation to the teaching strategy employed.

Reece & Walker (2000 p 412) evaluate formative assessment techniques and make certain recommendations to their suitability. Multiple Choice assessment methods are suitable for measuring complex learning outcomes at all levels of the blended taxonomy and can provide diagnostic information assisting with identification of learning problems. Alternate Choice questions (true/false responses) are not strongly recommended as answers could be guessed. Matching Blocks can be used to assess lower level knowledge outcomes and associations made between things. Short Answer questions are suitable for testing knowledge recall. Essay Questions allow a student to structure a response and recall knowledge.

Assessment tools are available within Second Life® for customisation. Flexibility of the tool to support various assessment methodologies, some of which are identified above is a primary factor to consider when selecting an assessment

tool to implement. Furthermore, any of the Archetypes and frames presented here can be inversely used as assessment methods. Furthermore, inherent within an assessment method is the opportunity to survey users with a view to gathering research data. Consider also presenting an opportunity for learners to evaluate the effectiveness of the course as a whole and the individual archetypes that composed it in terms of learner perception, level of immersion, sense of presence, strengths, weaknesses, opportunities and threats in order to reflectively evaluate the value and effectiveness of a Cybergogy of Learning Archetypes.

Building the activity

The overview of the archetypes discussed here provide the framework for implementation, and the opportunity to explore depths of inherent potential. The detailed planning aspects will require schemes of work and lesson planning to consolidate the initial planning stages. Aspects have been considered superficially here to enable the model to be completed. An overview of the way in which content should be structured within the archetype frame used based on Kapp (2007) can be seen in Appendix D

Case Studies

It is the intention of this section of this paper to examine three case studies through the lens of the Cybergogy of Learning Archetypes as presented herein. Each of the Case studies are comprehensively reported upon by the instructor and in some instances, data generated was subject to analysis after the event.

The three Case studies were classified as successful in terms of reaching their objectives, delivering valid teaching and learning, and successful in terms of reported learner engagement that exceeded initial expectations. Therefore, it will be useful to retrospectively isolate the methodology employed in the light of the CLA3Di to identify the formulae which led to these results. This has been achieved with some level of conjecture on the part of this author as to the level of learning actually targeted.

Case Study 1

Loyalist College, Canada: Port of Entry Process

Loyalist College launched their Second Life® presence in 2007 with a view to accommodating 300 plus students in mixed reality (a combination of face-to-face and virtual teaching) events on their virtual campus designed to retain a reality metaphor by replicating aspects of the real life Canadian campus. Ken Hudson is Managing Director, Virtual World Design Centre, Loyalist College who presented an example entitled 'Educational opportunities in Virtual Worlds' in Second Life® to illustrate how Role Play and Simulation are being used to train Customs and Immigration students to become Canadian Border Crossing Officers.

Owing to increased border security following the events of 9/11, students are now unable to visit the border to observe basic border crossing procedures or to take up placements. Prior to the adoption of Second Life®, students were limited to in- class role play which lacked authenticity and the Border Crossing Agency reported a high number of new recruits failing testing after nine weeks of training.

Prior to commencing the venture in virtual world education students were surveyed by an independent market researcher on their attitudes to Virtual Worlds. Findings revealed that students were not keen to use virtual worlds and were sceptical of the validity of teaching and learning conducted within Second Life®. However, an opt-out option was not taken up by any student and all the students went on to try it. Students were given four hours of fundamental training to equip them with Second Life® orientation skills required such as walking, sitting, camera control and voice chat. (*Simulation Archetype; Operational Application Frame at level 2*). A highly lifelike replica of a nearby border crossing for verisimilitude had been created within the Second Life® campus where students were required to role-play (*Role play archetype; Structured Frame at level 3*) the part of border official to check virtual passports of travellers whose roles were played by actors. Students were to ask a series of security questions, checking the contents of vehicles if suspicions were aroused. (*Simulation Archetype; Conceptual Orienteering Frame at level 3*). Summarised in Table 7

Students were issued with lifelike virtual uniforms to wear which Hudson claims changed the behaviour and attitude of the students from that of initial playfulness attributable to the novelty of the Second Life® environment to seriousness with immediate effect. Students were split into two groups, each

of which were given 12 hours in total of border crossing training using the simulated border environment. The Second Life® simulation was projected to a Smartboard which enabled the group who were not actively participating in the simulation at that time to observe and critique the active group. Hudson reports that each simulation spontaneously generated 5 to 15 minutes of classroom discussion which prior to using Second Life® had not been the case and notes that the second group performed significantly better than the first having benefitted from observation of the previous group's performance.

After the Second Life® training program was completed students were surveyed once again about their attitudes. Findings showed that 100% of the students classified the experience as either very valuable or valuable. Comments made included the notion that the students felt at an advantage over people in the competitive job market and that they were better prepared to meet challenges in the workplace. Other comments included: 'More realistic than traditional role-plays', 'as close as it could be to real life', 'seeing, hearing, doing, we were actually there'. After training, the simulation resulted in 28% rise in grade results.

Delivery Plan expressed using the CLA3Di

Case Study 1: Loyalist College, Canada: Port of Entry Process

Stage	Activity	Archetype	Frame	Sub Frame	Level
INTRODUCTION	Second Life® Viewer orientation	Simulation	Operational Application	Blended Interaction	1
DEVELOPMENT	Training for job role	Simulation	Conceptual Orienteering	Individual	3
		Role Play	Synergetic Role Play	Interpersonal Interaction	3
CONCLUSION	Interaction with	Simulation	Conceptual	Physical	3

Simulated Model of Real Life Environment	Orientation	Interaction
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(Table 7) Delivery Plan for Case Study 1 based on Cybergogy of Learning Archetypes

Case Study 2

Nova SouthEastern University Law School, Florida USA; International Legal Research Skills Class

Experimentally, Second Life® was used for the first time to supplement a 7 week component module of a broader law course with a view to testing Second Life's ability to enhance that which was previously conducted purely face to face in a physical world classroom.

Prior to commencement, students were surveyed to assess their prior knowledge of Second Life® and attitude toward it. Only one student had experience of Second Life® therefore a structured introductory demonstration was delivered to the group and written instructions were issued (*Simulation Archetype; Operational Application Frame at level 1*). Attitudes were mixed, one student was an expert user, the majority were eager and curious and a minority were disengaged throughout.

Firstly, Second Life® was used for field trips to a variety of virtual locations and re-creations of real life endeavours. (*Peregrination Archetype; Guided Tour Frame at level 1*). Students were able to tour virtual offices of international law firms, courts, libraries and government agencies. During the course of their travels, students had the opportunity to meet and interact with European lawyers (*Meshed Archetype; Social Networking Frame at level 2*) which was a powerful, unplanned experience and visited international hotspots such as

Darfur (Peregrination Archetype; *Guided Tour Frame at level 2*) which generated discussion (Meshed Archetype; *Small Group Work Frame at level 2*) surrounding issues of International Human Rights laws which perhaps would not have been so possible in the traditional delivery mode. Hudson reports that a sense of social community was established during the tour which was absent prior to the tour.

Secondly, the group were invited to attend a talk (Meshed Archetype; *Group Forum Frame at level 1*) on the international implications of using EU airports to refuel airplanes carrying prisoners to Guantanamo Bay, presented within Second Life® in real time by a member of the European Parliament, Paulo Casaca who was an expert in the field of International Intellectual Property legislation. The experience enhanced the student's awareness of a topic that featured concurrently in another area of the course.

The third application of Second Life® was a spontaneous one which served to illustrate how Second Life® can be used to benefit distributed students. A student was scheduled to present his research to the group however was unable to attend the physical class. As a solution he presented his work from within Second Life® while the classroom based audience watched on a large screen and listened to the audio via the classroom public address system (Assessment Archetype; *Peer Review Frame, at level 3*). Summarised in Table 8

Hudson reports a surprising development of a community of inquiry sparked by the novelty effect of Second Life® whereby student's normal reticence to participate and contribute diminished noticeably. Students enjoyed the incorporation of technology into the classroom and expressed a desire to participate more.

On the other hand, Hudson notes that owing to the inexperience of the majority of the students they required more support to master the environment than it was possible to provide. This coupled with hardware and wireless network issues were the disadvantages reported in the venture.

Delivery Plan expressed using the CLA3Di

Case Study 2: Nova SouthEastern University Law School, Florida USA; International Legal Research Skills Class

Stage	Activity	Archetype	Frame	Sub Frame	Level
INTRODUCTION	Demonstration of interaction with Second life®	Simulation	Operational Application	Blended Interaction	1
DEVELOPMENT	Trips to various locations connected with course of study Meeting other people with visited areas	Peregrination	Guided Tour	Escorted	1
		Meshed	Social Networking	Synergetic Synchronous	2
		Peregrination	Guided Tour	Escorted, Factual	2
		Meshed	Small Group Work	Synergetic Peer to Peer Unstructured	2
	In world presentation	Meshed	Group Forum	Lecture Presentation	1
CONCLUSION	Presentation* and Peer review	Assessment & Evaluation	Formative	Informal Peer Review	3

*Note: this activity has been taken in context of the individual participant in this case and the skill level associated with conducting the presentation and not the content of the presentation.

(Table 8) Delivery Plan for Case Study 2 based on Cybergogy of Learning Archetypes

Case Study 3

Iowa State University; Entrepreneurship, Technology and e-Commerce

The course is an elective six week unit within the Masters of Business Administration (MBA) program with a focus on the functions of e-Commerce. Students normally learn experientially by solving real life problems presented by business leaders and entrepreneurs. Some students on the course attended from a distance whilst others attended campus based lectures.

The Instructor was already familiar with Second Life® having conducted prior research focused upon it, therefore was keen to investigate the usefulness of Second Life® when included as a part of future blended-learning courses if or when Second Life® capabilities were appropriate to the course content.

Initially, a pilot study using a group of students was arranged. Students were introduced to Second Life® in an unstructured exercise which required exploration of Second Life® features, study of its culture and economy, in tandem with web searches and other sources of information leading to the development of a business model and plan for a Second Life® business. The Instructor reports difficulty in managing teaching and learning under these unstructured circumstances however the students reported an enjoyable experience and an appreciation of the usefulness of the Second Life® environment for learning the concepts of the course.

Based on these initial outcomes, the Instructor decided to use Second Life® as a medium for delivering a more structured course with content designed around Second Life® culture and opportunities. No previous Second Life® investment had been made by the University therefore all the components

required to launch the initiative had to be developed at this time including the acquisition of Second Life® premises with various features including a classroom area. The Instructor wished to place particular emphasis on Second Life's potential to facilitate communication and interaction between the student group, and ready access to the Instructor along with the level of flexible interaction which was possible with expert guest speakers who were scheduled to visit the Second Life® premises to talk about Second Life® culture, businesses and history.

When the newly formatted course went 'live', none of the 29 participating students had experienced Second Life® prior to the course, few had participated in video games or other similar environments, therefore orientation was addressed in two ways, firstly, students were given access to a video demonstrating the basic requirements of opening a Second Life® account, performance of basic functions and how to locate and travel to the University's Second Life® premises. Following this, in-world orientation sessions were held (*Simulation Archetype; Operational Application Frame at level 2*) which allowed the students to procure targeted assistance in familiarisation with the environment and user interface along with contextualising the use of Second Life® in the course.

The course consisted of activities designed to introduce students to the use of Second Life® and to prompt the learning of business concepts, the first method employed was a Treasure Hunt (*Peregrination Archetype; Treasure Hunt Frame at level 2*). Six locations of cultural or historical interest which demonstrated exemplary use of Second Life® were identified (*Peregrination Archetype; Guided Tour Frame at level 2*). Students, working in teams (*Meshed Archetype; Small Group Work Frame at level 2*), were required to retrieve instructions and

decipher hints enabling them to travel to the correct location to search for the required item. Team working required that students refine their skills in co-ordination, effective communication, (Meshed Archetype; *Social Networking Frame at level 2*) and collaboration. Afterwards, students were required to write a reflective essay on their experiences and perceptions during this exercise.

Further into the course, eight guest speakers (Meshed Archetype; *Group Forum Frame at level 2*) were invited to present their products in the form of interactive lectures. Speakers ranged from a Second Life® small business entrepreneur, an educational consultant and a representative from the IBM Corporation. Speakers addressed the class using Voice over Internet Protocol (VoIP) accepting questions from students who typed their contributions into the chat line. (This technique helps to avoid the potential confusion that may occur when multiple people attempt to use the spatial voice channel simultaneously). Summarised in Table 9

Finally, students were required to work on a project to address the interests of a real life, not-for-profit organisation in the potential use of Second Life® to promote their outreach and awareness initiatives. The project required students to consider the deeper issues such as strategic alignment, risk and brand/image management.

An analysis of comments made in the student's reflective essays following the Scavenger Hunt revealed positive descriptors included words such as "easy, good, helpful, intuitive, rich, productive, simple or useful." Negative descriptors included words such as "annoying, distracting, frustrating, high learning curve, overkill, problems and slow."

Students reported a steep learning curve was required to master the complicated Second Life® interface deemed overwhelming being 'cluttered with a plethora of options and settings'. Communication modes were perceived as an obstacle being distracting when a lot of content was being typed into the chat line by many students simultaneously.

The complex social canvas of Second Life® began to be revealed to the students during the talks from guest speakers. Some students perceived Second Life® as a game, consequently were sceptical about investment of time and resources into Second Life® business enterprises. As the student's experience of Second Life® began to mature, an appreciation of the parallels of economic processes between real life and Second Life® began to emerge.

With a view to emphasising the uniqueness of the virtual world's the classroom was located on the top of a mountain with a speaker's podium and arranged seating for the audience. The non-traditional framing of teaching and learning away from inside the walls of a classroom initially mesmerised students and led to a minority admitting to being distracted from content delivery.

Overall, students expressed an appreciation of the rich potential of the environment. Those students in the group who had attained a higher degree of immersion in Second Life® expressed a preference to learning in Second Life® over that conducted within a real life lecture theatre, a real feeling of belonging to a team and the use of an avatar which enhanced communication. Finally, with reference to the guest speakers, students were impressed by the potential of Second Life® to connect people from all over the world, something unlikely to occur in real life.

A Classroom environment is perhaps the most commonly applied milieu used to deliver content in a pedagogic style whereby seating arrangements and delivery equipment is relatively pre-ordered. The instructor can present visual information using slides, posters and 3D objects created for inspection or interaction. Video and audio content can be streamed into the environment from external sources such as YouTube® or a personal or organisational website. Verbal information can be presented using Voice most commonly referred to as 'Voice', or can be delivered using text in the chat line.

Classrooms, lecture halls or auditoriums facilitate all participants being at the same place at the same time to receive the same instruction and can serve to accommodate the hosting of guest appearances, perhaps individual expert speakers or opinion panels.

As demonstrated here in Case Study 3 it is not mandatory to replicate a traditional style classroom whilst still essentially employing a Classroom scenario other than a visual classroom may serve to maintain an element of the reassuringly familiar in a somewhat unfamiliar new world. The Second Life® platform facilitates innovation in terms of environmental aesthetics; as was demonstrated in this Case Study, one can remove the physical trappings of a classroom such as walls and ceilings transforming the classroom into an open space and situate it in a more imaginative setting from the novel to the phantasmagorical.

Delivery Plan expressed using the CLA3Di

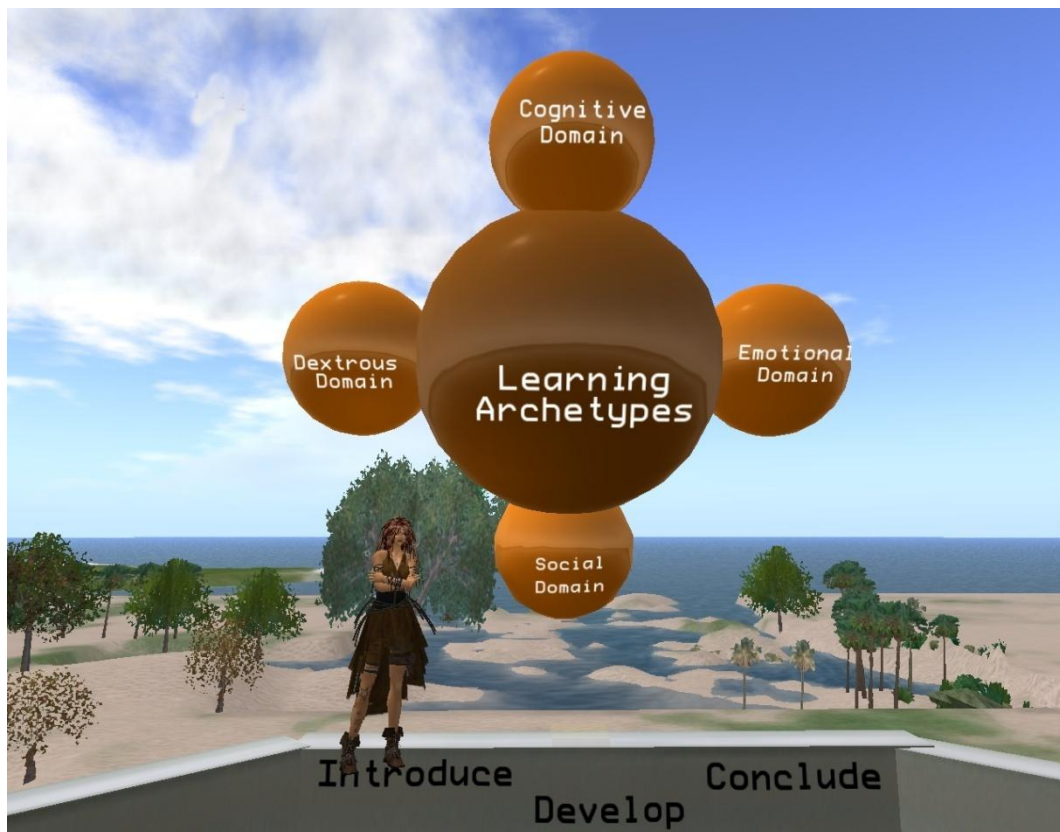
Case Study 3: Iowa State University; Entrepreneurship, Technology and e-Commerce					
Stage	Activity	Archetype	Frame	Sub Frame	Level
INTRODUCTION	Video demonstration of interaction with Second life®	Simulation	Operational Application	Hybrid	1
	In world Second Life® Viewer familiarisation	Simulation	Operational Application	Physical Interaction	2
DEVELOPMENT	Visits to pre selected locations were to retrieve information and decipher hints	Peregrination	Treasure Hunt	Adventure	2
	Work in Small groups to achieve goals	Meshed	Small Group Work	Synergetic Synchronous	2
	Types of goals and interaction facilitated for achievement	Meshed	Social Networking	Synergetic Multiple Thread	2
CONCLUSION	Presentation with questions and answers session	Assessment & Evaluation	Conducted in physical world	N/A	N/A
INTRODUCTION	Not Used – Outcome completed in the physical world.	N/A	N/A	N/A	N/A
DEVELOPMENT	External Presenters	Meshed	Group Forum	Presentation Lecture	2
CONCLUSION	Not Used – Outcome completed in the physical world.	N/A	N/A	N/A	N/A

(Table 9) Delivery Plan for Case Study 3 based on Cybergogy of Learning Archetypes

Discussion

Throughout this paper, the term 'Physical' has been used with reference to the physical or real world however, oxymoronicly, in this section the term 'physical' will refer to objects that exist (that have been rezzed) in Second Life®. As addressed previously, the model has been constructed in 3D and takes physical form. This very fact enables an avatar to interact with it.

Explanation of the facilities and functionality of the 3D interactive Model of a Cybergogy of Learning Archetypes

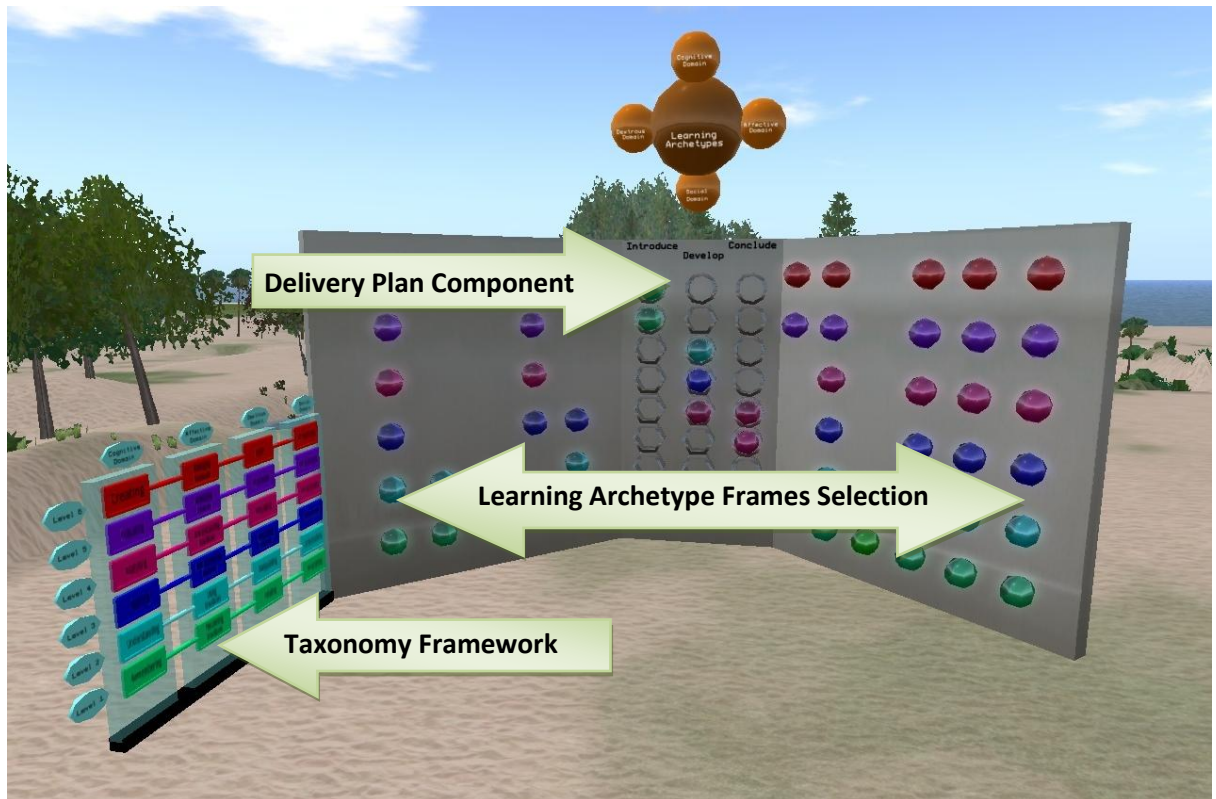


(Fig. 7) 3D Model of a Social Constructivist Cybergogy of Learning Archetypes and the associated Domains floats above the author's Second Life Avatar

The CLA3Di construction is composed of three major components. (Fig. 8)

- A 3D framework depicting Fig. 4 (earlier in this paper) 'Blended Taxonomy of Social Constructivist Cybergogy' and referred to hence forth as the Taxonomy Framework

- Learning Archetype Frames Selection Panel (x2)
- The Delivery Plan Component



(Fig. 8) The three components making up the CLA3Di

The Taxonomy Framework (Fig. 9) is positioned to the far left of Fig. 8 in this instance and is provided as a reference tool for the lesson content developer's information. The framework is filled with button styled objects in the form of four columns and six rows. Columns are ordered by learning domain:

- Cognitive
- Emotional
- Dextrous
- Social



(Fig. 9) Taxonomy Framework in Second Life®

Rows are ordered by Levels of Implementation assigned by a classification afforded by the blended taxonomies of Bloom, Anderson & Krathwohl, Churches (2008) and Wang (2005, 2007) into the Taxonomy of Social Constructivist Cybergogy presented in this paper. Levels are in vertically ascending order of complexity where Level 1, the lowest level, is shown at the bottom of the Model. The buttons have been arbitrarily allocated colour-codes according to the level they represent and the colour coding is applied consistently throughout all of the components of the CLA3Di model, e.g. all activities at level 6 are colour coded red. The buttons are interactive and when clicked, release a notecard containing a list of verbs which generically describe appropriate activities. For example, a content developer designing at level 1 would click the button in the level 1 position in the frame under the Cognitive Domain column, labelled 'Remembering' and consequently would receive a list of verbs and descriptions of activities appropriate at level 1 extracted from

Blooms revised Taxonomy, e.g. Knowledge; recall or recognise information; recall a process, rules, definitions, quote.

This process can be repeated in the second column, the Emotional Domain, at level 1, the button labelled 'Perceiving' will release it's content when clicked, The Dextrous Domain level 1 button is labelled 'Imitating' and the Social Domain level 1 button is labelled 'Personalising'. Information about appropriate activities at Level 1 across the four domains will assist the developer to select Learning Archetypes, with their subsequent Frames and sub frames that fit the requirements of the component part of the course or lesson under development. Further planned sophistication of the CLA3Di will seek to replace the dispensed notecard, as described here, with a 'Head-Up Display' (HUD), a common facility found often in Second Life® to assist with automating selection tasks.

The Learning Archetype Frame Selection Panel (Fig. 10) is split into two sections, positioned left and right of the centre panel for purposes of a) accommodating all the possible alternative Frames at levels 1 to 6, avoiding visual overcrowding assisting with easier manipulation and b) to create a physical area for the developer to work in that is central to the tools.

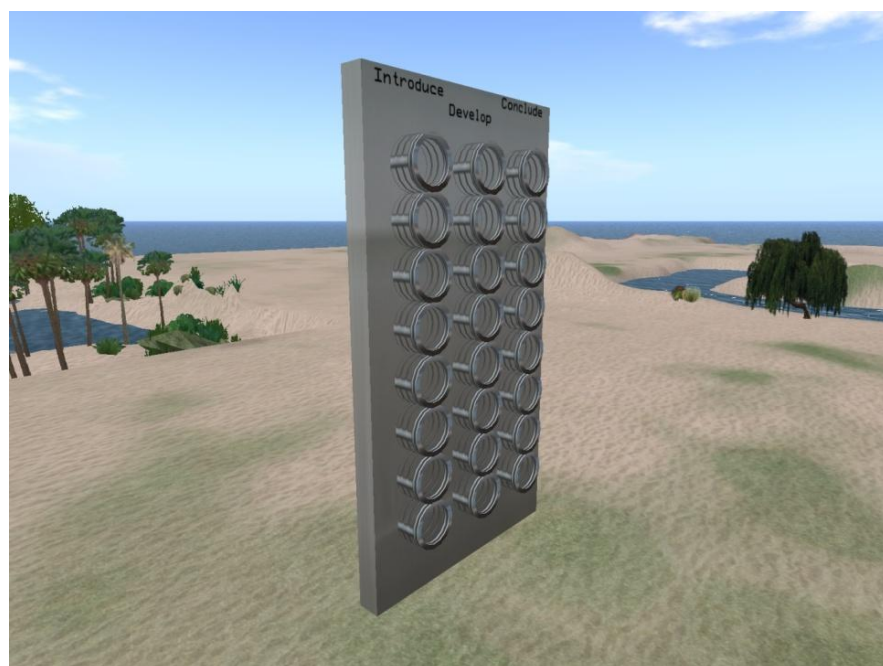


(Fig. 10) Learning Archetype Frames selection Panels left and right

Currently, the Panels are textured with a brushed metal effect but plans for future refinements of the tool will offer alternative 'skins' that will be visually conducive for a wider variety of environments.

The Learning Archetypes Frames are represented by highly reflective spheres which display a floating text label to identify them and are colour coded according to the level of implementation consistent to the Taxonomy Framework. The Learning Frames are displayed on the Selection Panel in a horizontal and vertically arrangement consistent with the illustration at Fig. 5 in this paper, which shows the various frames represented at the levels of implantation to which they are appropriate. For example, the Learning Archetype Frame 'Conceptual Orienteering' has been deemed, in this paper, inappropriate content at level 1 or 2 therefore it is not made available on the Selection Panel (the Selection Panel contains two spaces at those vertical positions instead). It is important to note that at this stage, (unless a Frame on the selection panel has been used previously and is to be reused), they will be empty of content.

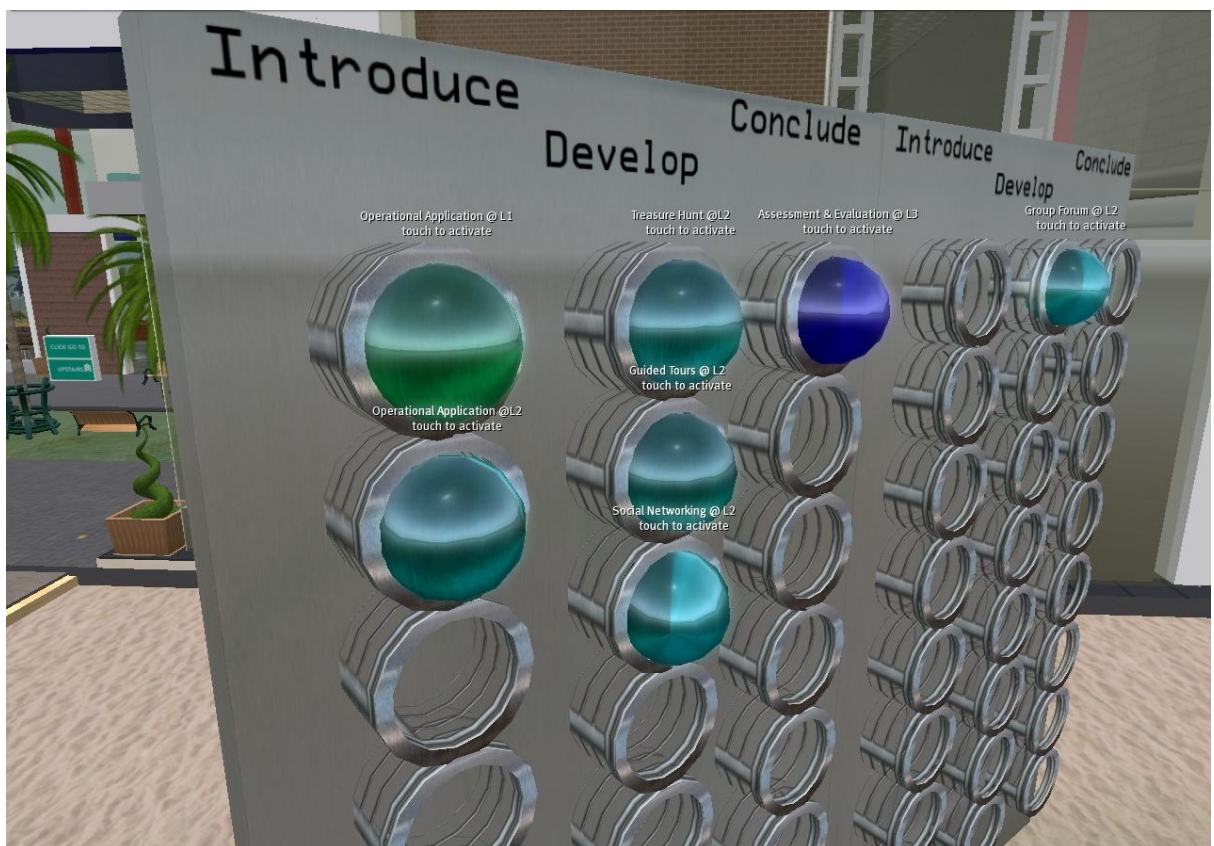
Located centrally in the physical structure of the CLA3Di is the Delivery Plan



(Fig. 11) The Delivery Planning Component

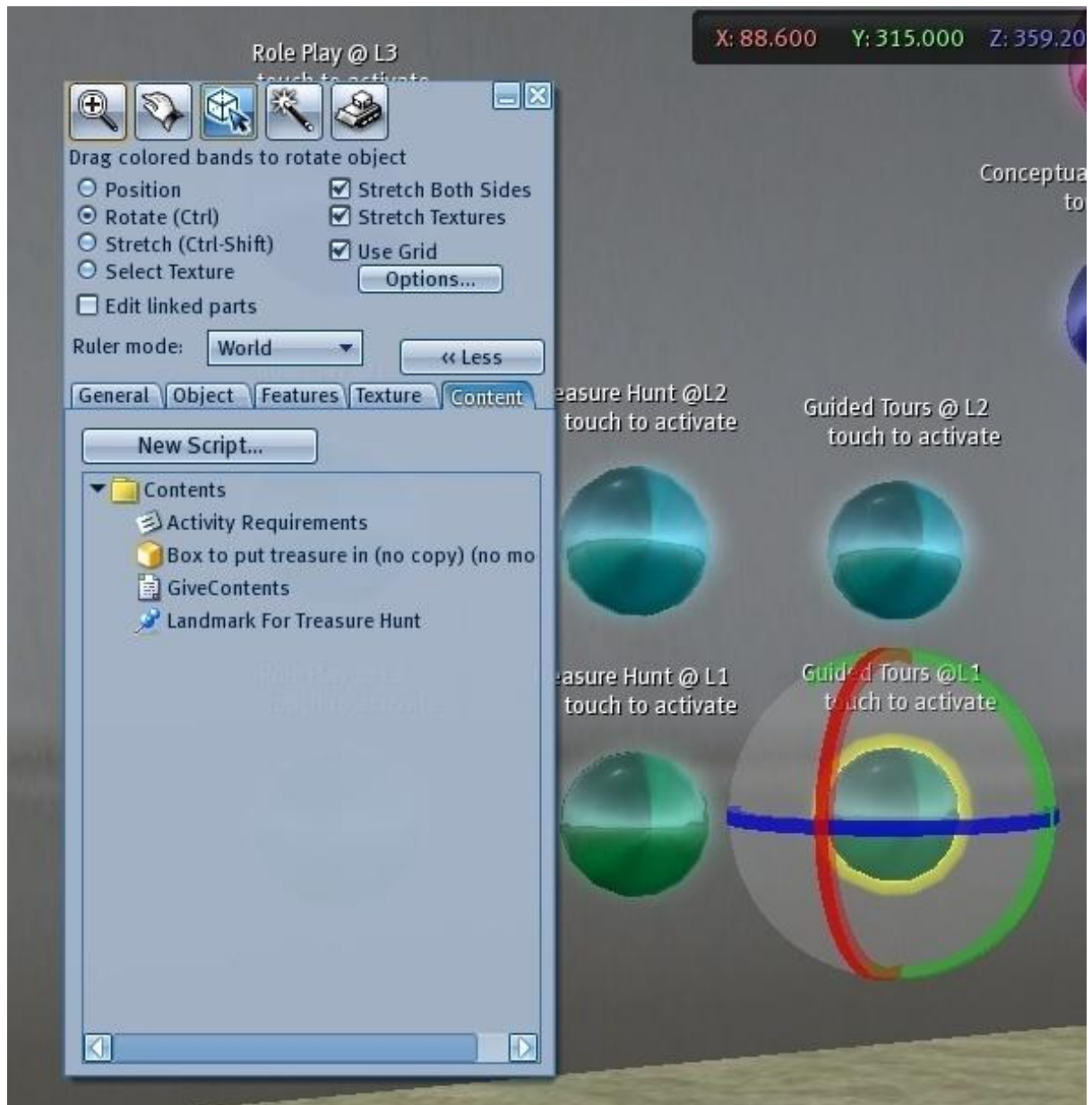
Component (Fig 11) which is designed to provide the facility for visible, interactive lesson planning or Curriculum Planning in 3D.

Upon it are raised empty circular racks that are organised into three vertical columns labelled (from left to right) 'Introduce', 'Develop', 'Conclude'. It is intended that the developer drag the required Learning Archetypes from the Selection Panels and drop them into the appropriate rack in the position in which it is planned to be executed as shown at Fig. 12 below.



(Fig. 12) Learning Archetype Frames placed into the Delivery Planning Component

Following this, the Learning Frame spheres (in Edit mode, Contents tab see Fig. 13) can be filled with content in terms of a description of the requirements of the task, materials, Landmarks, SLurl's and more customised specialist materials as pertinent, shown in Fig. 13 below. Once filled with content, the frames can be retained by the developer for reuse in the future.



(Fig. 13) Editing a Level 1 Guided Tour Frame filled with relevant content to enable the task to be undertaken

If preferred, the planning and development processes can take place in a separate Second Life® venue to delivery owing to the optional facility to detach the completed Delivery Plan from the CLA3Di and transport it independently to the site of learning in a more compact form, to be made visually and kinaesthetically available for reference, transparency of information and to release Folders of Content to learners on touch.

Conclusion

This paper has presented a subjective opinion of the placement of 3D Virtual Worlds, specifically Second Life® within the panorama of educational applications of emerging technology. Initially, it compared virtual worlds to games because of the game-like qualities it possesses although the crucial contrast between game-centric virtual worlds and social-centric virtual worlds has been identified. It is the game-like qualities which serve to enrich the virtual environment, setting it aside from the physical world by delimiting activities performed there and facilitating experiences that may be highly improbable in the physical world. It is the very essence of these assets which can be the potential demise of virtual worlds for the educational body in that an environment so diverse and so often surreal is not obviously or immediately cogent to the objective onlooker. Further, the field of education is perhaps one of the most conservative in terms of change adoption, a point which is poignantly illustrated by recommendations that the very word 'game' is deemed detrimental enough to be removed entirely from the educational vocabulary in order to preclude misconceptions and reduce prejudicial undermining of the scope of potentiality inherent within Virtual Worlds.

The author has attempted to offer a solution to issues of perceived invalidity and illegitimacy of education and training conducted within Second Life® by developing a model of a Cybergogy which embraces four learning domains (cognitive, emotional, dextrous, social) as homogenously as possible and whose fabric, Learning Archetypes, facilitate learning experiences which are enhanced by, and, in some cases made possible only by the very nature of the fanciful virtual environment. The 3D interactive Cybergogy of Learning Archetypes (CLA3Di) is drawn from elements of deep seated, traditional

Conclusion

learning theories re-applied to appropriate benefits made possible by Virtual Worlds and to minimise as far as possible, catastrophic misapplications of the technology in a teaching and learning context.

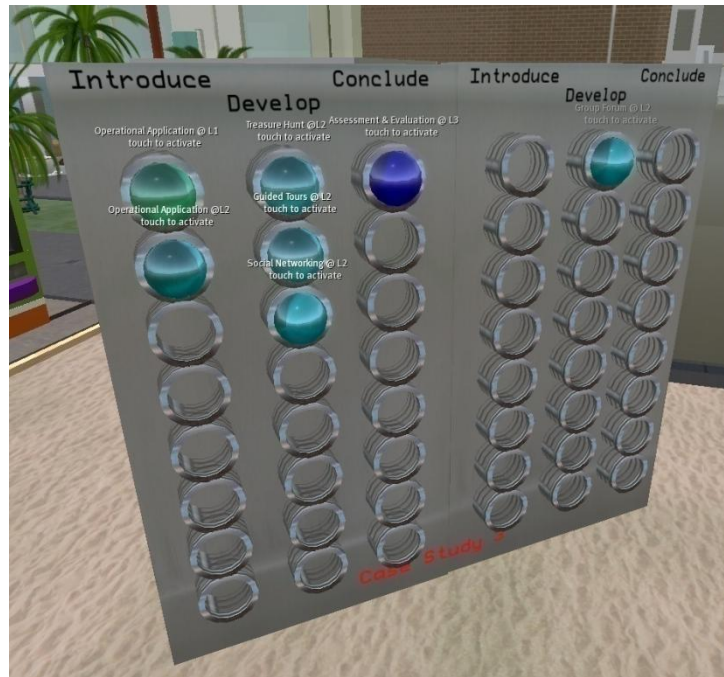
The CLA3Di has been beta tested for reliability by retrospectively analysing three Case Studies of teaching conducted within Second Life® that have been reported as successful in terms of actualising learning outcomes and facilitating a positive learner experience. The Learning Archetypes, frames and sub-frames employed were retroactively identified, the level at which they were performed is conjectured but estimated within the context of the learning outcomes managed within Second Life®. The resulting evaluations were then translated into simplified Delivery Plans (synthesised earlier here) which enabled the structures of each study to be identified, solidified in this document, subsequently mapped onto the CLA3Di, and ultimately manifested in Second Life® as a 3D model for use as a tool.



(Fig. 14a)) Case Study 1: Loyalist College, Canada: Port of Entry Process



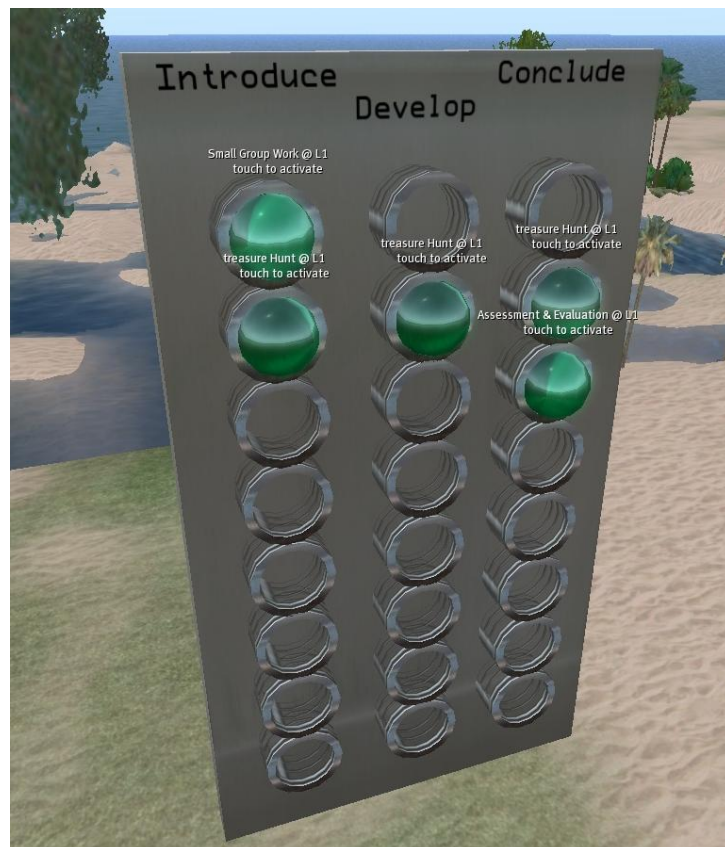
(Fig. 14b) Case Study 2: Nova SouthEastern University Law School, Florida USA; International Legal Research Skills Class



(Fig. 14c) Case Study 3: Iowa State University;
Entrepreneurship, Technology and e-Commerce

This facility provides a visible, interactive and negotiable frame-working tool for modelling lesson plans and schemes of work composed of Learning Archetypes administered with appropriate frames and sub Frames at variable levels of implementation based on skills and abilities already present to underpin knowledge scaffolding.

In order to further demonstrate aspects of the flexibility of the CLA3Di two hypothetical scenarios are created and shown below, (Fig. 15 and 16). Fig. 15 shows a single lesson plan. The lesson is conducted at Level 1 throughout, and shows that the tool can be used to intimate a sequential timeline. In this example the session is introduced by means of the small group work frame whereby students will be made aware of the lesson objectives and breakout for brainstorming, planning and role allocations. Following this, the lesson uses the Peregrination Archetype, Treasure Hunt frame which runs through three stages, introduce, develop and conclude. Finally, an assessment and evaluation frame which concludes this lesson.



(Fig. 15) A sequential lesson plan at level 1

Fig. 16 below, shows a second hypothetical CLA3Di plan which can be used to represent a single lesson or a short course intimating both a sequential timeline and progression through levels of implementation. In the Introduce phase, Guided Tour level 1 and Treasure Hunt level 1 frame are put into effect; these frames can be blended (synergistically implemented) into a single activity, in as much as, for example, hints, clues, information and evidence can be gathered during the course of a guided tour. In the develop phase, Frames are ordered in increasing levels of implementation, Role Play at level 2, Small Group work at level 3 and Conceptual Orienteering at level 4. The Conclude phase consists of a conclusion of the Conceptual Orienteering frame followed by Assessment and Evaluation frame at the same level of implementation as the highest Frame employed in this example, level 4.



(Fig. 16) A sequential lesson plan at incremental levels of

In an attempt to bolster validity and credibility of virtual teaching and real learning the CLA3Di model projects into the virtual world of Second Life[®] a Common Standards Architecture, optimistically presented herein as a coherent, legitimate structure, having a foothold in accepted theoretical tradition with the flexibility to accommodate bending without breaking the rules of traditional academic conventions.

Strengths of the model of CLA3Di

The concepts presented here provide a metaphoric framework to enable a learning content developer to consider options available towards constructing a delivery plan and the CLA3Di Modelling tool enables the delivery plan to be represented visually, spatially, sequentially and interactively in 3D.

Interactivity is an important aspect of the model's efficacy as a tool for

teaching, whereby the loaded content of Learning Archetype Frames seen in the CLA3Di release materials to learners in a timely manner, synchronously or asynchronously and can function as a repository for materials for reuse. Further, the CLA3Di can be constructed collaboratively with colleagues and other specialists allowing developers who are distributed in time and physical location to co-work within a common frame of reference. The model is flexible and can be dynamically adjusted to reflect changes made to the course or lesson structure, such as veering from the planned content to embrace an unanticipated learning event or other spontaneous opportunity.

Weaknesses of the model of CLA3Di

The author anticipates the primary weakness of the model to be the virtual world teaching inexperience of a practitioner and advocates that teacher training is as imperative in the virtual world as it is in the physical world where teachers learn how to master the tools, and manage the learning environment with authority and expertise. The model of CLA3Di is, of itself, a training tool for consideration for implementation into a virtual teacher training program in that it supplies a theoretical foundation upon which to construct a meaningful, fluidity of content flow, the flexibility to support imaginative creativity, an opportunity to reflectively review and refine the teaching practice and positions the laudable, experiential, immersive aspects afforded by Second Life® at the very heart of the eTeaching and eLearning process.

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Appendix A

Term	Description
2D	Two dimensional representation
3D	Three dimensional representation
3Di	Three dimensional interactivity in a virtual space.
Avatar	A digital representation of a person, which may be in any form and is directed/controlled by that person.
Chat	Second Life term to indicate the used of text based communication (this is also referred to as “open chat” to indicate that the communications is open to anyone in range)
Chat line	Second Life term used to indicate the point of insertion of text based communication.
Click	Mouse guided selection with the mouse button functionality being used.
Drag & Drop	The action of selection of an item electronically and placing it in a specific position.
e-Commerce	The buying and selling of produces and services over electronic systems.
e-Learning	Technology supported learning through the use of computer technology.
eTeaching	Electronic teaching mediated through computer technology.
Floating text label	Second Life term used to describe text that is attached to an object, and can be seen to “hover” above the object and can be considered to be a label.
Frame	The generic activity within an archetype.
Full Immersion	The effect on an individual to be fully engaged in a virtual world in terms of all sensory stimuli.
Game centric virtual worlds	A virtual world in which the purpose or primary activity of the world is to play a game.
Group Chat	Second Life term to indicate the used of text based communication, which is localised to a specific group of individuals who are members of an established group.
Group IM	Second Life Term use to indicator Instant Messaging via text based communication that can occur throughout the entire virtual world between members of an established group.
Group Notices	Second Life term used to indicate a text based message that is issued to a designated group of Avatars based on their membership of the group.
Head up display (HUD)	Second Life term used in this case to indicate a display that is attached to an Avatar in a specific way that is accessible only to the Avatar who wears it.
IM	Second Life Term use to indicator Instant Messaging via text based communication that can occur throughout the entire virtual world between two Avatars
Inventory	Second Life term used to identify the repository for all items owned by an individual enabling storage and subsequent viewing of content.

In-world	The presence of an individual in a virtual world
Learning Archetype	A generic descriptor for group of virtual world activities which are defined in terms of specific activities as Frames.
Linden Scripting Language (LSL)	A programming language implemented by the designers of Second Life that can be used by Residents to control the behaviour of in-world objects.
Loaded content	Second Life term to indicate that content is loaded inside another object for the purpose of control of that object (or group of objects) or for retrieval at a later stage.
Mega universities	A University that is considered to be exceptionally large, drawing students from across many campuses in this case included across a number of continents through the use of virtual campuses.
Mixed reality	A condition in which activities take place in both virtual and physical worlds as part of a whole.
Morphic	To transform from one form to another. In terms of its use in this document to indicate a transformation from a basic human type form to a non human form.
Notecard	Second Life term to describe a simple series of notes in the form of a document.
PA system	Public Address system: a general term used to indicate broadcasting to a number of people.
Residents	Second Life term use to describe a registered member of the virtual world.
Rezzed	Second Life to describe the creating of or to make an object appear.
Scaffold knowledge	To build on prior knowledge and internalize new information.
Second Life viewer	Program installed on the computer that provides a virtual world viewer as open source code for use on Second Life Grid. The viewer provides the interface with the virtual world.
SIM	A SIM (simulator) is a whole region or island (16 acres / 65536m squared). Less than a SIM is usually referred to as 'land' often with a specific size associated with it.
Skins	This term refers to the appearance of a program's aesthetic interface. By changing the skin, an interface can be made to look completely different, but retains the same functions.
Slim viewer	Lightweight Second Life voice and instant messaging client. SLim is a Vivox product connected to Vivox servers. Connection with Second Life and its grid and servers enable Second Life Residents to connect and communicate with their Second Life contacts whether or not they are actually in world.
SLurl	A unique form of uniform resource locator for Second Life providing a direct link to any location in the virtual world.
Streamed in	Music or video is played in Second Life via a host URL (web address).

Appendix B

Recreating Cultural History through the lens of 3D Virtuality: a journey of rediscovery for teachers and learners alike

Dr. Bryan Carter, Ph.D.

Associate Professor, English

University of Central Missouri, USA

Lesley Scopes BSc (Hons) PGCE, IfL

Masters Student, MSc. Computer Based Learning and Training

School of Education,

University of Southampton, UK

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Abstract:

Virtual environments have captured the pedagogical and creative imagination of educators around the world since their more widespread access and availability over the past five years. Using these environments is not only an opportunity to engage students differently but they are also a platform in which new theories of teaching and learning may be explored. The Case Study and theoretical example for Virtual Harlem is one of many possibilities available for use when considering the use of virtual environments for teaching.

Key words:

Harlem Renaissance, African American Culture, Learning Path, Pedagogy, Virtual Harlem, Second Life, Social Constructivist, Serious Games, Learning Archetypes

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In 'When Harlem Was in Vogue', David Levering Lewis makes the case that the Harlem Renaissance is one of the most significant eras in African American cultural history. Harlem, New York, is generally considered its cultural center. The population density of Harlem, its position at the heart of Manhattan, and its ready access to audience and affluence, attracted artists and entrepreneurs from across the nation.

“The decade and a half that followed World War I was a time of tremendous optimism in Harlem. It was a time when Langston Hughes, Eubie Blake, Marcus Garvey, Zora Neale Hurston, Paul Robeson, and countless others made their indelible mark on the landscape of American culture: African Americans made their first appearances on Broadway; chic supper

clubs opened on Harlem's streets, their whites-only audiences in search of the ultimate "primitive" experience; riotous rent parties kept economic realities at bay while the rich and famous of both races" outdid each other with elegant, integrated soirees" (Lewis, 1979, from the back cover of the paperback edition).

If we think of a learning pathway as a journey of discovery, then we might designate a conventional English literature classroom as the starting point of a journey which takes an extrinsic twist. A student may be assigned to read a work introducing the Harlem Renaissance as a period of literary history from her textbook. This would lead her home or to the library where the reading might take place before she returns to the classroom. This "trip" may become a well trodden track which carves a learning path toward information amassment.

At some point, the student may take a trip to a computer centre with Internet Access to search the flat Web for information related to the Harlem Renaissance, followed by taking advantage of Web 2.0 technologies to publish a her findings on a course Blog or Wiki. She may subsequently decide to undertake a term project to extend the reach of the value of the information into a 3D Multiple User Virtual World such as Second Life[®] by adding the simulated 3D model that replicates a culturally important building such as the Dark Tower (a literary salon of the period) to Virtual Harlem or Virtual Montmartre.

This decision would necessitate another trip to the library and/or to the computer centre in search of pictures and accounts of, say, the Dark Tower and would likely lead to the preparation of a research paper not only submitted to the instructor but highlights of which would be presented for "publication" in the Virtual Harlem region of Second Life in the form of a historically accurate visual representation with interactive elements. Since a literature student or instructor would perhaps not be able to build a 3D Dark Tower into the Second Life world, the "publication" of the Dark Tower could be handled by someone who's area of expertise lies in 3D architecture, commonly referred to in Second Life as a 'builder'. While researching the Dark Tower or perhaps a famous personality such as Bricktop (Ada Smith, one of the most famous saloonkeepers in Paris of the 1920s), the student might discover that not only did she live in Harlem and Chicago for a while but she also lived in Montmartre (the 18th arrondissement in Paris) for a number of years. So our student might then log into Second Life with a view to initiating collaboration with a student in Paris who is studying the Harlem Renaissance or Jazz of the 1920s to enrich her research and perhaps add a French language component to her research project.

The learning path of the literature student, in all likelihood, would need, perchance, to intersect with the correlative learning paths of several other students before the Dark Tower or information about Bricktop could legitimately be added to Virtual Harlem. These intersections would "deepen" the learning experience to the extent that the students and instructors involved were in dialogue with each other. Without going into the same detail, I hope it is easy to imagine an engineering student beginning his learning path in a classroom on C++ in the Engineering building and at some later point taking on the project of constructing a 3D virtual representation of the Dark Tower as his term project. A third student in Fine Arts might start out in a computer graphics class and follow a learning pathway that eventually intersected with the first two students adding further visual texturing authenticity to the design. A Women's Studies student might intersect with the group in an effort to portray the women in the Dark Tower setting accurately. If, by

collaborating, they took perspectives on the materials that they would not otherwise have considered into account, this circumstance would enrich their individual learning experiences.

Since it would be tedious to read the details of the many additional learning pathways that might intersect or be juxtaposed to those I have mentioned, I ask you to imagine the likely collaborative learning pathways that would be involved in constructing the Dark Tower into the current cityscape or constructing a portion of Montmartre in Paris or Bronzeville in Chicago (because to study the Harlem Renaissance, one must also consider these other key locations). Envision, for instance, students with a history or cultural studies learning pathway or even international students intersecting with the learning paths we are identifying here. Consider students from psychology or sociology or urban anthropology that might be studying the impact that these three key environments had on the development of the Harlem Renaissance generally and the Dark Tower as one specific example, as well as the impact the entire project is having on visitors to Virtual Harlem. The Dark Tower was owned by A'Lelia Walker, daughter of Madame C.J. Walker who made her fortune on African American hair care and beauty products. At the Dark Tower, literary figures like Langston Hughes, Jessie Fauset and Countee Cullen often frequented its halls. Students studying just this one building are encouraged to collaborate not only with those within the same discipline but also cross over to others and interact with those studying music of the same period (several famous musicians also attended A'Lelia's parties), those studying politics, (figures such as Charles S. Johnson of the National Urban League and A. Philip Randolph were known to drop in from time to time), and even those interested in disciplines such as architecture because the Dark Tower was one of the most beautiful mansions in the area. Notwithstanding the dramatic scripts that creative writers and theatre students who could write to dramatize the events that took place in any of the locations mentioned or between any of the personalities who visited the Tower.

These learning paths would also inevitably intersect with those of students from other universities who were researching the Dark Tower or some of the persons that were its habitual guests. If some of the learning paths did not intersect smoothly but, instead, clashed and contradicted each other, the learning experience would take another turn as students would then be forced to encounter perspectives they had never before engaged, a likely scenario as more universities brought forth more intellects from the global community to participate in the social network forming before us.

Though the network formed by the intersections of these varied learning paths has the potential to be quite volatile, it is nonetheless governed by the same set of research ideals its professorial constituents are advocating and the situation is potentially a mirror of any lively intellectual or discourse community, which Mary Louise Pratt aptly describes as a "contact zone" (Pratt 1). All the learning paths come into contact with each other because they are heading toward a common destination; the construction of a Virtual Harlem. Ideally, all paths are attempts to visualize the past and end up becoming an agent of organic pedagogy. They are, in fact, complex modes of interaction, collaboration and visualization, leading to new ways of understanding and appreciation.

Within this framework of organic pedagogy, everyone in the network is both teacher and learner occupying a dynamic, interchangeable positions of varying proportions within facets of the project. The unusual combination of disciplines in the project--African American

culture, literary, historical, urban, gender, social, anthropological, artistic, graphic, dramatic studies, communication, psychology, engineering, computer science, and visualization--mandates that no one person in the network will be the master of any one perspective. At the same time, the diversity of perspectives allows each person in the network to view the subject matter and the technology from a previously unfamiliar perspective. Moreover, since the project is based on desktop networked immersive virtual reality (or similarity) scenarios at the higher end of the technological spectrum, a certain excitement is continuously generated, especially when persons enter the network and view the work that has been completed.

There are several features of the Virtual Harlem project that contribute significantly to its potential as an instructional technology. From the point of view of its subject matter, Virtual Harlem is a learning environment in which participants virtually experience a dramatic, visual history centered in Harlem, New York during its "Renaissance" period but reaching and intersecting with Bronzeville and Montmartre. From the point of view of the mode of learning, Virtual Harlem is an environment that enables a subject matter like the Harlem Renaissance to be studied by modelling its historical context as a dynamic system of social, cultural, political, and economic relations, that is, as an extended "neighborhood." From the point of view of learning outcomes, Virtual Harlem is an environment that configures its visitors as a set of cultural counter-stereotypes.

The organic pedagogical aspects of the learning environment introduced here are grounded in sound educational techniques. The development can be understood in terms of a number of strategies structured within Second Life through a Social Constructivist Learning Paradigm

Education in Second Life

Second Life[®] (SL) is a Collaborative 3D Virtual Environment designed by and supplied from streaming servers owned by Linden Lab (TM) that actively supports human-human communication in addition to human-machine communication and which uses a virtual or 'synthetic' world as the user interface'. Ideally suited to facilitating Wenger's (2004) notion of 'Communities of Practice' which describes a group of people with a common interest, a shared history, shared sense of identity and a similar knowledge set which has been derived over time. 'In pursuing their interest in their domain, group members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other' (Lombardi & McCahill, 2004). It is suggested here that social interaction between participants is almost inevitable within the Second Life[®] environment that supports multiple communication channels across a broad spectrum from asynchronous text messaging, synchronous Instant Messaging, synchronous public typed chat, distributable text-based Note cards, through to real time voice conversation in which it is possible to address an individual user in a private call through to address a group of almost unlimited size. Users can communicate with SL objects that have been scripted in Linden Scripting Language (LSL) to perform certain functions on touch such as dispense a note card or open a door. Similarly, SL Objects can communicate externally linking to web sources such as YouTube[®] to enable external data to enter the SL world. The most recent addition to Second Life from Linden Lab is an alternative downloadable Viewer which extends the range of communication opportunities, the 'SLim' viewer allows users who are currently 'in-world' to receive instant messages from users who are not currently logged in to the world but who are able to receive a reply from within SL. In effect, communication

channels which were once contained entirely within SL are now able to extend between both worlds synchronously.

Many teachers and parents frown on the use of video games in the classroom because they may be in possession of a commonly held notion that games are fundamentally opposed to serious endeavours; superfluous, frivolous, lacking morality, games are often regarded as violent in nature and are perceived to encourage aggressive, anti social and additive behavior or desensitized responses to scenes of violence as reported in 'New Scientist' (2005). Notions such as these are not without substance and there is a lack of research to counter such arguments. Although there are a number of effective interactive educational titles, they are rarely used for an extended period of time and often they are "static" titles, that, when played once, often lose their luster. What many have a difficult time understanding when trying to "categorize" Second Life, is that it is not a game. Virtual Worlds can be segregated from games by applying the 'persistence test'. Virtual Worlds cannot be paused, they continue to exist and function dynamically whether the user is there or not. (Bell 2008) Where games differ in so many ways regarding competitiveness, an "end-goal" or even 'coming to an end'. Second Life is anything but that. When considering the positive attributes of Massive Multi-Player Online role Playing Games (MMORPGs) we find that "Gamers come to virtual worlds because in them they find more than a game, they find other gamers. They come not necessarily to compete with each other, but to collaborate with each other, to learn from each other, to profit from each other, to talk to each other in the environment. Players come to MMORPGs to interact with other players, and in that way, MMORPGs are a very special form of interactive entertainment, in that they derive their value mainly from the fact that there are other players there" and that there is so much more to do besides "win" the level (Ludlow & Wallace, 2006).

Games which possess an educational quality also termed 'serious games' are becoming part of the future landscape for education, defined by Wexler et al (2007) as "An optimized blend of simulation, game element and pedagogy that leads to the student being motivated by and immersed into the purpose and goals of a learning interaction" and Hackerthorn (2007) as "a game which has enduring value beyond that of entertainment" going on to explain that for a game to possess enduring value it should demonstrate a direct relevance to the real world as opposed to being based in pure fantasy, preferably with an explicit connection to a real world system.

Translating this idea and the Virtual Harlem project to the learning possibilities of Second Life offers almost unlimited "teaching moments." Second Life is an immense environment consisting of over 5 million residents from almost every walk of life, from around the world, to include a small cadre of educators that recognize how an interactive 3D environment can affect the educational experience in a positive way. Most educators have never experienced an interactive 3D environment where real learning can take place and the strive for authenticity is an ongoing battle in which credibility and authenticity is the major stake.

MMORPGs are becoming ever more popular among adolescents and adults due to their social context, while at the same time offering an array of complex activities and objectives that players must accomplish in order to "succeed" in the game. With Social Networking Sites like Facebook being the starting point and collaborative video games like Halo being the other end of the spectrum, Second Life is an ideal platform where there are elements of both. There are several recent studies that examine the teaching and learning potential of

this particular genre of video game most specifically to teach science and physics (Recent University of Central Florida NSF grant award number 0537078). These efforts are important in that they suggest that there can be sound pedagogical methodology incorporated into MMORPGs and that more researchers are exploring the potential of these environments.

With an increase in high quality graphic computing and faster networking capability becoming more common place in homes over the past 12 months, the "pre-scripted" often rendered versions of the most popular games (note the advanced graphics in games such as Medal of Honor, Grand Theft Auto and Madden Football) have given rise to an even more interactive, completely unpredictable environment called a micro-world.

The term "micro-world" was coined by Lloyd P. Rieber and is defined as "a small but complete subset of reality in which one can go to learn about a specific domain through personal discovery and exploration" (Rieber 1992). Furthermore, micro-worlds allow users to interact with others and build objects within the environment, thus adding to the interactive nature of the world. Through the creation of a number of environments where Rieber's son could determine his own direction, make decisions regarding his learning that changed based on the decisions he made, Rieber suggests that visually based virtual environments are an extension of constructivist learning theories (Rieber 1992).

Social Constructivist Learning Paradigm

Well-designed social learning environments foster increased opportunities for collaborative activities. Socialization between humans uses many cues to provide the intended message. With the latest developments in 3D virtual environments, which are now available to anyone with a relatively recent model computer and high-speed connection to the Internet, technology is reaching new levels of immersive experiences, incorporating rich visual elements and multimedia artefacts that provide a full-featured social learning environment. When enhancements to virtual environments are made that mimic real life, users become more enmeshed or immersed with the content and less focused on user interface issues that sometimes plague advanced virtual environments.

Educators face a common and often perplexing question; that is, how to engage online students. Jones (1998) has suggested that learners are not intrinsically motivated unless the learning environment offers motivational features. He further stipulates that learners need to have a reason for entering the computer-based environment but then also need to find it stimulating enough to engage in the environment. In order for knowledge and skills to come together in an interactive learning, students need practice and experience (Jones, 1998). Students also need opportunities to feel safe to learn in an environment that provides them with experiences that allow them to apply existing knowledge and succeed in successive steps. Games and simulations can provide such a "world" for students (Gredler, 2001). Simulations have been used to enhance adult learning in corporate and military settings for over a half-century, but the use of games in traditional educational settings has only recently received attention (Thompson & Rodriguez, 2004). Recognizing the motivational and instructional power of games and simulations moves educators into a new realm for delivery of learning outcomes (Jenkins, 2005).

Jenkins (2005) recently proposed several aspects of games that make them a viable approach to promote student academic learning. He suggests that games --

- Lower threat of failure
- Foster engagement through immersion
- Manage levels of attainment to prevent feeling overwhelmed
- Link learning to goals and roles
- Create a social context with shared interests
- Present multi-modal learning environments
- Support a framework of inquiry (p. 49-50)

The use of games and simulations capitalizes on the motivational factors necessary to engage the learner. Embedding learning activities into games and simulations in an online environment will offer students socially acceptable and personally gratifying opportunities to learn (Thompson & Rodriguez, 2004).

Learning activities are referred to as 'Learning Archetypes' (Kapp 2007). As a pedagogic rationale, Learning Archetypes are building blocks described as “Instructional strategies, methods or archetypes for facilitating learning” (Kapp & O’Driscoll, 2007). Archetypes form an ideal tool for engineering 3D virtual teaching tactics to elicit the desired learning experiences and outcomes, falling into categories of differing activity types as identified by Kapp (2007):

- Classroom Emulation
- Role-Plays
- Treasure Hunts
- Guided Tours
- Conceptual Orienteering
- Operational Application
- Co-Creation
- Critical Incident
- Group Forum
- Breakout Sessions
- Social Networking

Not included by Kapp but to be considered for inclusion is an Assessment Archetype inserted into the program in formative and/or summative positions.

Archetypes can be crafted in terms of type of content and degree of sophistication or level of complexity to generate the desired learning experiences. Several different Learning Archetypes can be orchestrated into a series of activities producing a rich Cybergogy (Wang 2005) composed of varied learning experiences forming the content of a single lesson or the structure of an entire course curriculum. The design of Learning Archetypes should take account of motivating factors that are pertinent to the environment whilst mapped to the requirements of the learning outcomes and should be scalable and reusable. Activities, as archetypal content exercised within an interactive, highly immersive environment are expected to lead to the attainment of skills, knowledge, understanding and experiences grounded in meaningful theory and practice. Some Archetypes can be conducted synchronously with a group of learners or in other cases asynchronously to allow individual

learners to revisit the learning opportunity for self-paced acquisition of information within the 3D environment. It is possible to identify a broad set of options from which Learning Archetypes can be structured. These include at the most elementary, a classroom scenario. As a setting for learning archetypes a virtual classroom can be used to deliver content in a traditional pedagogic style, but it has no essential advantage over any other more stimulating setting that can be created for the same purpose along a spectrum from the mundane to the phantasmagorical, other than a classroom may serve to maintain a 'reassuring' element of the familiar in a somewhat unfamiliar new world and will not be considered further here. Discussed here in the context of Second Life's Virtual Harlem as a learning arena to facilitate the teaching of the events that comprised the Harlem Renaissance from a literary perspective are the Archetypes considered most pertinent to support the desired learning outcomes. They are; Treasure Hunt, Co-Creation, Guided Tours, Role-Play, Social Networking and Assessment.

Treasure Hunts enable learners to explore an area searching for specific objects. This archetype is useful as it can serve as an aid to orientating users to the localized environment and encourage them to dig below the surface of the initial visual impact presented. Treasure Hunts can be timed and/or rewarded to add an edge of competition or to enhance the sense of playfulness. Guided Tours or Field Trips to visit areas of pertinent or general interest serve to broaden awareness of the work and interests (and sometimes, passions) of other Second Life contributors who are often available to speak with authority on the subject matter in hand. Learners can visit places not possible in the real world, travel forward or backward in time to get a 'feel' for some event, item or environment it would not be possible to experience otherwise such as the Harlem Renaissance!

In the case of Virtual Harlem, the live action role-play archetype could, after comprehensive research coupled with some creative imagination, include the donning of authentic clothing to emphasise the acted out persona, the inclusion of era-relevant ambient sounds and music serving to enrich the authenticity of the experience, the application of the use of the language of the time, the re-enactment of varying attitudes from differing perspectives and the social and economic effects of the shift in the cultural balance over the period. Role play could be free form, allowing the actors to spontaneously co-create a scenario, or it could be according to a scripted narrative leading to a predetermined outcome, or an immersive re-enactment of a real event.

The Co-Creation Archetype requires two or more learners to actively work together to produce an artefact of worth or meaning. In this context, learners could produce in collaboration with one another a dramatic stage set to sustain the role-play activity if the learning outcome was Second Life building or to compose a scripted, informed narrative for the role-play re-enactment if the study area is English Literature.

Social Networking is an important archetype to incorporate into any learning event. (Kapp, 2007) People have a natural tendency to want to share information and by building in a time allocation and providing a conducive area for learners to interact with one another it is possible to trigger an exchange of information and ideas by asking expansive, general questions. Palloff & Pratt (2007 p171) suggest that the instructor should facilitate this dialogue without dominating to allow for a 'volley of views' in response. These words of Etienne Wenger (1991) serve to encapsulate the value of Social Networking in the learning process: "Be aware that the social world is where work gets done, where meaning is

constructed, where learning takes place every day, where innovation originates and where identities are formed".

The Assessment Archetype will contain Assessment methods, which despite being dreaded by most, are useful for progress checking by the instructor allowing constructive, learner focused guidance and stimulating the opportunity for the learner to monitor, manage and self-direct their own learning in line with the 'Re-engineering Assessment Practices' (REAP model) which emphasizes student's responsibility for their own learning by helping to raise learners awareness of gaps in their knowledge. Instructors will be aware of which method of assessment is the most appropriate to evaluate the extent that learning has occurred and that which can be scaffolded upon. Assessment tools are available within Second Life for customization. Consider also the possibility of bolting onto the assessment archetype an inherent opportunity for learners to evaluate the effectiveness of the course as a whole and the individual archetypes that composed it in terms of learner perception, level of immersion, strengths, weaknesses, opportunities and threats which will enable the pioneering practitioner to develop their own reflective self assessment.

Conclusion

One of the very interesting by-products of virtual worlds in education is the evolution of a new type of faculty member using them as well as other rather experimental technologies for teaching and learning. I like to refer to these faculties as "New Digitals": A faculty member who may or may not have tenure, but who is seeking to legitimize the use of advanced technologies in his or her field. This type of teacher is one who is willing to take chances with platforms that may not be widely used or even considered in the discipline in which he or she is a specialist, but because of the interest in advanced technologies, a new level of creativity is enabled. Enabling is the key word here because of the many things we wish we could do in a traditional classroom space but because of a number of reasons, they are utterly impossible. Collaborating with students or colleagues at other universities from around the world, interacting with those outside academia, traveling to distant locations that enhance learning, multi-modal communication, and an alternate sense of presence when physicality is not always possible are just a few of the possibilities made available for those to those using virtual environments.

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Appendix C

Role Play Archetype implementation

Definition: Assumption of an acted out role in other form (living or inanimate) with the intention of taking on aspects of action, interaction and emotion, subject the level of implementation.

Frame	Sub Frame	Description
Free form	Individual	<p>An Individual performs or acts autonomously interacting based on their personality traits.</p> <p><i>Example:</i> Entering into an environment where there is an established culture or history and others participants may or may not be “Acting” with a view to experiencing a new scenario, or another place and time such as an historical context.</p>
	Multiple	<p>A team of individuals perform as a cohesive whole, with no narrative script but a theme on which the group is developed upon.</p> <p><i>Example:</i> Entering into an environment where there is a pre-existing culture or history and other participants may or may not be “Acting” with a view to experiencing a new scenario, or another place and time such as working as a team on a space station.</p>
Structured	Individual	<p>An individual plays out a role created for them but other participants are not aware of the specific content of that role.</p> <p><i>Example:</i> Simulating an interview where the objective of the task is to correctly elicit information.</p>
	Multiple	<p>Groups of individuals combine and agree on specific roles within the group. This group is required to interact with other groups which have established similar role sets.</p> <p><i>Example:</i> Two teams are required to search out information in competition with each other based on designated group attributes, so as when they interact there are certain established intra-group criteria.</p>
Dramatised	Individual	<p>A drama is acted out where individuals have pre-designated part to play and narrative scripts from which they assume the role.</p> <p><i>Example:</i> A theatrical stage play.</p>
	Multiple	<p>Interaction of a group of individuals with a prescribed environment to facilitate the performance.</p> <p><i>Example:</i> A set of conditions have been designed and the individuals assume the role of different personalities seeking to carry out a set task or manage a pre-ordered situation.</p>
Morphic	Individual	<p>An individual takes on a form (generally non human or inanimate) and assumes the actions of the form.</p> <p><i>Example:</i> Assuming the form of a projectile to experience the effects of stabilised flight and angles of trajectory on the journey to its target, to gain experiential learning of the aspects involved in the projectile hitting its target accurately.</p>

Synergetic	Multiple	A group of individuals assume a form or various forms (generally non human or inanimate) and assumes the actions of the form. <i>Example:</i> Assuming the form of various shapes, perform an attempt to fit together to form a new shape.
	Conceptual Orienteering*	Recognising that a symbiotic relationship can be established for the Role Play Archetype and Conceptual Orientation. By identifying it here the aspects of the relationship can be explored or developed separately to make sure they two archetypes combine correctly. <i>Example:</i> It has been decided to combine the a Role play frame with the Conceptual Orienteering Frame to prototype a new system that has been designed to manage the flow of water to various parts of the country based on demand when a request is made to the company.

- Example of a synergetic approach, applied from the Simulation Archetype area. Other combinations have not been presented here but are possible.

Appendix D

Constructing The Archetype's Frame Content



<i>Component of Frame</i>	<i>Overview</i>
<i>Threading</i>	The overarching context and objectives which bind all learning archetypes within a session. This is the activity involved when Synergetic Frames are used.
<i>Content*</i>	Identification of specific materials, physical and contextual presence as well as any tools, builds or construct requirements.
<i>Activities*</i>	What is expected to occur during the activity? Planned or un-planned in terms of learner's interaction
<i>Engagement</i>	This must identify the interaction and any incentives that may be employed.

*the items can also be found as part of the session planning process (see Appendix E)

Appendix E

Session Planning Content

This Session planning tool is generic in nature and sections can be removed or added subject to the needs of the person developing the session. This list serves to provide the building block and acts as a check list for such an activity only.

Author Name:	<i>Name of the person delivering the content</i>
Date:	SL Date: <i>The date is set to SL (PST) time to allow time zone correction</i>
Time of session	SL Start Time: <i>Starting time of session</i> SL End Time: <i>End time of session</i>
	Country: Time: <i>Where information in advance of session about time differences are known additional times can be added to help with planning.</i>
	Country: Time: <i>Where information in advance of session about time differences are known additional times can be added to help with planning.</i>
Week / Number of session	<i>If the delivery runs for more than one session use this space to indicate sequence if required.</i>
Locations:	SULRL's: <i>As the locations of the events will be in Second Life. Links provided here can be used to issue via the interactive archetype to the learners; They can be used with any browser to access the desired location.</i>
Subject Breakdown/Content/topic	Area of learning <i>The actual area(s) that are to be explored in the delivery of the session.</i>
Learners profile	<i>If available, (ideally) permits a summary of learning needs to be compiled.</i>
No. of students:	<i>This must be considered in terms of the physical constraints, aspects of which are further expanded below. Also remember this can be affected by the size of the building.</i>
SIM limit/sim:	<i>Land used in Second life imposes limits the number of avatars it can support simultaneously, this should be noted, and allowances for other Avatars external to your session that may be in the SIM.</i>
Prim limit/student:	<i>A further potential restriction in the Prim or single object limits that can be created in the area in which the session is to take place.</i>
Aim/Rationale	<i>Why you are doing this particular stage/activity.</i> <i>This can be an important reflection and can serve to stop you going down the wrong path saving development time.</i>
Objective of Session	<i>The learner outcome objective is identified here.</i> <i>If may also be advisable at this point to identify the levels of learning that are to be assumed to assist with the planning of the activity and the opportunities for assessment:</i> <div style="text-align: center;"> <i>Levels of learning/skill:</i> Cognitive Dextrous Social Emotional </div> <i>This can also include the potential to build in incentives at this point to focus aspects of the activity as well as future ones.</i>

Timetable Fit -	<i>What was covered in previous lesson(s), if any and what will be covered in follow up lesson(s).</i>
Timing	<i>To assist with the overall planning for the flow of the session, where appropriate time intervals can be considered here to assist in breaking the delivery down into manageable chunks.</i>
Assumptions	<p><i>This can be a variety of considerations but remember that in some cases the learners can be globally and culturally diverse.</i></p> <p><i>Consideration could include:</i></p> <ul style="list-style-type: none"> <i>Language skills</i> <i>Familiarity with environment</i> <i>The time zone people are operating within</i>
Anticipated Barriers/ Difficulties	<p><i>This is a useful section where you can note any potential difficulties you may encounter in the lesson.</i></p> <p><i>These may be:</i></p> <ul style="list-style-type: none"> ● <i>Conceptual - problems with the meaning of a structure</i> ● <i>Structural - problems with the formation of a structure</i> ● <i>Cultural - this can include the content causing problems or the activities you plan e.g. working in mixed gender pairs</i> ● <i>Other: time of class, class dynamics, use of sensitive terms or words, etc.</i>
Solutions	<p><i>Solutions to the anticipated barriers can be added to help formalise the issues involved with the delivery of the session to the learners.</i></p> <p><i>Remember these are not your issues in creating or delivering the content they are the learner's issues with managing their learning.</i></p>
Student Activity Stage/Procedure	<p><i>What you are going to do.</i></p> <p><i>Include each activity the students do as well as what you are doing.</i></p>
Interaction	<ul style="list-style-type: none"> ● <i>Whole class</i> ● <i>Groups</i> ● <i>Pairs</i> ● <i>Individual</i>
Assessment method	<i>Consideration of the assessments that may be used to check learning. BUT also you can add here any initial assessment you may wish to consider as part of the planning stage.</i>
Materials Aids/Resources/Support needs	<p><i>Include everything you will use in the lesson:</i></p> <ul style="list-style-type: none"> ● <i>Land (and suitable land rights management)</i> ● <i>Objects</i> ● <i>Sound channels</i> ● <i>Video channels</i>
Aspects of content	<p><i>Introduction:</i></p> <p><i>The planned structure of the introduction to the session, including possible:</i></p> <ul style="list-style-type: none"> <i>recap</i> <i>assessment</i> <i>stating aims and objectives of the session</i> <i>setting the scene</i> <i>planning in time for taking on information relating to the activities for the session</i> <i>planning in time for Social Networking</i>

Develop

The planned structure of the main body of the session, this could include:

- *The archetypes,*
- *frames and*
- *sub frames*

used with subsequent content

Conclude

- *The planned structure of the conclusion to the session which could include:*
- *Summary of the session*
- *Assessment & evaluation of the session*
- *Assessment of the teaching and learning from the learner perspective*