An Exploration of Higher Education Teaching in Second Life in the Context of Blended Learning

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ABSTRACT
This study explores teaching experiences of educators within the virtual world of Second Life (SL) and pedagogical practices adopted. A blended approach is applied by using physical classrooms, BlackboardTM, web-based resources, and the virtual world of SL in an Information Literacy (IL) class for 1st year undergraduate students at an institution in the UK. A Case study was employed as well as a parallel qualitative component, interviews, was added to the study that provided another source of insights to articulate perspectives of educators in teaching within VWs. In reflecting and evaluating the teaching experiences, evidence is drawn from observations, semi structured interviews, chat logs, snapshots, and field notes. A thematic approach is used to analyse the data. The findings from the data analysis are presented in terms of seven themes: cybergogy, creativity, trial and error, wow moment, uncertainty, experiential learning, and dynamic relationship.

Keywords: improving classroom teaching; virtual worlds; teaching/learning strategies; virtual reality.

INTRODUCTION
Over the last decades, HE has seen significant changes with the penetration of the Internet and ubiquitous technologies in individuals' lives (Bates 2011). There is little doubt that the Internet has considerably influenced the ways in which individuals across the world communicate, share ideas, interact with each other, and express themselves. Along with this remarkable spread, ICTs have played an important role not only in designing, developing and delivering educational courses but also in enhancing and enriching the quality of teaching and learning experiences (Oliver 2002). Therefore, numerous educational institutions, mostly in developed and industrialised countries, have adopted the use of ICTs so as to enhance the quality of teaching and learning processes. As a consequence of rapid developments in ICTs, VWs have become the focus of interest and have brought new opportunities for educators. SL was chosen for this research since a great numbers of institutions, companies, and individuals embrace it as well as it is the virtual environment in which most educational events are happening. The decision to undertake this scoping study is therefore in part motivated by the level of interest in SL within the HE settings in the UK at the time of commencing the study**.**

However, despite growing interest in such environments for HE, only 1% of academicians in UK institutions are actively using SL (Kirriemuir 2009). This indicates that very small numbers of educators in each institution actively use virtual worlds (VWs) for teaching or research. More importantly, Kuksa & Childs (2014, p.102) state that the implementation of VWs in teaching is often due to the personal interest of an educator rather than being part of an institutional strategy. At this stage, it has not been conclusively demonstrated that a VW environment such as SL has a considerable impact on the teaching and learning process (Herold 2010, p.792). Herold further argues that what seems missing is how SL is supposed to be integrated into classroom teaching within HE settings (ibid). Therefore, it can be argued that the links between pedagogy and practices in VWs need deeper scrutiny and consideration. Therefore, to guide this research, this review leads to the following questions:

> **RQ1.** How did educators teach in SL and f2f contexts?
> **RQ2.** Did teaching in SL give educators any insights to improve their classroom pedagogy?
> **RQ3.** How did educators learn how to approach teaching in SL?
> **RQ4.** How did educators overcome challenges such as learners' anxiety towards VWs?

In recent years, there has been a growing body of studies examining the effect of VWs on students' learning and achievement across different disciplines such as language (Atkins & Gaukrodger 2011), healthcare (Wiecha et al. 2010; Rogers 2011), architecture (Rodrigues & Magalhães 2010), business (Bonsu & Darmody 2008), and literacy (Merchant 2010). The findings of these studies encourage the idea that VWs can be used as an

environment in which students are engaged in learning experiences. On the other side, there seems to be less literature providing guidance on how to make essential pedagogical use of VWs. Therefore, it is important to understand how VWs may be beneficial for the design of enriching learning experiences, the identification of pedagogical activities, and to determine the ways to prepare educators for these sorts of immersive experience (Savin-Baden et al. 2010; De Freitas et al. 2009). However, this study does not simply attempt to concentrate on how to teach within VWs, but also to consider how educators' teaching strategies are affected in classroom pedagogies. It is a new niche that leads to consideration of educators' ways of thinking about teaching. The driving factors for compiling this study thus are new teaching ideas and the sheer potential VWs may offer.

THEORETICAL FRAMEWORK: PEDAGOGICAL PRACTICES WITHIN SECOND LIFE

A description such as social constructivism is the prevalent theoretical framework embraced within VWs (Minocha & Reeves 2010; Duncan et al. 2012). Within the social constructivism paradigm, situated cognition, experiential learning, problem based learning (PBL), and inquiry based learning (IBL) are the emerging pedagogical approaches in SL. Situated cognition is clearly in line with constructivist propositions and basically integration learning and doing. From the situated cognition perspective individuals learn through experiences. Therefore situated cognition can be considered experimental. In this sense, Nelson & Ketelhut (2007, p.269) emphasise that "educational MUVEs have emerged in recent years as a form of socio-constructivist and situated cognition-based educational software." Participants can practice and interact with others and objects into VWs which may be impossible or tremendously costly to simulate in real life. To support this aspect, VWs can be adopted to implement authentic learning activities described by Lombardi & Oblinger (2007, p.2) as "authentic learning typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participating in virtual communities of practice." In this regard, VWs may offer a social model of learning, including the ability for learners to repeat activities in a simulated and safe environment.

Within the context of VWs, immersive experiences of the learners, their use of multiple media, and activities between peers lead to "transactional" learning (Barton & Maharg 2007) that is learning based upon transactions, i.e. tasks, activities. It is from this perspective that VWs are a good example of providing an environment wherein the tutors could configure the environment to augment existing (generic) teaching practice, i.e. lectures, with the ability to foster optimum learning process. To support this idea, for example according to White (2008) teaching and learning in VWs is "an experience". Teaching in these contexts provides less emphasis upon the schedule of the module and more emphasis upon sequencing the learning experience, meta-reflection, peer assessment and group work (De Freitas & Neumann 2009, p.343). It is therefore the task of the tutors to equip the students with the necessary skills to develop an understanding of their knowledge based on personal experience and through experimentation. Such pedagogic approaches might all justifiably be considered with disciplinary ways of teaching.In PBL, students are encouraged to learn by addressing authentic and open-ended problems and reflecting on their experiences (Hmelo-Silver 2004). A typical PBL context incubates an experiential, social and active aspect of learning to enhance students' skills of critical thinking. In this sense, educators take experiential learning further and provide opportunities for learners to identify a problem, suggest possible solutions, test them and observe outcomes. This encourages students to think critically, evaluate solutions and analyse options as well as cooperate in teams to negotiate and analyse real-life problems.

Framing the problem can be enhanced in several ways in VWs. First, VWs allow diverse groups of students and experts in a problem-based scenario to come together without needing to organise a physical location. Further, VWs allow the use of multiple media sources such as audio, video, and printed materials. Providing a robust representation of a problem within an enriched environment can benefit students to comprehend the scenario and see the relevance of various contextual elements. In addition to helping students to have experiences similar to those in real-life contexts, VWs provide enhanced opportunities for educators to establish ill-defined problems where students work through situations that might not be achievable in the classroom due to time, safety or logistics. In the context of PBL activities in VWs, students have a shared persistent space where they can also perform self-directed learning in order to discuss the design problem. PBL is a recognised approach within different disciplines, and the various aspects of PBL are explored in depth and eventually adopted in VWs. To give a few examples, Good et al. (2008) take PBL as a framing pedagogy to organise students to work in teams to design and build a learning experience in SL. Parson & Simon (2011) use PBL for teaching Psychology utilising VWs within avatar-driven or information-driven scenarios. It is evidently characterised in their study that PBL is an ideal approach within immersive experiences. In the study of Esteves et al. (2011), students develop a project within SL through the use of LSL in combination with collaborative pair work to learn computer programming.

The main characteristic feature of IBL approach is identified by Kahn & Rourke (2005) as involving the students

with their discipline through self-directed inquiries in a collaborative and engaging way. In essence, it is learning and teaching approaches that are based on student-led inquiry and on deepening students' engagement with the discipline. With this approach, the students are expected to learn and build knowledge through guided exploration and investigation of the questions or problems that are established with the open ended nature either by the tutor, the student, or by negotiation among them. Unlike PBL, students or educators are expected to establish questions or problems. Students then draw on their existing knowledge and decide on the direction and methods of their inquiry with support mainly from their tutors. Within this process, students explore evidence or conduct experiments interacting with a variety of sources. Similar to other learning pedagogies, students reflect, discuss critique, analyse, conceptualise, synthesise, and receive feedback. The basis of IBL suggests involving uncertainty and critiquing assumptions where students draw on their existing knowledge. Levy (2008) identifies two main conceptual frames in seeking students' experience of inquiry, based upon a study of first year undergraduates from the Faculties of Arts and Social Sciences at Sheffield University, which are "exploring and acquiring existing disciplinary knowledge" and "participating in building disciplinary knowledge". Levy's frames focus on the way in which students are engaged with disciplinary knowledge. In the context of these frames, students explore questions, problems, or scenarios through existing knowledge or they produce new insights to create new disciplinary knowledge. Experiencing IBL in this way can help to scaffold students' skills and understanding. The application of IBL can be, for instance, shaped by exploring the knowledge base of the discipline through design questions within VWs (Webber & Nahl 2011). More specifically, the work of Papamichail et al. (2010) suggests that employing an IBL approach in SL evidently stimulates active engagement and boosts students' self-confidence. For instance, the study of Webber (2010) identifies that experiencing IBL within SL helps to scaffold students' skills and understanding of the subject. The value is located to provide insights into how students encounter and navigate different sources of information (Webber, 2013).

By this point, an innovative culture of teaching and learning within VWs is emphasised, which evoke paradigms such as learner-centred, self-directed, power and responsibility, immersiveness, embodied presence, social and peer-to-peer, networked, inquiry-based, collaborative, and co-learning. To amplify this point, Warburton (2009) suggests that SL can involve both formal and informal education with its affordances to encourage productive interaction, visualisation and contextualization, authentic content and culture, identity play, immersion, simulation, presence, and content production. At this point, the central obstacle for educators when they consider teaching VWs is perhaps their preconceptions that they carry with them. Accordingly, the concepts of "pedagogy of uncertainty" (Barnett 2007, p.36) and "cybergogy" (Scopes 2011; Chase & Scopes 2012) that can be brought with immersive experience are discussed to challenge embedded assumptions within teaching and learning experiences.

The idea of "pedagogy of uncertainty" is well explained by Barnett and key to understanding this concept is the idea that genuine HE helps students to live "purposively with anxiety" and able to involve and practise terms such as "risk", "anxiety", "disorientation", "thresholds", "liminality", and "uncertainty". At this point, Bayne (2008) describes VWs as "uncanny space", which might not be necessarily comfortable, where the students might reflect in an unpredictable way. Bayne asserts that anxiety-provoking and the characteristic of uncertainty in the environment might provoke new and potentially uncertain teaching and learning experiences with the willingness to open to different ways of thinking. For Bayne, this is a new metaphor in which teaching practices are refreshed and often productive with the strange act of teaching. Bayne (2008, p.8) suggests that VWs "materialise this uncertainty in new ways by defamiliarising our sense of selfhood and our being together within the pedagogical context". For White & Le Cornu (2010, pp.193–195) this nature of in-world culture enables "disjuncture" to occur which could open out teaching opportunities to harness the students' learning processes. Disjuncture is an essential dimension of learning through VWs where learners are confronted with an experience, which challenges their understanding of concepts that they have developed up to that point. This highlights the idea of Falconer (2011) in which she refers to the metaphor of "metaxis" to describe the condition of "in-betweenness", the sense of being both in the physical world and the virtual world simultaneously. Bigger (2009) describes this in-between character of VWs as "liminal" to explain the intertwined state of mind since residents are present in the embodiment of their avatar in VWs and they are situated in the physical world in which they see their avatars projected on the display. Falconer (2011) describes this way of learning as "learning in two places at once". According to Falconer, the notion of in-betweenness, or metaxis particularly becomes significant when educators adopt VWs for their teaching. This experience concurs with the idea of "fuzziness" or "vagueness", and "uncertainty" concepts which value the idea that learning occurs in messy sets of ways and VWs enable students to learn in the mess. There is an argument that although the attractiveness and complexity of the innovative environment might distract students from the learning outcomes, certain academics (e.g. Bayne 2008; Savin-Baden 2010) suggest that VWs seem to inhere troublesomeness and disquiet aspects which accommodate powerful pedagogical possibilities. Their positive feeling of the idea that VWs defamiliarise our

sense of selfhood and being together within an uncomfortable and anxiety-inducing way has a profound pedagogical value. This idea is well framed with the conception of the cybergogy model (Scopes 2011; Chase & Scopes 2012), which is based upon the social, cognitive, dexterous and emotional aspects of learning aligned with the revised version of Bloom's Taxonomy of Learning Outcomes (Anderson & Krathwohl 2001). Chase & Scopes (2012) state two core components of this model that are "learning archetypes" and "learning domains". Learning archetypes are categories of learning activities include *role-play*; where learners can immerse within an alternative form and explore different aspects of the self, *simulations*; where learners can explore and experience activities that could be considered dangerous, difficult or expensive when conducted in the physical world, *peregrination*; where learners can travel to various locations of their interest, *meshed*; where learners can work in collaboration and exchange their ideas for desired learning outcomes, *assessment;* where learners get feedback and support in different forms. This model of cybergogy offers opportunities to combine VW affordances in conjunction with real-life learning within each domain, at all levels of implementation. However, the main concern in terms of designing teaching within VWs is to ensure that the designed learning activity is the finest choice for the desired learning outcomes. Scopes (2011, p.14) indicates three essential principles to consider the whole effectiveness of teaching content within SL, which are: if the use of SL is necessary, if the activity is sustainable and manageable in the environment, and if the learning activity produces the desired learning outcomes in a timely, economic and effective manner. Likewise, learners are expected to act and interact toward the desired goal, fail, and try again in a different way to demonstrate the optimum learning experience that occurs within VWs. In essence, adherence to these principles requires ensuring that the learning intervention is addressing the most effective and efficient value of pedagogical need. Once it is satisfied that designing a context within VWs is optimally suited, the next step is allow learners to experience and internalise the learning objectives.

Discussion now turns to the form of the context in which this study is conducted and presents its implications over the teaching strategies taken in this research. This is primarily because of the fact that instructional practices and strategies can easily be dominated and directed by technology (Hussain 2009, p.71). Further, there appears to be great value in combining f2f teaching and other online applications with the pedagogical affordances of VWs (Salt et al. 2008), and this study is contextualised within the blend of face-to-face (f2f), Web 2.0 applications and SL. In addition, the function of educators in facilitating the learning process of students appears to be in line with the concept of teaching in HE within the implementation of the blended approach.

The Context of Blended Learning
Although the term "blended" is widely and differently used within the context of teaching and learning, it has been defined as a mixture of online and f2f learning using a variety of resources and communication options available to students and educators (Harding et al. 2005, p.56). Blended learning is defined by Chew et al. (2010) as a "combination of face-to-face learning and teaching mediated by technology". It is therefore a practice within the learning environment that combines both online and f2f approach. The fundamental pedagogical aspect behind this is that ICTs are widely perceived as a catalyst by bringing benefits to learners and educators within shared learning environments. Furthermore, a blended learning approach facilitates the development of digital literacy skills by its characteristics, directing individuals to operate in digital environments. A blended learning approach therefore is essential to understanding the skills necessary for the students. The term "blended" within educational concepts also suggests combining pedagogical approaches to produce optimum learning outcomes, but it is being used in this study to refer to the combination of online forms of instructional technologies with f2f teaching, often in the form of lectures. Oliver & Trigwell (2005) criticise descriptions of blended learning as involving a mix of online and f2f teaching, a mix of media or a mix of contexts. The important point of their critique is that there is nothing particularly special about learning online, exploring the mixing of medium, or blending contexts. This highlights the question of whether the mix is essential to describe this way of practicing teaching in HE. Their suggestion for blended learning is upon the perspectives of learners and they argue that 'actual blended learning would involve students learning through experiencing variation aspects of what it is that they are studying' (ibid, p.22), referring to "variation theory" (Pang 2003). For Oliver & Trigwell, it is the relation between variation theory and course design that leads to actual blended learning. That is, students experience certain patterns of variation in the object of learning in various blended learning contexts. The variation theory of learning is based on the concept that students learn by discerning the aspects of the variation as a phenomenon during their learning experiences (Marton & Tsui 2004). In other words, furnishing variety in the ways in which students experience learning is recognised as being crucial. One example of an attempt to do this, blends of e-learning with other media such as VWs, may help students experience the variation in different aspects of the subject being learned. Another example is to recognise students' existing learning experiences and allow them the opportunity to draw on previous experiences. The nature of this study offers online forms in the sense that VW practices and supplementary resources for the subject matter through an institutional VLE, instead of other forms of learning at a distance. Building teaching methods upon the concept of blended learning

with considerations of Oliver & Trigwell (2005), Sharpe et al. (2006) shift the emphasis from educators to learners, and from content to experience. Arguably, this position suggests that certain patterns of the variation in the experience of the learning of students in the blended learning context are the key to be considered by educators. From this point of view, educators design a space for learning where a range of variations is presented to experience the object of learning. One way of doing that is blending for variation by using a mix of media including VWs. The idea of experiences of variation also appears to encourage educators to reflect and engage with new teaching ideas and experiences, which may occur across the boundaries. Rather than focusing solely on learners' experiences of blended learning, educators can situate their learning by exploring differences in practice across the forms of teaching such as a classroom and a virtual world of SL experiences. In applying this theoretical perspective to educators' learning, they encounter experiences of variation that may lead to changes in practice as a result of using blended learning. This also includes recognising the informal and incidental learning by sharing their teaching practices with their colleagues in their offline as well as online communities (Mackey 2008).

RESEARCH DESIGN

Case studies allow examining the phenomena within its real life context by enabling the researcher to employ diverse methods that produce various sorts of data such as narrative, text or numerical. In this context, a case study was chosen to investigate educators' experiences of VWs in their teaching and to elicit theoretical and pragmatic insights in their teaching strategies in blended situations. Case studies can have multiple complementary units of analysis, i.e. "embedded subcases" (Yin, 2012, p. 8) within an overall holistic case. Within this perspective, the holistic case was about an exploration of teaching in the context of blended learning. This included teaching experiences of educators as one unit of analysis and educators' perceptions in the context of their teaching in SL as another unit of analysis, which together form an embedded, single-case study. Furthermore, a case study was chosen as the case involved perceptions and teaching experiences of the tutors, but the case could not be considered without the context, the classroom and VLE, and more specifically the virtual setting of SL. It was in these settings that teaching experiences and strategies were developed and utilised. It would have been impossible for me to have a holistic picture of experiences of the tutors without considering the context within which it occurred. As I deal with the educators' teaching pedagogies within SL in blended situations, particularly their experience of the teaching in which they take part in SL, a case study is capable of consolidating my understanding of the study, by putting a greater emphasis on the phenomena under study with its depth and intensity principles. The case study method is thereby a highly convenient approach to investigate and infer the ways in which tutors implement teaching in blended situations.

Selecting the Module

This unit of analysis focused on educators' experiences of IL in the context of their teaching. Theoretically, this embedded subcase contributed to the achievement of the purpose of this study in a couple of ways. Firstly, I specified the tutor of the class who was actively involved in SL for both personal interests and educational aims. The module coordinator has a deep knowledge of the competencies to employ SL in her teaching. As one indicator, the institution has its own island that was founded in 2007 and the educator has been teaching within SL since then. Another is that the module coordinator maintains several blogs and other social network accounts such as YouTube, and Flickr where she reflects on and shares her experiences within SL. Secondly, the module coordinator has broad experiences of developing and delivering the module within a blended form. That is, the context and nature of the module is shaped around f2f contact with their tutors and peers, wide range of generic and subject relevant resources to accomplish their learning tasks and the virtual world of SL. Such learning and teaching experiences enable me to identify the scope of the study. Thirdly, the environment is also seen as a means to maintain improving skills and keeping up-to-date with developments related to educators' professional lives. One of the good indicators is that the island holds monthly journal discussion events where participants share their conceptions and learn from each other which also could lead to developing a feeling of solidarity and inspiration amongst participants. This allows the environment to be recognised by others and makes me feel more enabled to scrutinise the island.

The module was a core part of the level one-year of an Information Management (IM) degree offered at the Information School in the university each year. For the academic year of 2011/12, the class was primarily led by the module coordinator (MC), and two teaching assistants of whom I was one. I assisted purely with in-world sessions. My role was to assist the students with their learning activities that took place in-world and to answer their questions to provide support to minimize potential chaotic preliminary experiences within SL. In addition, there was one internal tutor (TutorN) who covered the topics of "information" and "information behaviour" and 2 librarians who work in the same institution and a librarian (TutorP) who was geographically remote and worked in a different institution in the UK. The class consisted of 43 students of whom 22 were originally from outside the UK; 19 were female and 24 were male.

The primary aim of the module was to enhance the information behaviour skills of the students and to help them to become information literate by focusing on both practice and theory of IL and information behaviour. The goals of the module were outlined by the module coordinator in the course material as:

- To enable students to analyse their own information behaviour and identify the ways they become more information literate.
- To be aware of some key IL models and theories.
- To develop some strategies for seeking and searching information.
- To be able to apply an evaluation framework to information resources.
- To be able to interact with others to explore their information behaviour and needs.

The module assessment was entirely based on the coursework with 50% involving students' research interviews in SL, analysis of their performance as interviewers and analysis of transcripts in relation to research.

The module structure comprised:

- An introductory session consisting of an outline of the module and its mode of working.
- SL tutorial sessions in which students explore the island, practice moving, communicating, manipulating their avatars' outfits, and playing with objects.
- Further SL skills development (including taking pictures of their avatar to share) and information behaviour exercises in SL and preparing their group activities which form the basis of the exhibits, mini islands, in SL.
- Practising interview techniques both in the classroom and SL and conducting interviews in SL.
- A plenary session in which the students take part in an information behaviour analysis workshop and compile an e-portfolio.

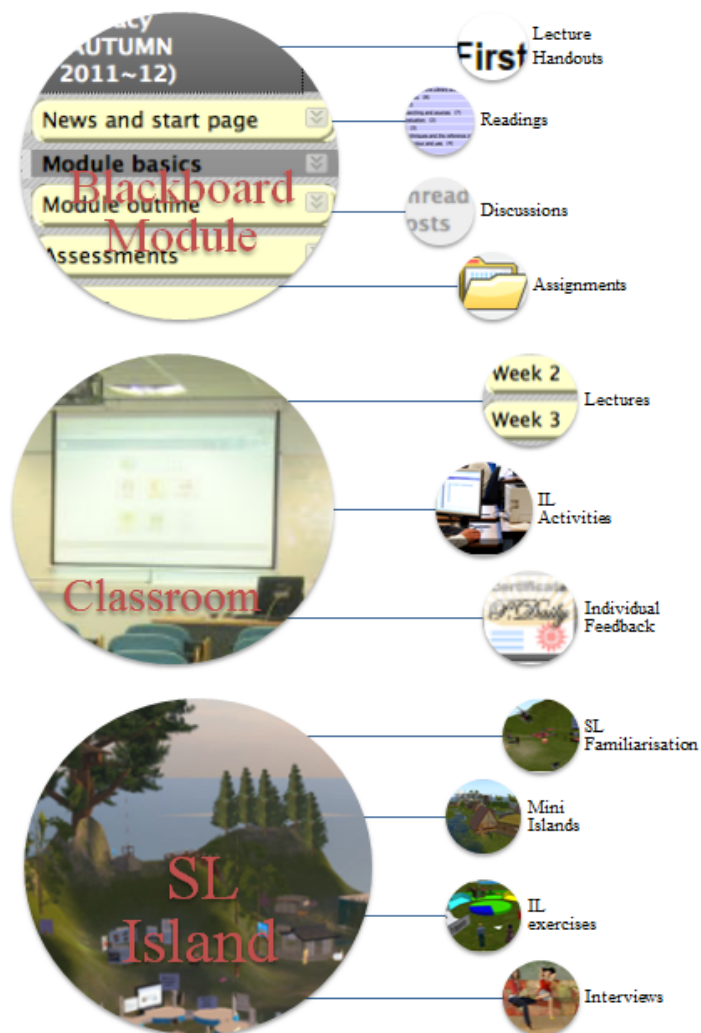The module components were presented in Figure 1 in a non-sequential way.

Figure 1: The Module Components.

Instrumentation

Participant observations, semi-structured interviews were conducted as the methods to gather teachers' perceptions and experiences on the use of SL in their teaching. Additionally, an elicitation interview was conducted with core module tutors later in SL, in an attempt to articulate their experiences and various aspects of their involvement in the module after the individual interviews. Thus I prepared some picture boards with snapshots from the IL module in SL in order to trigger participants' memories and remind them what had been done. I then attached notecards to these picture boards, which involved a certain chunk of conversations with regard to activities that take place in SL. To better understand the methodological niche which the elicitation interview holds, this gave an opportunity to ask specific questions that I was not able to find out with individual interviews and allowed eliciting diverse opinions amongst the informants.

For the main body of the interviews, semi-structured interviews were set up with the educators in the SL environment from different disciplines, institutions and countries. Educator participants were self-selected on the basis of who was available and accessible at the time of the data collecting process. They were all active and had experience teaching in VWs. I questioned interviewees who taught both in the classroom and SL and utilised VWs as an integral part of the course. Participants were identified from Virtual Worlds Education Roundtable (VWER) community and its Facebook Group Page. Nineteen participants from seven different counties agreed to contribute to this study. These individuals might not necessarily represent a sample that generated statistical inferences to the population; rather, it was an intentional sample of individuals who best informed regarding RQs under investigation. After the analysis process, educators in the class indicated that they prefer to be identified with their SL identity in this study, so in this case their SL names were used where appropriate. The overall design of the research was shown in Figure 2.
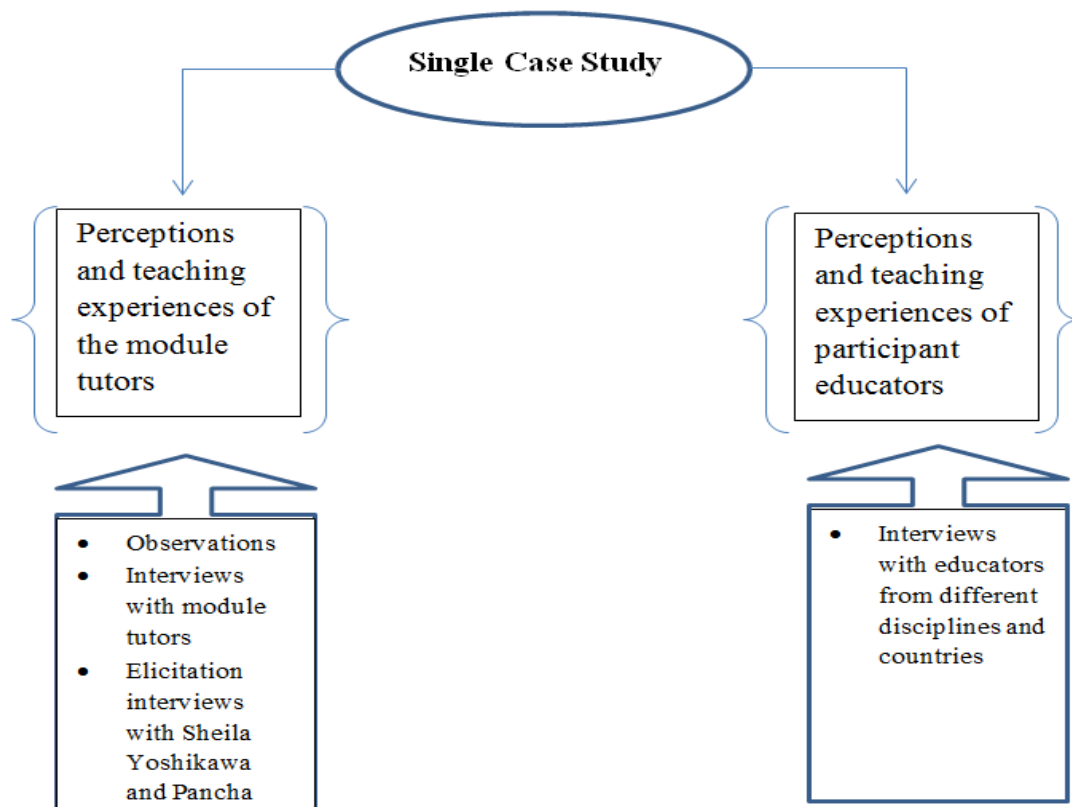

Figure 2: The Overall Design of the Research.

I adapt and follow the case study structure of Guba & Lincoln (1994), which is: defining the problem, describing the context, the issues and discussion of the "lessons learned". My guiding principles for analysis and interpretation of the data were inductive and deductive approaches (Merriam 1998; Thomas 2006; Stake 1995). Inductive analysis refers to an approach as a means of deriving concepts, themes, or models from raw data through interpretations made by the researcher, whereas deductive analysis refers to an approach as a means of interpreting the data with a predefined set of codes (Thomas 2006, p.238). This sort of approach to synthesizing findings of the qualitative study is explicitly acknowledged by Thomas & Harden (2008), Braun & Clarke (2006), who find its roots in the "thematic analysis" process and is also suggested by Minocha (2010b) to evaluate the data gathered within VWs. The inductive approach allowed generating codes with concepts

suggested by participants, whereas the deductive approach allowed defining ideas and themes with predefined concepts before coding began. By combining two strategies, I approached the data not only with a theoretical perspective that borrowed from the literature but also from the ground up with emerging themes. Therefore the data was examined with concepts suggested by initial literature review and considering RQs, and also by looking at meaningful codes where participants' views seemed to encapsulate some aspects of the data. I used deductive and inductive analysis together to construct themes from the data based on pre-existing codes and emerging codes. Table 1 illustrates the codes generated from the literature review, which were used to analyse the data as part of the deductive aspect of data analysis.

Research Questions (RQs)	Codes
1. How do tutors implement teaching into SL/f2f situations?	Immersion, authenticity, connections, experience, filed trips, identity, interaction, collaboration, playfulness, presence, teamwork, rapport, role-play, simulation, meshed, peregrination, assessment
2. Does teaching in SL give tutors insight to improve their f2f pedagogy?	Creativity, learning, collaboration, reflection
3. How did they learn how to approach teaching in SL?	Community, avatar identity, awareness, pedagogical models, networking, collaboration, professional development
4. How do tutors overcome challenges such as learners' resistance to virtual worlds?	Authenticity, VWs culture, embodiment, games, realism, support, rationale, identity construction, disquieting, embodiment, emotional connection, identity contractions

Table 1: RQs and Associated Codes Generated from Deductive Analysis.

FINDINGS
As stressed earlier, the central pedagogic approach for the module is IBL and it suggests that the students engage with the module more deeply. The aim of adopting the IBL approach in this module was to stimulate students' curiosity and engagement (Levy & Petrulis 2012). Sheila Yoshikawa aims to convey this by encouraging the students to develop their own arguments in order to become information literate along with using a mix of technologies. The emphasis on this module explores existing knowledge and discovering the discipline, yet the IBL approach is associated with SL activities because it focuses on the following:

- Analysis of the students' own information behaviour in SL.
- Identifying ways in which they can become more information literate in SL.
- Interacting with others to explore their information behaviour and needs in SL.

My own exploration of the meaning and practice of IBL in this module are based on the activities and use of learning environments. With the activities for instance the students explored and presented their existing conception of information behaviour through a mind-mapping exercise, working initially as individuals and then in small groups. They then presented their PowerPoint slides in SL and reflected on the development of their conceptions. The reflective part of the activity was Sheila Yoshikawa's use of cognitive teaching approach where the students experience the environment and reflect on their experiences. Arguably, it is possible to infer that SL took a limited role in this mode of IBL. This is because all three environments, classroom, Blackboard and SL, play a role in the activities and the module is a campus-based class with weekly f2f sessions. Likewise, the role of IBL perhaps is limited and "information-oriented" (Levy 2008; Webber 2010), since the ultimate focus was primarily on exploring existing knowledge and interacting with others. I also observe that pedagogical strategies of Sheila Yoshikawa remain rather directed, tutor-led approaches in which she set the questions, e.g. information problems, and offer a great deal of guidance and support on the students' learning process, though within an authentic and challenging experience. The challenge lies in the sense of unfamiliar environment of SL, and unfamiliar interview participants, interviewees in SL.

As the inquiry based approach underlies the pedagogy, the island does not have any lecture halls or sit-style classrooms in which the students may have sessions in a traditional way, i.e. sitting at desks, listening to lectures and watching the PowerPoint presentations. Instead, the island has a variety of spaces in which the students can have activities or the visitors can have events, meetings and discussions. The island is therefore a working and meeting space for the students and the others. Despite the fact that there are specific areas in the island, which

are designated for learning, the entire island could be perceived as a learning space, as the whole island provides facilities for meetings, formal and informal learning and socialisation. As Minocha (2010, p.119) states based upon the works of Felix (2005) and Grummon (2009), this de-centred design of the island underlines the principles of socio-constructivism where the whole island is perceived as a learning space for learning together and collaboration rather than highlighting classroom activities. What is also charming for the island is that the space provides student residences in order to give them a sense of ownership, i.e. something they might feel belongs to them. The island is also designed considering newbies so it is not a very challenging or complex environment, but relaxing and welcoming. These features imply that the social constructivist view has a strong influence on the design of the island and pedagogy. The design of the island thus reflects Sheila Yoshikawa's pedagogical beliefs and teaching approaches. In addition, having several venues for the entertainment and relaxing, warmth atmosphere on the island and a specific stylish design of the island reflect Sheila Yoshikawa's personal character into the place. The analysis of the interview data yielded the themes of 'cybergogy', 'creativity', 'trial and error' and 'wow moment'. At the same time, the analysis of the data within the subcase module yielded the themes of 'experiential learning', 'uncertainty', and 'dynamic relationship'.

With my first research question, I addressed how tutors implement teaching into SL/f2f situations. Participants' comments typically fell into the categories of learning archetypes within the cybergogy model (Scopes 2009; Scopes 2011; Chase & Scopes 2012). Participants find SL accomodates the archetypes of the cybergogy model and they appear to value these practices in which students experience immersive learning. Most interviewees cited that their teaching within VWs includes giving learners authentic experience, the ability to meet students in real time with a shared sense of space, or the ability to explore identity in relation the their learning. As one of the interviewees stated *"I am demonstrating how SL closes the gap between locations, times, people, ideas, and what is real. (Avatar12)"* This is well supported in the relevant literature such as studies of Camilleri et al. (2013), and Rapanotti et al. (2012).

With my second research question I addressed whether teaching in SL gives participants insight to enhance their classroom teaching approaches. **"Creativity"** was the code I applied most often in my initial open coding. Interview responses showed that the participants associated the creativity with words such as "new models", "opportunities", "raised the bar", and "active". This suggests that creativity is a process of making something new, stimulating original ideas that have value and putting one's imagination to undertake (Robinson 2011). Immersing in VWs helps participants to perceive an embodied nature in the environment. This is significant because educators, who perceive VWs to be capable and valued in terms of creativity despite the challenges associated with them, tend to see VWs in a more positive light as suggested below.

Avatar7: I think it has probably pushed me to be more creative about how I use space and activities/resources in a classroom. In SL you have to make new models and I enjoyed that creative step, and transferred it out to the physical world. For example, in SL I have an activity where students move about in physical space depending on their degree of agreement with the topic under discussion. I now do a similar activity in the physical classroom.

Avatar12: Having the experience of being able to be truly creative has "raised the bar" for my real life practice. I have experimented with group projects in SL, projects that are authentic and useful. I am more comfortable finding similar activities around which my students can develop their knowledge in the classroom.

These comments suggest that Avatar7 and Avatar12 found bringing VWs into the classroom is not just using the environment as an integral part of the teaching and learning process. It is also about moving away from traditional teaching where they can capitalise on their innovative potential. The built-in mechanisms of the environment enable users to create almost anything imaginable. Furthermore, the availability of spatial enhanced richness of the context can benefit educators to be capable of bringing their potential to new levels. This is where the innovative educators could design unique and inventive activities and transfer the value created in VWs to the classroom. The data from Avatar12 emphasises this aspect of the environment by indicating that teaching in SL has raised the expectations and standards in her f2f teaching. For Avatar7 and Avatar12, it has also become an inspiring source for f2f teaching. This means that the creative nature of VWs is not limited only within them, but crosses the line into the physical world. In line with the argument that ideas generated in VWs might not be directly transferable to the physical world, they may still provide a creative source of inspiration. VWs might be especially conducive for such experiments.

Avatar9 and Avatar19 keenly stated that teaching in SL helped them to reflect on their classroom teaching approaches. In their interviews, they talked of being reflective practitioners to improve their teaching approaches that ultimately impacts on their creativity. The following excerpt illustrates the way they also see how teaching in these environments prompts them to reflect on their teaching assumptions.

Avatar9: I think it has been one of the things that have kept me reflecting and learning about teaching.

Avatar19: I think it helped me understand a bit more about my own assumptions and approaches and challenge with them.

In light of the argument that educators consider being in VWs to be a source of inspiration for their teaching strategies, I examined Sheila Yoshikawa's concept of creativity within SL, considering the Four C creative model (Kaufman & Beghetto 2009). Kaufman & Beghetto (2009) describe four dimensions of creativity as; while the concept of mini-c suggests the idea of personal understanding, expression and development aspects of creativity, little-c is bound with the idea of everyday creativity in which the average person may encounter each day. In the level of Pro-c, it is expected that creativity could enhance learning, and skills to become professional-level expertise and produce products, whereas, innovative, eminent, clear-cut level might be expected in the Big-C.

Considering the Four C creative model, Sheila Yoshikawa's aesthetic personalisation of her avatar, in a way consistent with her understanding of the VW, therefore might be a good example of mini-c as a way of expressing intrapersonal insights and interpretation, ideations of creativity. Sheila Yoshikawa is a keen follower of fashion and purchasing clothing and accessories to alter her mode of avatar. Sheila Yoshikawa sometimes prefers to craft the products that she purchased in SL in the ways that are aesthetically pleasing for her. Her avatar appearance is in some aspects as close as possible to her own real world appearance. However, a mini-c avatar personalisation might represent a variety of appearances which are similar to the physical world self, or idealised self. Sheila Yoshikawa's practices of mini-c creativity can also be observed in crafting a profile to include relevant information such as self-descriptions, interests, or belonging groups. Furthermore, it is reasonable to consider additional practices as mini-c in Sheila Yoshikawa's personalised environment. Whilst the island belongs to the institution in the UK, she owns a variety of areas on the island that can be characterized as her own space, which may reflect her personal creativity. She purchased some appealing structures or buildings and decorated them inside and out with artsy-craftsy motifs, furniture, plants and a wide variety of virtual objects and textures. It is clear from my observations during the study that Sheila Yoshikawa's construction of avatar identity that reflects mini-c creativity is influenced by her physical world experiences. It is reasonable to expect this, as individuals tend to bring existing concepts based on their physical world experiences when they immerse in VWs.

Ward & Sonneborn (2011, p.35) state the possibility of progression from mini-c to little-c through acquisition of skills to produce content or potentially to Pro-c by "adopting the professional identity of producing virtual content as a way of making a living". In this point, setting up a shop with autumnal feeling in SL to sell framed photos of RL autumn or creating virtual objects such as, 3D SCONUL 7 Pillars Model, that were of interest to others, could be reasonably characterised as Sheila Yoshikawa's little-c creativity, if not Pro-c since Sheila Yoshikawa does not primarily aim to create virtual products to sell them as part of her profession. Based on the conception of the model of creativity, crafting virtual objects in SL can be considered as one aspect of little-c. Sheila Yoshikawa purchases ready-made objects, which may be developed by skilled individuals for the island, yet the ways in which she personalises the environment, can reach as much a reflection of little-c. The island contains properties and some structures, which may have features unique to VWs, such as buildings placed above the surface, and are aesthetically pleasing for her. Although some properties, objects and beautifully crafted furniture, including chairs, tables, sofas and plants are imitative recreations of physical world structures, they are creative in the sense that they were artistically rendered and emotionally evocative. To amplify this point, Sheila Yoshikawa for instance mentioned that she realised she was becoming emotionally attached to various bits and pieces on the island and felt it was her own land. There is also a café with tables and chairs and other publicly accessible venues on the island that may support social interactions among avatars in encouraging the creative functioning of group activities. Another example is with designing clothes. Sheila Yoshikawa at some point creates clothes of any merit to offer them free to incentivise and boost people to visit the island. On the other hand, Sheila Yoshikawa presents in SL/RL educational conferences such as VWBPE, and participates in SL discussion meetings, and publishes relevant academic papers that could be considered as part of her profession, Pro-c. The nuance here is Sheila Yoshikawa's professional creative contributions to the field. The central focus at the Pro-c level is therefore Sheila Yoshikawa's accomplishments. With years of acquired expertise and advanced experiments, Sheila Yoshikawa and the island are being recognized worldwide by educators in SL.

The third research question addressed how educators learned how to approach teaching in VWs. According to the sheer amount of the data relating to this theme it seems that, perhaps not surprisingly, participants learned how to teach within VWs by immersing themselves in SL and doing it. It is unlikely to come as a surprise to me

as this often requires the dedication of the educator in time, effort and enthusiasm. Yet, perhaps innovative approaches require trial and error to fully understand what these environments might be able to offer for them. It's by trial and error, by experimentation, that educators scaffold their understanding and engagement with VWs. As being another motif of educators' involvement with the communities, I sought to find out their motivation to engaging within VWs other than the class activity requirement. This was important as motivation is considered broadly to be an essential factor that drives perceptions, behaviours and individuals' intention to experience any sort of environments.

Avatar9: I actually like being in SL, whereas I cannot say that I like being on VLE.

Avatar10: In a general sense, networking is important for us as academicians.

Avatar13: I began to see how I could also learn things related to my professional development.

Avatar15: I think it is very important to explore new perspectives. So the events and seminars - it's amazing and brilliant.

The data indicate that these participants refer to their motivations with words such as "like", "networking", "professional development", and "new perspectives". The data indicate that these participants exhibit a willingness to engage together in SL presumably with some commitment and enthusiasm. These comments indicate that participants' motivation involves utilitarian, hedonic and social dimensions. The utilitarian dimension of motivations is based on the participants' purposeful and rational values such as professional development. The hedonic dimension of motivations is based on participants' enjoyment - related motives such as entertainment, excitement, and happiness. That is why Avatar9 'likes' being in VWs whereas she does not feel the same when she refers to VLEs. The social dimension of motivations is based on interpersonal communication such as social networking or participating events or seminars in VWs. The findings suggest that participants' motivations for being in VWs other than the class requirement can range across utilitarian, hedonic, and social dimensions which also provide valuable insights to involve teaching in these social environments. The professional development of educators within institutions with respect to VWs is an issue in need of consideration if adoption beyond the course requirements is to take place. With my fourth research question, I addressed how educators overcome potential students' resistance to VWs. A theme that permeates often under this research question is that of empowering the students to realise the potential of VWs. The idea was indicated by Avatar17:

Avatar17: It's through their experiencing the possibilities that they sometimes come to realize the value...so not trying too hard to convince them, but just showing them what's there and letting them come to their own opinion which is usually....'Wow, I had no idea'

The excerpt indicates an interesting point. Literally, the central position participants undertake is to illuminate what is available within SL and provide students with a "wow moment". The idea often connotes realising, or enhancing the validity of immersive experiences. Participants often indicate their strategies with words such as 'reassurance', 'support', 'scaffolding', and 'collaboration'.
On the other hand, the data gained within the subcase module gave an element of qualitative data that supplemented the whole picture of designing teaching strategies and the utilisation of VWs in the classroom. Experiential learning was the theme that was obvious in my interpretation of the data both in terms of the learning outcomes and teaching activities, which embodied this theme, and their significance. I argue that everything the tutors within the module attempted to employ both in the classroom and SL was somehow associated with experiential learning.

Data Excerpt:
The link with SL there was getting the students to think about what they had just learned and try to apply it…………the ultimate objective is that the students are able to carry out a research interview in SL………so the focus is particularly on the basics they need to carry out the interview.

The intention here was to display Sheila Yoshikawa's objective in bringing SL into the classroom. This data is indicative of evidence in linking the classroom and VWs. Sheila Yoshikawa chooses the verbs 'think', 'apply', 'carry out', which are mostly associated with the cognitive dimension of *Apply* within Bloom's revised taxonomy. This is explained as an endeavour to enable the learners to put what has been learned into practice, i.e. to apply and contextualise what they have learned theoretically. The data therefore suggests that Sheila Yoshikawa anticipated that the experiential approach of the teaching pedagogy might promote skills and better

understanding of the subject with the activities implemented both in the classroom and SL. The data also indicates that Sheila Yoshikawa expected her students to conduct an interview in-world to understand information behaviour of the interviewees, who were seeking information for SL activities, by implementing interviewing techniques in SL. A great number of scholars recognise that SL has the capacity to conduct this sort of activity (Dalgarno & Lee 2010; Peachey et al. 2010). The assessment strategy for the module seems not to enable the students to demonstrate their grasp of information behaviour theory as it is assessed primarily through writing an essay but conducting an interview activity in SL would be an example of evidence of ability to gather the data and apply their understanding of the information behaviour models.

Another example could be seen with the exhibition activity. Sheila Yoshikawa aimed with this activity to enable her students to improve their communication and presentation skills. Here it is noteworthy that Pancha stated in the elicitation interview that perhaps there could have been a stronger link between the students' design of the exhibition and the concepts of information but Sheila Yoshikawa finds this would have been more difficult in a limited time. Drawing implications from the above understanding, the common terms identified repeatedly as characteristics of immersive experience within the data are "exploration", "performance", "experimentation" and "abstraction" in which these terms include the sustained involvement of the students in their learning process. All of these are examples of implementation of experiential learning paradigms. As I focused on the experiential learning paradigms, I therefore found the following as a means of understanding Sheila Yoshikawa's experiential learning mechanisms:

- The use of the structured group activity as a technique for dealing with information problems.
- The use of reflection as part of the learning experience.
- Furnishing and designing the mini islands.
- Conducting interviews in SL.

I view these findings as a starting point to indicate that the teaching approach used for utilising experiential learning has important pedagogic implications to develop new skills such as navigating, integrating and designing in-world as well as interpersonal skills such as presentation, interview and teamwork skills within socially rich contexts. However, the study of Kim et al. (2012, p.6) indicates that the major focus of studies about the educational application of VWs is not based on experiential space in VWs, rather that VWs have been used as simulation of space. This suggests that there is a trend as an increasing interest in educational implementation of VWs to reproduce reality using avatars, objects or tasks such as a virtual campus or classrooms in the form of the curriculum where experimental teaching paradigms could be utilised successfully.

Another theme that emerged with Sheila Yoshikawa's responses in the elicitation interview and participants' comments was "uncertainty". This theme and its significance arose from my reiterative study of the observational and interview data.

Data Excerpt:
Sheila Yoshikawa: so one of the benefits of using SL is getting them [the students] to put different features of the interview in focal awareness
Sheila Yoshikawa: it always seemed to me that their reflections were a bit deeper, when they had the novel environment to deal with.

Sheila Yoshikawa feels that the different environment enables the students to think reflectively. This is another indicator of her intention within unfamiliar space to enhance critical thinking skills of the students. Here it is my interpretation that Sheila Yoshikawa's teaching approach is influenced by the "variation theory" of learning and teaching (Pang & Marton 2005). According to variation theory, learning is seen as a process in which the learners develop a certain capability to discern what varies and what is invariant in the experienced situations. In this process, Sheila Yoshikawa designs activities to help the students establish substantial connections between their new knowledge and their previous knowledge by having a range of experiences. Sheila Yoshikawa harnesses this theory as a basis for designing and teaching the module. To give an example, conducting interviews both in physical world and SL is an attempt by Sheila Yoshikawa to enable the students to vary experience in different environments and to help build awareness through discerning object of the study. She expects that experiencing the same concept inside and outside of SL might enable this sort of discernment. Thus, the students experience variation between conducting interviews in the classroom and SL and notice differences in the RL/SL interview experience. There are also connections here with the term of uncertainty in teaching practices, through place, body, and text, formed within the context of VWs. A key point I draw at this juncture is that although work by Sköld (2012) for example indicated that the ambiguity and uncertainty of virtual spaces presents a major pedagogic challenge depending upon the learning task design, my observations and the data

indicate that such an approach, defamiliarising the familiar through VWs, makes teaching new, strange, rich and productive.

Another theme came up in the elicitation interview when Sheila Yoshikawa talked about inter-student dynamics. While it is important for any teaching context to be characterised by positive classroom relationships, it might sometimes be difficult to establish and maintain such relationships in the context of VWs based teaching.

Data Excerpt:
Sheila Yoshikawa: there were various problems with different groups - one group very focused on being efficient - another not really understanding the task for a while through language issues - another fragmented by personality issues - another with 1 or 2 people usually missing etc.

Sheila Yoshikawa: it was exhausting actually, the class the following semester - one week ***** [name anonymised] had them for 4 hours and the next I did - in each case we were just limp rags by the end of the day.

Here Sheila Yoshikawa describes potential inter-student dynamics occurred in a negative way both in the classroom and SL. This does not mean that uncomfortable moments occurred due to religion, politics, race, class, or gender issues, rather sometimes the flow of communication was fragmented possibly due to the diversity and individual needs of learners affected by personal histories or low self-esteem and emotional issues. Inter-student dynamics can be at the core of sparking new ideas and it may therefore be an important part to establish positive student relationships.

Dynamic relationships are largely about students' characteristics and they are at the core of sparking interactions between learners and learners and educators. At this point, developing a presence with a social and emotional manner comes forward in the unit of the module in order to encourage dialogue between Sheila Yoshikawa and students, and among students. The key to collaboration in VWs is interpersonal interactions, which are carried out to a large extent through representations of individuals, that is, avatars. By doing so, Sheila Yoshikawa's identity creation and projection through her avatar could be considered to lead to the establishment of positive relationships between students and her. It is based on the idea that Sheila Yoshikawa's conceptualisation of the self within VWs may provide meanings associated with her social formation. Further, the social presence and socialisation created through the avatar of the module coordinator, having f2f interaction components, may be helpful to reduce physiological distance between her students and herself. Thus, the development of rapport between students and Sheila Yoshikawa and among students was an essential component in sustaining collaborative social learning. These characteristics have much in common with existing concepts of immersive teaching experience within VWs.

DISCUSSION
Teaching that approaches learning within the cybergogy model, provides a step beyond traditional forms of learning experiences, and utilises innovative skills such as creativity, communication and collaboration might be desirable, but there has not been a widespread adoption of VWs in education due to several reasons. Linden Lab has decided to remove the 50 % educational discount, rendering it too costly for a great number of educators. Further, Linden Lab does not see educational activities to be an area on which they intend to primarily focus, but see SL as a potentially valuable game development platform. This points them having no interest in offering direct support for educational institutions. At the same time, the high volume of the learning curve still applies for many, which may lead to haphazard and erratic consequences. The first cycle of educators is still comprised of early adopters who devote numerous hours to exploring, tweaking and creating. Perhaps the majority of others do not want to be forced to dedicate that much of their time and just want to use VWs as long as they receive a lot of help and support in the class. There are still few exemplars of desirable teaching and the academic trend to investigate from the field of education is not growing largely and is even slightly decreasing as compared to previous years. This is consistent with the recent indication proposed by Gartner, which places VWs just off the bottom of the Trough of Disillusionment on the Hype Cycle (Gartner 2013). The educational main trends are therefore more likely to focus on other current initiatives such as mobile learning, or MOOCs.

On the other hand, as the literature reflects, SL has been embraced by a substantial number of institutions to have a virtual presence, or design and experience anything that can be imagined. However, it is noteworthy that most educators use the environment in much the same way that they use physical spaces (Salmon 2009, p.529). Most educational spaces I have visited in SL were full of lecture theatres, classrooms and auditoriums with habitual spatial paradigms such as a regular bricks and mortar classrooms. Educators often stand at the front of the set of avatars representing their class, usually displaying a PowerPoint on a screen and asking students to raise a virtual hand or text in chat should they have any questions. Students sit on rows of seats and desks facing the front. The

typical educational scenario represents an ordinary SL classroom, which resembles its physical world counterpart and replicate carbon-based activities. With this sort of scenario, educators who consider adopting VWs in their teaching usually stem from "default" teaching strategies. Therefore, it appeared over time that educators relied upon their prior experiences in the physical classroom. Although a variety of teaching practices were employed in SL, a pedagogical approach is commonly found in the physical classroom and ends up as a duplication of traditional teaching paradigms. In general, my personal opinion, based on my research and my teaching experiences, is that the most compelling aspects of VWs are those which are either not possible or too expensive and difficult to invest in the physical world. The interesting teaching experiences I have had were the ones whose key focus was on features that highlight the capacity of SL to conduct what is impossible in the physical world. We are now witnessing more realistic experiences of VR by highlighting these with the help of Augmented Reality such as Google Glass or High Fidelity, and Oculus Rift to add 'more degrees of freedom' (Rosedale 2014) without relying on the set of keyboard and mouse. This said, I personally believe that VWs have huge potential for educators, offering a big upside as a place of wonder and discovery.

CONCLUSION
The so-called "pedagogy of uncertainty" clarified by Barnett (2007) and its tie with teaching in VWs (Bayne 2008; White & Le Cornu 2010) as well as the "cybergogy" concept posited by Chase & Scopes (2012), and the idea of "metaxis" (Falconer 2011) seem to be the catalyst to changes for participants in rethinking the concept of learning and teaching. I observed that Sheila Yoshikawa expects to harness her students' learning experiences by engaging them within spaces and practices that may be disquieting, strange, unfamiliar, and disorienting. Foremost, it was evident that Sheila Yoshikawa adopted SL mainly for its potential to foster constructivist and experiential learning. Most notably, the affordances highlighted by participants regarded SL's potential for being a venue in which students can interact with others, the ability to customize avatars and develop identity presence, the ability to manipulate the environment to create various activities including simulations. It became evident that participants integrated SL into their teaching to design learning activities for place exploration, concept exploration, task or skill practice, role-play, and communication. It was clear from the interview extracts in the study that educators approached the use of VWs, which embraced higher order characteristics of learning such as taking the initiative and reflection, focusing on a process in which the learning experience is placed. Such a teaching design characteristically focuses on learning experience that promotes socialisation, participation, collaboration, interaction and communication. Emerging pedagogical practices identified by participants were similar to those previously classified by other studies, such as Savin-Baden et al. (2010) and Dalgarno et al. (2013).

Furthermore, it was demonstrated that Sheila Yoshikawa's identity creation and projection through her avatar could be considered to leading to establishment of positive relationships between students and her. One of the most notable points I observed in the SL sessions compared to classroom sessions was that the appearance of Sheila Yoshikawa might offer insights into facilitating communication and heightening social interaction throughout dialogue between students and her. At the same time, I can relate that in a class of first-year students Sheila Yoshikawa was teaching, both f2f and in SL, students met an avatar that resembled Sheila Yoshikawa's real-life self and personality, my real-life self, as well as an avatar that totally differed from another tutor's real-life appearance. Students were comfortable with either similar or different expressions of identity, and they did not feel distracted as some of them also had a distinct identity in SL.

Overall, participants indicated that immersing in VWs helped them to challenge their existing assumptions about teaching and learning and reflected what they had been doing within the classroom. Participants in the interviews most often reported that teaching in SL had raised the expectations of their classroom pedagogies, as they were more creative and reflective about their teaching assumptions within VWs. Participants indicated that this pushes the boundaries of what they previously had considered possible. The data illustrated that the participants often came into SL with little or no immersive experience and the way to become an SL educator is by engaging in hands-on activities, experimentation, and exploration. With the initial exposure to SL, participants value learning through a trial and error method and are happy to ask for help and support from experienced others when they feel they need it. The data also revealed that nurturing professional development in the educational communities motivate educators to sustain adoption of VWs. The connectedness of the community and the engagement of being there to share commonalities or trivialities bound educators to the space. The appeal is not principally SL itself, but the presence of the community and togetherness. Most notably, it was demonstrated that the chance to be a part of something new and exciting, the simple desire to have fun, and the desire to learn, provided sufficient motivation to continue.

The data also addressed educators' strategies to overcome learners' potential anxiety towards immersive experience. It was demonstrated that the causes of this anxiety are rooted primarily in the perception of

discomfort at new social experiences. The data illustrated that the rationale for adding immersive value into learners' experience is needed to be well established. Further, more reassurance is needed for those who do not necessarily experience presence, embodiment, and are reluctant to engage. For those students, they may need to be given an opportunity to express their concerns regarding immersing into VWs as well as become familiar and connected with their avatars and the space. Included in this argument is an underlying assumption that letting students voice concerns, and express their anxieties is essential in the constitution of self-understanding and embodiment. It was indicated that educators might need to provide different forms of support within the different stages of the activity. Besides, students could be encouraged to involve themselves in learning activities with peers, allowing them to observe their peers and to influence each other and develop a social presence. It was indicated that students could be allowed to invest robust emotion and establish a stronger sense of self and place. These assertions are also supported by the findings of Childs (2010, p.261).

In terms of employing methods, some of the key themes emerged from in-depth elicitation interviews conducted with Sheila Yoshikawa and Pancha. This was a different approach among other studies in this area. I prepared various picture boards with attached notecards which referenced a particular chunk of conversations which had emerged in SL activities. To better understand the methodological niche elicitation interviews hold, this gave me an opportunity to zoom in and zoom out of snapshots and ask specific questions to the informants regarding what had been done and why. This was a genuine attempt to understand and elaborate what snapshots and a chunk of data meant to Sheila Yoshikawa and Pancha and to elicit diverse opinions from them. The combination of screen captures and thematic analysis in particular represents novelty in method that could be used in other studies to explore teaching and learning through SL and other spaces.

Concerning the limitations of the study, restrictions in the research were mostly related to the analysis of the data. Firstly, a case study is about depth and insights not volume. This implies some concerns for presenting a sizeable depiction of a body of literature. The intent of this study was not to generalize to a larger population, but to provide qualitative data that could be considered with the implementations of other studies. Certainly semi-structured interviews provided additional information, but the class with which I worked is not representative of all disciplines taught within VWs and personal qualities and skills of the educator and interactions determine the ways the class is shaped and developed. This can be considered another limitation. However, an exceptional focus on Sheila Yoshikawa's skilled use of SL helped me to capture and analyse much of the setting and provided rich data. Secondly, my interview participants represent a subset of a small population. They fall within the boundaries of an educational community who are actively engaged in educational activities in SL. The situated nature of the setting and pedagogical implementations need to be taken into account when evaluating my findings and the applicability of the research. Finally, the thematic analysis of the participants' reflections towards students' potential anxiety about immersive experience was totally limited to the participant interviews.

REFERENCES
Anderson, L.W. & Krathwohl, D.R., eds. 2001. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, New York: Longman.
Atkins, C. & Gaukrodger, B., 2011. Learning A Second Language in Second Life – Using "Holodecks" for the Language Classroom. In Proceedings of the International Conference on eLearning Futures. Avaliable at: http://www.unitec.ac.nz/epress/wp-content/uploads/2012/11/ICELF-Proceedings.pdf [Accessed March 3, 2012].
Barnett, R., 2007. *A Will to Learn: being a student in an age of uncertainty*. Buckingham: Society for Research in Higher Education and Open University Press.
Barton, K. & Maharg, P., 2007. E-simulations in the wild: Interdisciplinary research, design and implementation. In C. Aldrich, D. Gibson, & M. Prensky, eds. *Games and simulations in online learning: Research and development frameworks*. London: Information Science Publishing.
Bates, T., 2011. Understanding Web 2.0 and it's implications for e-learning. In W. Lee & C. McLoughlin, eds. Web 2.0-based e-learning: Applying social informatics for tertiary teaching. New York: Information Science Reference.
Bayne, S., 2008. Uncanny spaces for higher education: teaching and learning in virtual worlds. *Association for Learning Technology Journal, 16(3), pp.197-205.*
Bigger, S., 2009. Learn, Live, Thrive: Victor Turner, social process and performance. Available at: http://learnlivethrive.blogspot.co.uk/ [Accessed May 5, 2014].
Bonsu, S.K. & Darmody, A., 2008. Co-creating Second Life: Market--Consumer Cooperation in Contemporary Economy. *Journal of Macromarketing*, 28, pp.355–368.
Braun, V. & Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), pp.77–101.

Camilleri, V., de Freitas, S., Montebello, M., McDonagh-Smith, P., 2013. A case study inside virtual worlds: use of analytics for immersive spaces. In D. Suthers & K. Verbert, eds. Proceedings of the Third International Conference on Learning Analytics and Knowledge. New York: ACM

Chase, S. & Scopes, L., 2012. Cybergogy as a framework for teaching design students in virtual worlds. In H. Achten et al., eds. Proceedings of the 30th eCAADe Conference. Prague : eCAADe, pp. 125–133.

Chew, E., Turner, D.A. & Jones, N., 2010. In love and war: Blended learning theories for computer scientist and educationalists. In F.L. Wang, J.Fong & R. Kwan, eds. Handbook of research on hybrid learning models: Advanced tools, technologies, and applications. Hershey, PA: Information Science Reference.

Childs, M., 2010. Learners' experience of presence in Virtual Worlds. The University of Warwick: PhD Thesis Available at:
http://archive.alt.ac.uk/newsletter.alt.ac.uk/files.warwick.ac.uk/mchilds1/files/childs+thesis+final.pdf
[Accessed February 8, 2012].

Dalgarno, B. & Lee, M.J.W., 2010. What are the learning affordances of 3-D virtual environments? *British Journal of Educational Technology*, 41(1), pp.10–32.

Dalgarno, B., Gregory, S., Carison, L., Lee, M.J.W. & Tynan, B., 2013. A systematic A Systematic Review and Environmental Analysis of the Use of 3D Immersive Virtual Worlds in Australian and New Zealand Higher Education Institutions, Final Report 2013. dehub Report Series 2013, Armidale NSW, Australia: University of New England.

De Freitas, S. & Neumann, T., 2009. The use of "exploratory learning" for supporting immersive learning in virtual environments. *Computers and Education*, 52, pp.343–352.

De Freitas, S., Rebolledo-Mendez, g., Liarokapis, F., Magoulas, G., Poulovassilis, A., 2009. Developing an Evaluation Methodology for Immersive Learning Experiences in a Virtual World. 2009 Conference in Games and Virtual Worlds for Serious Applications, pp.43–50.

Duncan, I., Miller, A. & Jiang, S., 2012. A taxonomy of virtual worlds usage in education. *British Journal of Educational Technology*, 43(6), pp.949–964.

Esteves, M., Fonseca, B., Morgado, L., & Martins, P., 2011. Improving teaching and learning of computer programming through the use of the Second Life virtual world. *British Journal of Educational Technology*, 42(4), pp.624–637.

Falconer, L., 2011. Metaxis: the transition between worlds and the consequences for education. Innovative Research in Virtual Worlds Conference. University of Coventry, 3rd-4th November 2011.

Felder, R. & Silverman, L., 1988. Learning and Teaching Styles in Engineering Education. *Engineering education*, 78(1), pp.674–681.

Felix, U., 2005. E-learning pedagogy in the third millennium: the need for combining social and cognitive constructivist approaches. *ReCALL*17, No:1, pp.85-100.

Gartner Inc. Hype Cycle Research Methodology. Available at:
http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp [Accessed April 29, 2013].

Good, J., Howland, K. & Thackray, L., 2008. Problem-Based Learning Spanning Real and Virtual Words: A Case Study in Second Life. *ALT-J: Research in Learning Technology*, 16(3), pp.163–172.

Guba, E.G. & Lincoln, Y.S., 1994. Competing Paradigms in Qualitative Research. In N.K. Denzin & Y.S. Lincoln, eds. The SAGE *Handbook of qualitative research*, London: SAGE, pp. 105–117.

Grummon, P.T.H., 2009. Best Practices in Learning Space Design: Engaging Users. *EDUCAUSE Quarterly,* 32(1), Available at: http://www.educause.edu/ero/article/best-practices-learning-space-design-engaging-users [Accessed May 5, 2014].

Harding, A., Kaczynski, D. & Wood, L., 2005. Evaluation of blended learning : analysis of qualitative data. In Proceedings of the Blended Learning in Science Teaching and Learning Symposium. pp. 56–62. Available at: http://ojs-prod.library.usyd.edu.au/index.php/IISME/article/view/6436.

Herold, D.K., 2010. Mediating Media Studies - Stimulating critical awareness in a virtual environment. *Computers and Education*, 54(3), pp.791–798.

Hmelo-Silver, C.E., 2004. Problem-Based Learning: What and How Do Students Learn? *Educational Psychology Review*, 16, pp.235–266.

Hussain, H., 2009. Blended Approach Environment Shift in Higher Education. In A. Cartelli & M. Palma, eds. Encyclopedia of Information Communication Technology. Hershey, PA: Information Science Reference, pp. 69–74.

Kahn, P. & Rourke, K.O., 2005. 1. understanding enquiry-based learning. *Learning*, pp.1–12.

Kaufman, J.C. & Beghetto, R., 2009. Beyond big and little: The four c model of creativity. *Review of General Psychology*, 13(1), pp.1–12.

Kim, S., Lee, J. & Thomas, M., 2012. Between Purpose and Method: A Review of Educational Research on 3D Virtual Worlds. *Journal of Virtual Worlds Research*, 5(1). Available at: http://jvwr-ojs-utexas.tdl.org/jvwr/index.php/jvwr/article/view/2151 [Accessed September 21, 2013].

Kirriemuir, J., 2009. A Summer 2009 "snapshot" of Virtual World activity in UK Higher and Further Education. Available at: http://www.silversprite.com/?page_id=353 [Accessed February 23, 2011].

Kuksa, I. & Childs, M., 2014. *Making Sense of Space The design and experience of virtual spaces as a tool to communicate*. Cambridge: Chados Publishing.

Levy, P. & Petrulis, R., 2012. How do first year university students experience inquiry and research , and what are the implications for the practice of inquiry based learning. *Studies in Higher Education*, 37(1), pp.85–101.

Levy, P., 2008. "I feel like a grown up person": First year undergraduates' experiences of inquiry and research. Paper presented at a CILASS Research seminar, Sheffield: Centre for Inquiry Based Learning in the Arts and Social Sciences.

Lombardi, B.M.M. & Oblinger, D.G., 2007. Authentic Learning for the 21st Century   : An Overview EDUCASE learning Initiative. Available at: http://connect.educause.edu/library/abstract/AuthenticLearningfor/39343 [Accessed August 12, 2011].

Mackey, J., 2008. Blending real work experiences and virtual professional development. In ASCILITE 2008 - The Australasian Society for Computers in Learning in Tertiary Education. pp. 572–576.

Marton, F. & Tsui, B.M.A., 2004. *Classroom Discourse and the Space of Learning*. Mahwah, NJ: Lawrence Erlbaum Associates.

Merchant, G., 2010. 3D virtual worlds as environments for literacy learning. *Educational Research*, 52(2), pp.135–150.

Merriam, S.B., 1998. *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass.

Minocha, S., 2010b. Research methods for evaluating technology-enabled learning environments. In International Conference on Technology for Education. Available at: http://oro.open.ac.uk/22346/ [Accessed February 11, 2014].

Minocha, S. & Reeves, J.A., 2010. Design of learning spaces in 3D virtual worlds: an empirical investigation of Second Life, *Learning, Media and Technology*, 35(2), pp.111-137.

Nelson, B.C. & Ketelhut, D.J., 2007. Scientific Inquiry in Educational Multi-user Virtual Environments. *Educational Psychology Review*, 91(3), pp.265–283.

Oliver, R., 2002. The Role of ICT in higher education for the 21st century: ICT as a change agent for education. Available at: http://bhs-ict.pbworks.com/f/role of ict.pdf.

Oliver, M. & Trigwell, K., 2005. Can "blended learning" be redeemed? E-Learning, pp.17–26. Available at: http://www.wwwords.co.uk/ELEA/content/pdfs/2/issue2_1.asp#3 [Accessed April 30, 2014].

Pang, M.F., 2003. Two Faces of Variation: On continuity in the phenomenographic movement. *Scandinavian Journal of Educational Research*, 47, pp.145–156.

Pang, M. & Marton, F., 2005. Learning Theory as Teaching Resource: Enhancing Students? Understanding of Economic Concepts. *Instructional Science*, 33(2), pp.159–191.

Papamichail, K., Alrayes, A. & Macaulay, L., 2010. Enquiry-based learning: exploring the potential of virtual worlds (Second Life), *International Journal of Technology Enhanced Learning*, 2(4) pp.321–335.

Parson, V., & Simon, B. (2011). Using Problem-Based Learning within 3D Virtual Worlds. In R. Hinrichs & C. Wankel (Eds.), *Transforming Virtual World Learning*. Bingley: Emerald Group Publishing Limited.

Peachey, A., 2010. The Third Place in Second Life Community in a Virtual World. In A. Peachey, J. Gillen, D., Livingstone, S.S., Robbins, eds, *Researching Learning in Virtual Worlds,* London: Springer, pp.91-111.

Rapanotti, L., Minocha, S., Barroca, L., Boulos, M.N., & Morse, D.R., 2012. 3D Virtual Worlds in Higher Education. In A. Olofsson & J. Lindberg, eds. Informed Design of Educational Technologies in Higher Education: Enhanced Learning and Teaching. pp. 212–240.

Robinson, K., 2011. *Out of our minds: Learning to be creative*. West Sussex: Capstone Publishing Ltd.

Rodrigues, N. & Magalhães, L., 2010. ArchHouseGenerator - A Framework for House Generation. Journal of Virtual Worlds Research, 2(5). Available at: http://jvwr-ojs-utexas.tdl.org/jvwr/index.php/jvwr/article/view/846 [Accessed February 11, 2014].

Rogers, L., 2011. Developing simulations in multi-user virtual environments to enhance healthcare education. *British Journal of Educational Technology*, 42(4), pp.608–615.

Rosedale, P., 2014. VWBPE 2014: Philip Rosedale keynote – but is technology really the key to mass adoption? | Living in the Modem World on WordPress.com. Available at: http://modemworld.wordpress.com/2014/04/12/vwbpe-2014-philip-rosedale-keynote-but-is-technology-really-the-key-to-mass-adoption/ [Accessed May 6, 2014].

Salmon, G., 2009. The future for (second) life and learning. *British Journal of Educational Technology*, 40(3), pp.526–538.

Salt, B., Atkins, C. & Blackall, L., 2008. Engaging with Second Life   : Real Education in a Virtual World. The SLENZ Project for the New Zealand tertiary Education, pp.1–99.

Savin-Baden, M., Gourlay, L., Tombs, C., Steils, N., Tombs, G., Mawer, M., 2010. Situating pedagogies, positions and practices in immersive virtual worlds. *Educational Research*, 52(2), pp.123–133.

Scopes, L., 2011. A Cybergogy of Learning Archetypes and Learning Domains: Practical Pedagogy for 3D Immersive Virtual Worlds, In R. Hinrichs & C. Wankel, eds., Transforming Virtual World Learning, Bingley: Emerald Group Publishing Limited.

Scopes, L., 2009. Learning Archetypes as tools of Cybergogy for a 3D Educational Landscape : A structure for eTeaching in Second Life. Available at: http://eprints.soton.ac.uk/66169 [Accessed February 8, 2014].

Sharpe, R., Benfield, G., Roberts, G., Francis, R., 2006. The undergraduate experience of blended e-learning: A review of UK literature and practice, Available at: http://www.heacademy.ac.uk/resources/detail/Teachingandresearch/Undergraduate_Experience [Accessed June 21, 2011]

Sköld, O., 2012. The effects of virtual space on learning: A literature review. First Monday, 17.

Stake, R.E., 1995. *The art of case study research*, Thousand Oaks, CA: SAGE.

Thomas, D.R., 2006. A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, 27, pp.237–246.

Thomas, J. & Harden, A., 2008. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC medical research methodology, 8, p.45.

Warburton, S., 2009. Second Life in higher education: Assessing the potential for and the barriers to deploying virtual worlds in learning and teaching. *British Journal of Educational Technology*, 40(3), pp.414–426.

Ward, T.B. & Sonneborn, M.S., 2011. Creative expression in virtual worlds: Imitation, imagination, and individualized collaboration. *Psychology of Popular Media Culture*, 1(S), pp.32–47.

Webber, S., 2010. Investigating Modes of Student Inquiry in Second Life as Part of a Blended Approach. *International Journal of Virtual and Personal Learning Environments*, 1(3), pp.55–70.

Webber, S. & Nahl, D., 2011. Sustaining learning for LIS through use of a virtual world. IFLA Journal, 37, pp.5–15.

Webber, S. (2013). Blended information behaviour in Second Life. *Journal of Information Science*, *39*(1), 85–100.

Wiecha, J., Heyden, R., Sternthal, E., Merialdi, M., 2010. Learning in a virtual world: experience with using second life for medical education. *Journal of medical Internet research,* 12(1). Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2821584/ [Accessed July 23, 2012].

White, D., 2008. TALL blog » Blog Archive » That Was an Interesting Experience. Available at: http://tallblog.conted.ox.ac.uk/index.php/2008/11/27/that-was-an-interesting-experience/ [Accessed May 1, 2014].

White, D. & Le Cornu, A., 2010. Eventedness and disjuncture in virtual worlds. *Educational Research*, 52(2), pp.183–196.

Yin, R. K., 2012. *Applications of Case Study Research*. (3 Edition.). Thousand Oaks: SAGE.