3D Virtual World Learning Handbook

Editors: Charles Wankel and Randy Hinrichs

Initial teacher training in a virtual world
Woollard, J and Scopes, L

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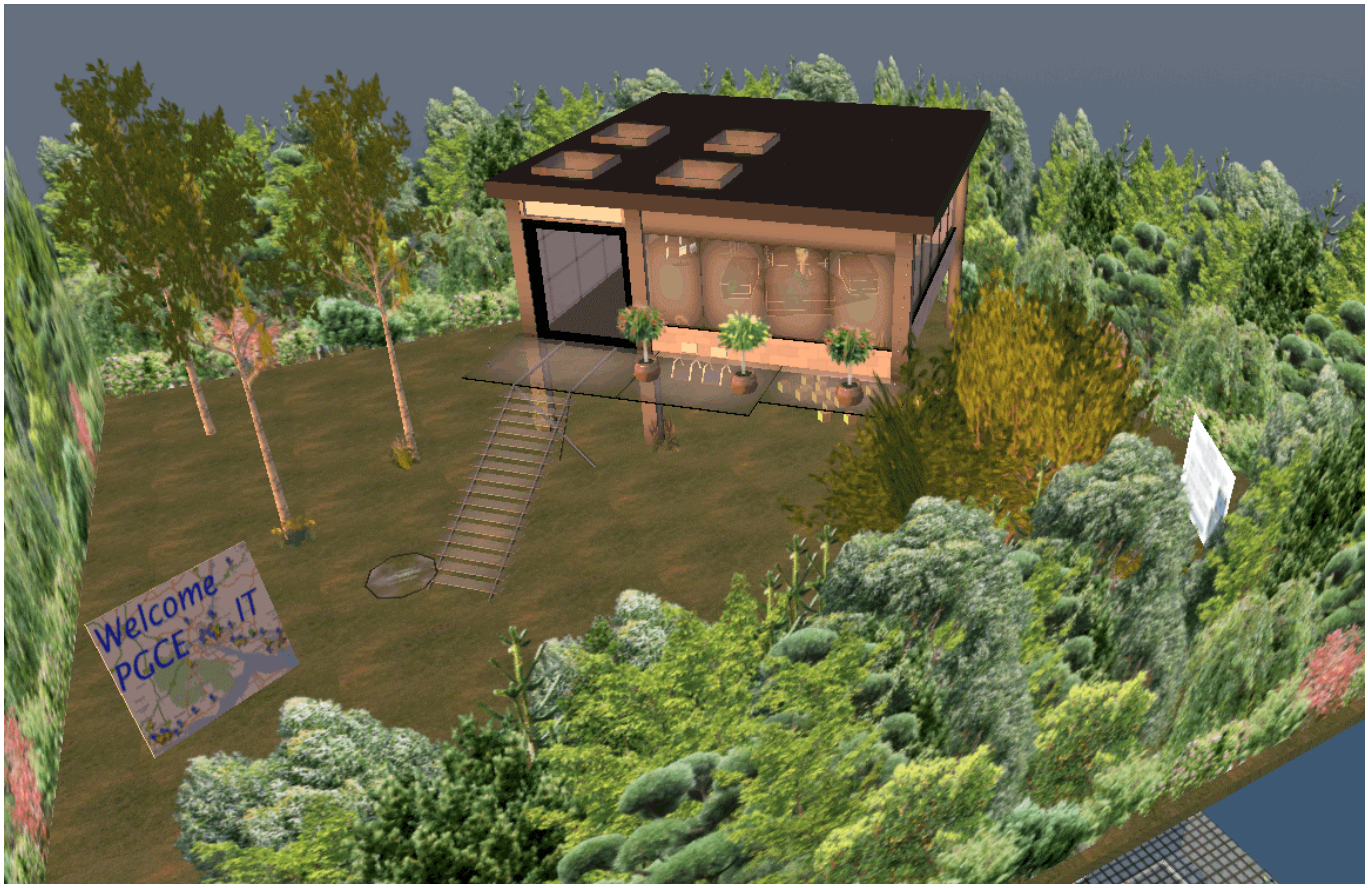
This platform above the University of Southampton Island of Second Life™ is designed to meet the needs of students in their final year of training to be ICT teachers in the UK.

There is a focus on communicating information, social networking, dexterity training and peregrination. The chapter will reflect user comments gathered through rigorous research method and make reflections on interpret the cybergogy described in the other chapter.

The description will make reference to the interconnectivity of the different social networking and information sharing systems and how 3D applications complements the approaches used.



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Constructivism and Social Learning
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Just writing a further book - Psychology for the Classroom: E-Learning http://www.routledge.com/books/details/9780415590938 depending on publication dates, one will make reference to the other.

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Call for chapters - 3D Virtual World Learning Handbook

Editors:
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This book will include chapters on practical, user-centered, effective teaching and learning applications designed in 3D, using 3D learning theory, process and activities. We welcome chapter proposals on exemplars from business, higher education and non-profit. The emphasis is on showing what works using state-of-the art instructional design in virtual worlds, fostering critical thinking skills and learning communities that persist over time. Though anticipating a preponderance of Second Life applications, we will consider chapters on other virtual worlds that provide access to integrated learning environments with social networking and community. Chapter length can vary, through chapters of roughly 6000 to 8000 words in length are expected. We seek practical applications that can be useful to others as examples of approaches to teaching content in a virtual world.

Chapter proposals should be at least 125 words and provide at a picture of the environment and an overview of the method of instruction used. Your proposal should be accompanied by brief biographies of at least 50 words for EACH of the chapter authors, which should include: current institutional affiliation and position, and contact information (email, phone, and ideally mobile and Skype). If you are on LinkedIn add the editors using wankelc@stjohns.edu and rjhinrichs@2b3d.net and include your Avatar Name and Social Networking (i.e., LinkedIn) profile url. Also, included in your brief bio should be a listing of any of your related publications. Chapter proposals and then chapter drafts will undergo several stages of rigorous peer review.

Schedule of due dates:

May 19, 2010: Proposals/bios sent to wankelc@stjohns.edu and rjhinrichs@2b3d.net

August 19, 2010: first drafts will be due and submitted to a review process.

September 19, 2010: revision of chapters drafts is undertaken by chapter authors to address suggestions from the reviews..

October 26, 2010: final drafts are due.

January 26, 2011: anticipated date of book's release. We have a commitment from a leading publisher for this volume.

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Initial teacher training in a virtual world

John Woollard and Lesley Scopes

"*It feels a bit strange walking around an environment where you don't actually know the social rules, and the social rules are definitely an area that needs to be defined in an online virtual environment when considering the mental and physical wellbeing of pupils"*. These words are from a trainee teacher making her third visit to the "staff room" at the University of Southampton Island in Second Life™. It reflects the three important aspects of teaching and learning in a virtual world:

"it feels a bit strange" – a virtual world is immersive; the sights and sounds coming through the computer engender emotion and engagement in ways similar to those of the real world; it is those feelings that can impact upon in-world behaviors.

"know the social rules" – learners, whether they are school pupils or professionals, need information, advice and guidance regarding the mores, procedures and ethics of in-world behaviors; and

"considering the mental and physical wellbeing" – we have a duty of care to our learners to ensure that they are protected from harm, resilient to threats and informed of risks.

This chapter reports on the innovative and developing use of a virtual world environment to support the training and professional development of teachers of ICT, IT and computing. The traditional approach to teacher training in the UK is a program of University-based activity inducting, briefing and informing trainees of their roles and responsibilities in the classroom and providing a safe place to explore issues of policy, behavior management, curriculum development and so on, integrated with in-school placements of observation, support and teaching in real classrooms with real pupils. The pervasive and rapidly changing use of technology means that would-be ICT teachers need an increasing in-depth and wide-ranging exposure to the resources available. At this time, the virtual world is the point of challenge and opportunity. The challenge is to change our way of working and the means by which we enable trainees to develop their life-long skills for teaching and the opportunities are those of alternative and better ways of presenting the curriculum.

An important element of the developing learning environments that use online profiles, avatars, virtual worlds and social networking are the issues of e-safety. Ensuring learners are working in safe ways, are resilient to inappropriate experiences and confident in dealing with unwelcome contact.

"it feels a bit strange"

Features of the experience include: the physical location of the activity is the trainee's choice; elements of the activities are new to every participant; trainees have to adopt an avatar to represent themselves; activities develop skills relating to dexterity and peregrination. There are challenges for teaching and learning in particular virtual world environments but these activities provide experiences that enhance trainee teachers" skills, knowledge and understanding of 3Di and technology-enhanced learning in general. Comments made by trainees following their first visit to Second Life include emotions of surprise, wonder and professional pleasure. .

"It has a really WOW factor, with opportunities for gathering information that exceeds real life".

“The most striking exhibit I found to be the “hiding place”, which oozed of claustrophobic dread. The authentic photo was poignant” (Holocaust Museum, 2010:in-world).

“I really enjoyed that environment (Studio 33, 2010:in-world). Some of the pieces were lovely. In the Art environment I was pleased to learn how to jump and move forward so that I could scale a wall. I was surprised when I found I could fly and walk through windows”.

Another trainee also reflects on the potential for use in areas of emotional intelligence. “The social and aesthetic quality of such a task would lend it to being an emotional experience. All of these learning threads should allow for improved learning and recall due to the multi faceted ways of encoding the learnt information through the rich experience”.

This emotional engagement is associated with cognitive engagement. If a learner is surprised, shocked or inspired they are more likely to remember the topic and context. A very early consideration of the impact of audio-visual resources on learning is that of Edgar Dale who proposed a hierarchy of engagement in the learning process from the least engaging, reading about something, to the most engaging, actually carrying out the task by doing the real thing. His ideas present a realistic challenge to teachers and designers of technology-enabled learning experiences and can be used as a touchstone regarding pedagogic value.

reading

hearing *words*

looking at *pictures*

watching a moving image

looking at an *exhibit* of the artifact

watching a *demonstration* of the activity

seeing the *activity* being carried out on location

seeing and *discussing* the activity with other learners

preparing and giving a *spoken presentation* about the activity

preparing and then carrying out a *dramatic representation* of the activity

preparing, rehearsing and then *simulating* the real experience of the activity

doing the real thing

Figure X. Hierarchy of engagement, based on Dale (1969) and Woollard (2011)

When software-driven tasks are designed to present information in a predetermined, pre-structured and didactic way, they lead to efficient knowledge transfer. When those tasks enable learners” achievements to be presented and assessed then they lead to effective learning through feedback. When those tasks are drill and practice, they heighten response and accuracy and lead to more skilled learners. When the tasks enable collaboration and communication they lead to socially constructed learning that is both engaged, effective and safe. When the learner reflects that the experience is strange, different, novel, new or even perverse or wrong, then they are engaging

emotionally with the activity. It is that emotional engagement that can drive the cognitive engagement – the preparedness to learn, the motivation to learn and the context for learning.

"know the social rules"

All teachers have a responsibility to provide a safe environment for learning. They have a duty of care. In the UK this is reflected in the requirement placed upon trainee teachers to "establish a purposeful and safe learning environment conducive to learning" (TDA, 2008:10). For it to be a safe environment the learners need to know how to behave; they need to know the social rules.

Many adult users of virtual worlds do so with confidence and competence gained through experience. Some adults gain that confidence and competence quickly whilst for others it takes time and they learn through "trail and error". There is a need to understand what makes some adults more able to deal with new learning environment more quickly than other adults. This is called varyingly: e-literacy (digital knowledge, internet safety and security, netiquette), computeracy (computer literacy, using rather than programming a computer) or ICT capability (choosing the right application for the task in hand and being able to apply current skills, knowledge and understanding to new or more complex situations). It is a necessary element of all training programs to ensure that the basic skills are established and enhanced. Consequently, it is necessary to set the prerequisites in terms of skills and knowledge for working in virtual world learning environments and ensure the learners are prepared.

However, when working with young people and children we must not take risks. We can not be satisfied that they can learn through "trial and error" as those errors may have profound emotional and physical outcomes. Teachers are expected to "establish a clear framework for classroom discipline to manage learners" behavior constructively and promote their self-control and independence" (TDA, 2008:10). A keyword in that requirement is "independence". Rules, guidance and advice cannot be created for every situation. Importantly, the teacher can not be there for the learner in their future lives. The education process must equip the learner for the current and future experience. An interesting approach is to adopt Edward de Boon's Thinking Hats strategy (de Bono, 1985) to support the learners.

The six colored hats relate to six different ways of thinking, six different ways of considering a situation. As the teacher introduces learning in a virtual world, at different times the learners" attentions are drawn to those ways of the thinking. The White Hat focuses on facts and information. The tutors/trainers/teachers are responsible for ensuring that the learners know what experiences they are going to have, know how to carry out the tasks and are aware of the way they will be assessed or judged. The Red Hat is most important in 3D immersive environments – it relates to feelings and emotions. The learners are encouraged to use intuition, feelings, and hunches and to try and not be afraid; the teacher should ensure they have they have the knowledge to back track (Control Z, browser back/forward buttons, breadcrumbs and history) or escape from situations (Control H, landmarks). The Black Hat relates to critical judgment where learners need to be cautious and prepared for difficulties and aware that things might go wrong. Teachers should caution learners on e-safety rules and staying safe strategies; but developing pupil resilience to inappropriate material and actions (Byron, 2008). The Yellow Hat promotes positive behaviors by identifying values and benefits and why something might work. The teacher needs to make learners aware of functionality and affordances – what the systems can do and what the systems enable us to do. The Green Hat is all about creativity and imaginative application of their skills and knowledge. Finally the Black Hat see the big picture. The learners are using virtual

world learning environments as a natural part of their learning strategies and opportunities. They are becoming the: competent; confident; effective; efficient; imaginative; resilient; and sensitive e-learner.

Knowledge of the social rules and modes of engagement is also important for the teacher. The teacher's behavior in a conventional classroom impacts upon the learning. Inappropriate, gauche, unusual, weird or unexpected behaviors impact negatively on learning. In the virtual world learning environment, the same applies. In studies of the use of chat rooms to support learning (Richards, 2003, 2009), a post-analysis of the context generated a set of rules relating to teacher online interventions when used in a traditional classroom. These have been adapted to the situation where learners are all in the same room but exploring and learning through a virtual world learning environment at their computers:

- intervene through the virtual world wherever possible;
- unless there is a health or safety or school discipline issue, never intervene physically (in the real world);
- provide timed instructions through the virtual world that are copy and pasted from a pre-written file (IM) or read from the script (local chat) or issued through note cards (in-world) or sent by e-mail;
- when appropriate, sending positive statements (rewards, compliments, acknowledgements);
- when appropriate, sending suggestions/ideas (modeling answers) and ;
- encourage non-participants by asking them closed questions in the first instance; and
- guide off-task participants by asking them closed questions in the first instance.

Figure X Teacher guidance - using virtual worlds in a computer room

This guidance for the teacher operating in the virtual world is intended to ensure on-task behavior, engaged learners, attainment and progress.

Another aspect of real-world teacher behavior that affects learning is the teacher's attire – the way they dress and appear. Bryant and Curtner-Smith (2010) cite many examples of research drawn from a range of educational settings indicating that attire, physical appearance, and perceived competence influence pupils" perceptions of teachers" ability to teach. Other research indicates that in secondary school settings, "pupils learned less from obese teachers than seemingly fit ones and [the pupils] perceived them to be less competent" (Bryant and Curtner-Smith, 2010: 312). These comments about real world teaching may have bearing upon in-world appearance and behavior. The refined nature of the avatar and the dexterity by which the teacher or trainer operates within the virtual world could impact upon learner attitude and learner confidence in the teaching process. However, this is a conformity issue, and whilst schools and pupils tend to be conservative in outlook, that to a degree virtual worlds are about breaking away from conformity. We have witnessed some effective and engaging sessions conducted by furries. Successful trainers, teachers and developers adopt non-human forms including the Lindens themselves.

"considering the mental and physical wellbeing"

Teachers should not make the learning environment stressful or frustrating. One trainee reported, "The major issue was finding the PGCE IT Staffroom and as a result, the other problem with exploring environments – it is easy to waste time!" Another said, "The positive aspects of the day were using new software such as Second Life, which has been extremely time consuming, but has shown me that working collaboratively, I was able to grasp the basics and get on with the product. I can see that introducing a new piece of software in a classroom would need to be done in stages, with guideline and help rather than making it a self taught class. So pupils, like me, would get frustrated with the seemingly unhelpful screen in front of them". Hart and Staveland (1988) defined frustration as the participant's experience of feeling insecure, stressed, discouraged, and annoyed versus feeling secure, gratified, content, and relaxed while

engaged in a task. That frustration with software interfaces is common and is subject to legislation and regulation. The Health and Safety Executive identify that software "not suitable for the task or the person using it, causing frustration and distress" (HSE, 2003:3). Workers should not be exposed to risks and hazards of strain or tension. In a similar way, learners should not be exposed to frustrations and distractions. Amsel (1992) identified the issues caused by frustration in the learning process. More recently they are discussed by Hove and Corcoran (2008) who concluded that there were higher levels of frustration in learners using virtual learning environment than those being taught through traditional lectures or lectures supplemented with slide-shows. The learners" "greater frustration (i.e., insecurity, stress, discouragement)" was explained by the absence of direction and guidance provided by an instructor. "Historically, the role of the teacher has been to explicitly and implicitly direct students, controlling the amount of information and presenting it in way that is manageable and relevant". Virtual worlds offer a natural opportunity for the teacher to be present in the learning environment and be in a position to offer the information, advice and guidance associated with traditional and effective teaching. The value of support and just-in-time intervention to ensure learners feel confident in the virtual world is important.

"For some reason I could not teleport and after much help from Light Sequent and John I still could not follow the others. I recall a moment when Light Sequent said to me "Don't worry I wouldn't leave you alone", which made me giggle. How silly I thought "its only Second Life". Eventually Light Sequent did have to leave me alone due to her commitments to the group, and I can honestly say for a spilt second I actually did feel abandoned. Then after 10 minutes of waiting for teleportation I felt a little lonely. Feeling these emotions made me realize the full potential of building and maintaining relationships in Second Life. I felt the same frustration and disappointment about not being able to join the rest of the trainees as I would have if I had been locked out of or stopped from entering a room during a training session at University". Lonely is a feeling that is not associated with wellbeing.

"This emotional response is an expression of "immersion" with the environment. Personally, I view this as an extremely healthy experience, especially at such an early stage of adoption… this example serves to demonstrate how easy it is to both project and perceive a personal presence in the virtual world… this is a powerful tool for teachers indeed" (Woollard and Scopes, 2010:4) but when working on-line we have to be cautious exploring emotional issues. Mark Meadows noted that children online are less risk-averse in their dealings with others. "Over 75 percent of Internet users feel safer speaking their mind when they use an avatar" (Meadows, 2008: 36). They feel safer and speak more readily with those that they do not know in the physical sense but only know in the virtual world. "The lack of contextual clues frees up social inhibition but also loosens commitment and trust" (Shortis, 2001:97). They more readily confide secrets and more readily expose themselves in both a physical way (Jenny's Story, 2005) and in a verbal way.

Mark Meadows describes the avatar as a tool for regulating intimacy because intimacy and interaction with others is more easily controlled. In real life it can be difficult to remove oneself physically from uncomfortable positions but in the virtual world "isolation" or "home" is always just a mouse click or key press away. But, as Mark Meadows explains, "in a world where information is more important than physical proximity, we are not as safe as we might assume… I have seen some extreme tragedies unfold because of the assumption of the mask… because we can immerse ourselves more and more into these environments we let our guards down" (Meadows, 2008: 36).

The Byron Review in the UK identified an important element of education with regard to e-safety as developing children's endurance and resolution in the face of inappropriate

and potentially damaging materials and contacts that the internet presents. The report of the review states, "we must also build children's resilience to the material to which they may be exposed so that they have the confidence and skills to navigate these new media waters more safely" (Byron, 2008:8).

In terms of the model presented by Freud, we need to ensure the motivations of the Id whilst sometimes repressed and modified through the Ego by social mores ensure the learner behaves in a safe way. Freud's "cap of hearing" is the key. We have to ensure that the learner has the opportunity to "hear" clear and actionable information about their online lives. The "hear" includes seeing appropriate behavior by peers and models, experiencing appropriate scenarios, being rewarded for behaving appropriately as well as being given appropriate information, advice and guidance. Teachers, tutors and trainers working in the virtual world need strategies in place to support their responsibilities, their duty of care, towards their pupils, students and trainees. The following analysis of e-safety provides such a framework of support.

The 3 "C"s of content, contact and conduct, that Tanya Byron proposes helps guide the provision of information, advice and guidance to learners.

	Commercial	**Aggressive**	**Sexual**	**Values**
Content (child as recipient)	Adverts Spam Sponsorship Personal info	Violent/hateful content	Pornographic or unwelcome sexual content	Bias Racist Misleading information or advice
Contact (child as participant)	Tracking Harvesting personal info	Being bullied, harassed or stalked	Meeting strangers Being groomed	Self-harm Unwelcome persuasions
Conduct (child as actor)	Illegal downloading Hacking Gambling Financial scams Terrorism	Bullying or harassing another	Creating and uploading inappropriate material	Providing misleading info/advice

Figure X. Content, Contact and Conduct aspects of e-safety, Byron (2008:16)

The content of the internet can be the source of concern by parents and guardians of children, teachers of students and the tutors and trainers of older learners. No one is immune from this threat. Even the most professional and academically aware can be "conned" by the apparent authority of internet presence and therefore the truth, validity, reliability or reasonableness of content. The Byron Report identifies four areas of content that are important when dealing with younger learners: commercial; aggressive; sexual and values. The learner needs to understand and be resilient to advertising, spam, sponsorships and demands for personal information. Within the virtual world he or she needs to be aware of ownership and the nature of the owner in terms of their authoritative, commercial or personal motivations. Entering an environment controlled by the New York City Police Department and seeing information about anniversary arrangements for 9-11 is likely to be of a different nature from that owned by a non-sectarian group. Learners can be harmed by misinformation.

The learner needs to be resilient to violent/hateful content and know how to deal with it. On teleporting to a recommended location, the images being presented on the screen may have content that could be emotionally upsetting. We need to ensure that learners have strategies for dealing with it. In the UK there is a Zip It, Block It, Flag It campaign (DCSF, 2010). There is the concept of provisionality (DfEE, 1998) with regard to internet content. As teachers, tutors and learners we cannot rely on the fact that seeing a structure, environment or information point today, means that it will be the same, or even present, tomorrow. The learner cannot be protected by continually policing the environments to which they are exposed. Therefore, the learner needs to be resilient to pornographic and unwelcome sexual content and the learner needs to be able to identify bias, racism, misleading information and advice.

The second "C" is contact – the direct communication by a third party with the learner whilst they are online. Virtual worlds have a significant element of social interaction. Some online facilities, such as Facebook and Internet Messenger are totally dominated by social interaction. Some online facilities, such as Google Maps, Wikipedia and e-learning systems are dominated by the content and the structure/order of that content. Virtual world learning environments have a balance between the content (the environment, the structures and the information presented) and the contact (the social interaction and social networking facilities). It is possible to have a perfectly good learning experience in a virtual word without necessarily engaging in social banter. Equally, the learning experience in a virtual world may be dominated by the socially constructed understanding of a new area of experience, concept or body of knowledge. Therefore, the contact "C" is an important consideration of e-safety in the virtual world.

The e-safety threat is the learner unwillingly or unwittingly participating in inappropriate activity. The learner needs to be aware that there may be those tracking and harvesting personal information and the importance of the need to protect their personal information. The learner needs to be resilient to being bullied, harassed or stalked and know what action to take in such situations. Importantly, the teacher, tutor or trainer must have procedures in place so that it is clear what the learner should do if they feel in threat or uncertain about the identity or intentions of avatars they meet. The learner needs to understand the implications of meeting strangers and being groomed and he/she needs to be resilient to unwelcome persuasions.

The final "C" is conduct – that is, the willing actions and activities of the learner whilst working in the virtual world. It is where the learner is initiating the inappropriate action. Learners must be given clear guidance with regard to their illegal downloading, hacking, gambling, griefing, financial scams and terrorism and understand the consequences of such actions. Learners must also be given clear guidance with regard to bullying or harassing behavior of their avatar towards another and understand the consequences of such actions. Learners must be given clear guidance with regard to creating and uploading material that might cause offence or contain misleading information or advice. An important aspect of conduct on the internet relates to sexually explicit material and sexually motivated activities. This e-safety issue arises from the combined effect of:

- younger users of the internet feeling freer and more able to express themselves in a sexual way because of the appearance of anonymity, caused by the mask of the avatar, including experimenting with gender, being explicit about their personal sexuality and wishing to shock others;
- the actions of pedophiles, bullies and stalkers who are freed by anonymity and false identity and an "exhaustive potential to contact potential victims" (Powell, 2007:113) to groom, victimize and solicit on the internet.

In Freud's world, it is the sex drive or libido that modifies or drives behavior. Because he articulated that repressing sexual drive leads to problems in later life, Freud has been criticized for allowing some people to excuse their behaviors and the behaviors of others rather than taking direct responsibility for their actions. The duty of teachers is to provide e-safety information and e-safety guidance. This is both an ethical and moral issue. There needs to be a clear and firm message about acceptable behavior, reasonable behavior and an explicit code of conduct. The "acceptable use policy" (AUP) is a means by which the on-line behavior of both pupils and teachers can be regulated. The acceptable use policy, along with classroom-based codes of conduct, are ways in which the social mores can impact upon the learners" decision making.

- philosophical motivation/corporate message about the underlying values;
- rationale for network and internet access;
- advice and instruction for appropriate patterns of use (netiquette);
- advice and instruction for expected patterns of use;
- declaration of the importance of self-regulation and personal responsibility;
- statements regarding legal requirements (including computer misuse, protection of personal data, copyright and obscene materials); and
- description of consequences of violating the policy including punishments and appeal procedures.

Figure X Essential elements of acceptable use policies (Woollard, 2011:70)

The "Zip it, Block it, Flag it" campaign (DCSF, 2010) raised public awareness especially amongst parents. "Zip it" refers to the pupil keeping personal information private and thinking about what they say or do online. "Block it" requires pupils to block people who send nasty messages and encourages them not to open unknown links and attachments. "Flag it" is the guidance to pupils that they should flag up with someone they trust if anything upsets them or if someone asks to meet them offline. However, there still remains the issue of many mainstream providers of resources and social networking not facilitating fast report mechanisms that would make children feel more secure. CEOP is the Auk's law enforcement agency and encourages the use of its report mechanism.

Figure X Advice… Help… Report… (CEOP, 2010)

Another issue is that of parents condoning children's use of adult social networking sites such as Facebook™ (under the age of 13 years) and Second Life™ (under the age of 18 years). The virtual world specifically provided for teenagers is Teen Grid but Linden Labs are planning to close the Teen Grid (Metaversally Speaking, 2010) that has previously catered for 13-17 year olds and to move registered users to the main grid at age 16. Some adult Second Life™ residents are voicing concerns that under 18"s should be flagged up in their profile to protect the interests of those who do not wish to inadvertently associate with children but of course there is the counter argument that to do so might highlight the identity of teens for the purposes of grooming and other abuses. E-safety has to be a key consideration of any online educational activity. The impact of that consideration should not be to stop activities but to make those activities as safe as possible without unnecessarily affecting the pedagogic value.

Summary

"It feels a bit strange walking around an environment where you don't actually know the social rules, and the social rules are definitely an area that needs to be defined in an

online virtual environment when considering the mental and physical wellbeing of pupils".

The words of a newbie trainee teacher echoed great pertinence with regard to the actions we need to take to ensure learning in virtual worlds is to be a rewarding, effective, efficient and, importantly, safe experience. We conclude:

- Not knowing the social rules and mores makes the learner vulnerable. They can become victims of the social predators, the commercial exploiters and the purveyors of inappropriate or untruthful material.
- The popularity of online gaming, the demonstrable value of interactive programs for teaching and training and the growing potential for teachers to design and build their own 3Di environments, makes an imperative that teacher training includes experience of virtual worlds such as Second Life™ in their teaching.
- An online day where trainees work on their computers, in their work or home environment, offers many opportunities for them to be independent and personalize their own learning and start to vision education of the future where their learners see them as avatars and they see their pupils as avatars..
- As noted by Kristen Moore and Ehren Pflugfelder, there is a need for pedagogical and technological scaffolding in preparation for taking students into online environments if those places are to function as "fun and creative spaces" (Moore and Pflugfelder, 2010).
- The significant challenges are of a technical nature but the structure and resourcing for the online day must be considered so that individuals do not feel isolated or unsupported.

In our work in teacher training we have seen trainees growing in confidence in their use of virtual worlds. Subsequent visits have elicited an increase in positive impressions as the students began to feel less estranged in the virtual environment. The follow-up Online Days are structured to give the students a choice of peregrination activities consisting of matched pairs of in-world locations that present contrasting experiences. Trainees are asked to consider the locations in terms of the impact on each of the 4 learning domains: Cognitive, Emotional, Dextrous and Social. These concepts are discussed in chapter X.

Teaching and learning in virtual worlds provides trainers with the opportunity to meet another UK Government requirement that teachers should "identify opportunities for learners to learn in out of school contexts" (TDA, 2008:10) – in-world is out-of-school. Teaching and learning in virtual worlds has affordances of: stimulation, engagement, motivation, interest, context and contemporarity. Teaching and learning in virtual worlds has the challenges of: understanding a new pedagogy (cybergogy), building environments that stimulate, structure and facilitate learning; and protection of our learners from inappropriate content and contact and ensuring they conduct themselves appropriately.

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(accessed August 1, 2010) I will recheck all the URLs closer to the publication date, say January 1, 2011???