

Chapter 12

3D Virtual Worlds in Higher Education

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ABSTRACT

3D virtual worlds are becoming widespread due to cheaper powerful computers, high-speed broadband connections and efforts towards their tighter integration with current 2D Web environments. Besides traditional gaming and entertainment applications, some serious propositions are starting to emerge for their use, particularly in education, where they are perceived as enablers of active learning, learning by doing, and knowledge construction through social interaction. However, there is still little understanding of how 3D virtual worlds can be designed and deployed effectively in the education domain, and many challenges remain. This chapter makes a contribution towards such an understanding by reporting on three notable case studies at the authors' own institutions, which have pioneered the use of Second Life, a 3D virtual world, in higher education.

INTRODUCTION

3D virtual worlds, such as Second Life^{1,2}, appear to offer new opportunities for educators to teach in immersive and creative spaces. While reliable

data on their actual uptake is still lacking and is, in fact, difficult to obtain due to the fast pace of change in this sector, a flavour of the widespread interest in education can be gained by looking at the snapshots and lists published online, for instance, at the Virtual Environments home³, the Second Life in Education home⁴, the Virtual Worlds Watch

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network⁵ or the Jokadia Virtual Worlds wiki⁶, as well as the growing number of books recently published on the subject (see, e.g., Wankel & Kingsley, 2009; Annetta, Folta & Klesath, 2010; Molka-Danielsen & Destchmann, 2009). From such data, it transpires that a vast number of higher education institutions, particularly in the US and UK, have a presence in virtual worlds, especially in Second Life.

While firm evidence on the pedagogical effectiveness of virtual worlds remains somewhere in the future, there are indications from a growing body of work that there are advantages to their adoption in education, including their ability to evoke a strong sense of presence even in remote participants (Witmer & Singer, 1998; De Lucia, Francese, Passero & Tortora, 2009), to increase their social awareness and communication (Capin, Noser, D. Thalmann, Pandzic, & N. Thalmann, 1997), to support closely coupled collaboration (Heldal, Schroeder, Steed, Axelsson, & Spante, 2005; Otto, Roberts, & Wolff, 2006) at a distance, and to enable constructivist and situated learning (Bronack, Riedl & Tashner, 2006; Hollins & Robbins, 2008).

Due to the dearth of authoritative pedagogical frameworks or widely recognised design good practices for adopting 3D virtual worlds, educators face a range of both pedagogical and learning space design challenges that can directly affect learning outcomes and the learner's experience. While not claiming to provide all the answers, this chapter will attempt to disentangle some of the issues, based on current practice and experience with 3D virtual worlds at the authors' own institutions, in the hope of contributing to the ongoing discourse on the matter. After an initial review of the use of 3D virtual worlds in education, and some related pedagogical theories, the chapter will discuss three representative case studies on the use of Second Life.

Specifically:

- the first case study will concern a Second Life environment developed as part of an innovative post-graduate research programme recently launched by The Open University (Rapanotti, Barroca, Vargas-Vera & Reeves, 2010; Barroca, Rapanotti, Petre & Vargas-Vera, 2010);
- the second case study will discuss the experiences of introducing Second Life in a part-time and distance learning undergraduate course at The Open University to support socialisation and team working in small group projects amongst globally distributed students (Minocha & Morse, 2010);
- the third case study will focus on the University of Plymouth 'Sexual Health' Public Education and Outreach SIM in Second Life (Kamel Boulos & Toth-Cohen, 2009).

The key themes in our case studies are socialisation, the building of online communities and meaningful interaction mediated by 3D virtual worlds. The case studies will address characteristics of 3D virtual worlds as learning environments and how their affordances and pedagogy have influenced their design and the development of learning activities; it will also include a discussion of any specific research questions addressed and the outcome of any evaluation carried out. The chapter will also reflect on the future of 3D virtual worlds.

RELATED WORK

With the increase in social software tools deployed in education (such as blogs, wikis, podcasts, social networking sites, social bookmarking sites, 3D virtual worlds or massively multiplayer online role-playing games) a new pedagogy is starting to emerge. According to Dawley (2009) social software tools afford new forms of knowledge

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