Chapter 26

3D Virtual Classroom Simulations for Supporting School Teachers' Continuing Professional Development

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ABSTRACT

3D Virtual Worlds provide realistic three-dimensional environments accessible through the web that can offer engaging, interactive, and immersive experiences. This can create new opportunities for teaching and learning. Yet, the possible use of 3D Virtual Worlds in formal education is a major challenge for school teachers, even for those who are experienced and keen on using digital technologies. In this chapter, the authors present a 3D Virtual Classroom Simulation appropriately designed and implemented using SLOODLE for supporting a module for teachers' continuing professional development based on the Synectics "making the strange familiar" instructional strategy, aiming towards acquiring appropriate competences for teaching within 3D Virtual Worlds and for developing innovative educational practices.

INTRODUCTION

Virtual Worlds in Real Education

3D Virtual Worlds (VW) provide realistic three-dimensional environments accessible through the web that can offer engaging, interactive and immersive experiences. This can create new opportunities for teaching and learning. During the recent years, several researchers have recognized the educational potential of 3D Virtual Worlds due to their unique features, such as, recreation of the sense of presence, immediateness, "real" world simulations and new experiences that may not be possible to represent in the "real" world (Dalgarno

& Lee, 2010; Molka-Danielsen & Deutschmann, 2009; Wankel & Kingsley, 2009).

There are a number of studies (Bignell & Parson, 2010; de Freitas & Neumann, 2009; Dickey, 2005; Jarmon, et al., 2008; Jarmon, et al., 2009; Kalyuga, 2007, Konstantinidis, et al., 2010) that are investigating the educational affordances of 3D Virtual Worlds and examine the potential of using them in teaching and learning. Those studies examine whether 3D Virtual Worlds can be used for:

1. Distance learning (Dickey, 2005),
2. Personalised learning (de Freitas & Neumann, 2009),
3. Project based learning (Jarmon, et al., 2008),
4. Experiential learning (Jarmon, et al., 2009),
5. Providing real time feedback (Garrido, et al., 2010; Kalyuga, 2007),
6. Exploratory learning (de Freitas & Neumann, 2009),
7. Collaborative learning (Konstantinidis, et al., 2010), and
8. Problem-based learning (Bignell & Parson, 2010).

On the other hand, researchers (Bartle, 2003; Livingstone & Bloomfield, 2010; Wahlstedt, et al., 2008), argue that 3D Virtual Worlds are "empty spaces" that could become valuable for education only if they are designed in such a way that they support the implementation of specially designed educational activities, rather than just providing access to digital educational content within these 3D virtual environments. To this end, the increased interest of exploiting 3D Virtual Worlds in education, has led to the development of educational tools and applications which aim to integrate existing learning technologies (such as Course Management Systems) in 3D Virtual Worlds infrastructure (such as Second Life [SL]) (Livingstone & Bloomfield, 2010).

The development of such tools bare the potential of transforming 3D Virtual Worlds in valuable

tools within formal educational settings, as they provide the opportunities to create "spaces" that can support enhanced "out-of-the-classroom" educational activities (Hodge, et al., 2009). Nevertheless, in order to use 3D VW effectively, school teachers should not only be aware of their technical capabilities but also understand how to use their functionalities to support their students' learning (UNESCO, 2009). Thus, there is a need for identifying solid competence descriptions for teachers being capable of teaching in 3D VW and modules for teachers Continuing Professional Development programmes that can support the acquisition of these competences.

Problem Definition: Teachers' Training for using Virtual Worlds in Real Education

Nowadays school teachers should be capable of not only using digital technologies, but also of understanding their affordances in supporting their students learning (Darling-Hammond, 2006; Hew & Brush, 2007). As a result, there is a need for Teachers' Continuing Professional Development Programs that aim to equip school teachers with the appropriate competences for the design and implementation of technology-supported innovative educational activities (UNESCO, 2009).

Within this context, there are research studies that focus specifically on teachers' experiences either through using 3D VW in their teaching activities (Esteves, et al., 2009; Jarmon, et al., 2009; Konstantinidis, et al., 2010) or through their participation in 3D VW supported Continuing Professional Development (CPD) (Girvan & Savage, 2010; Vasileiou & Paraskeva, 2010). These studies have raised issues, such as, the extra pressure applied to teachers who teach within 3D Virtual Worlds, and the lack of understanding of the new possibilities offered by 3D Virtual Worlds in teaching and learning.

As a result, one can claim that the possible use of 3D Virtual Worlds is a major challenge for

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