

Chapter 12

Analysing the Suitability of Virtual Worlds for Direct Instruction and Individual Learning Activities

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ABSTRACT

Despite several researchers reporting evidence that 3D Virtual Worlds can be used to effectively support educational processes in recent years, the integration of this technology in real learning processes is not as commonplace as in other educational technologies. Instructional designers have to balance the cost associated with the development of these virtual environments with the expected outcomes reported by the use of the new technology, but for some types of learning processes those outcomes are not always easily predicted. In this document the authors experience using 3D Virtual Worlds is summarized with the aim of getting a deeper understanding of their potential pedagogical use when supporting two different types of learning activities commonly included on a course: direct instruction, which exploits the social dimension of the technology, and individual learning activities in which that feature is not used. Based on those experiences a set of guidelines for designing 3D virtual world learning environments is proposed.

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INTRODUCTION

The design of a higher education course normally includes different types of learning activities, such as lectures, group projects, presentations, exercises or exams. Designing a course implies choosing the types of learning activities that are most appropriate to meet the expected learning outcomes, as well as the most suitable tools to support such activities, including a specific Learning Management System (LMS), a videoconferencing system or a system for supporting the communication in the classroom (Fies & Marshall, 2006), for example. 3D Virtual Worlds have recently been added to this list as there is increasing evidence suggesting that they can provide a means of supporting learning processes satisfactorily (De Lucia, Francese, Passero & Tortora, 2009a; Jarmon, Traphagan, Mayrath & Trivedi, 2009; Murad, Passero, Francese & Tortora, 2011). Furthermore, it has been claimed that due to some of their specific properties, such as the ability of the learner to make choices whilst navigating the virtual environment, 3D Virtual Worlds increase intrinsic motivation and engagement (Dalgarno & Lee, 2010).

Nevertheless, it can be expected that these benefits will not be exhibited to the same degree for all the possible types of learning activities carried out during a course. For instance, it is clear that 3D virtual worlds offer appealing possibilities for designing collaborative learning activities as they increase the feeling that all participants are present in the same virtual environment (Schmidt, 2002). However, for learning activities which do not exploit the social dimension of the environment, these benefits may not be so clear. It is also necessary to bear in mind that the creation and use of these environments often imply a cognitive overload that might deter many educators and even learners from using them (Hansen, 2008), especially when the advantages from the

pedagogical point of view are not so obvious as in many learning settings.

In this paper it is advocated that the use 3D virtual worlds for supporting learning activities that a priori are not specifically devised to be supported by this type of technology might also bring benefits. In order to make this possible specific recommendations to understand the pedagogical use of this technology and to overcome the main problems are required.

With this objective in mind, different experiences and evaluations carried out during the last few years in the virtual campus of the SecondDMI island of the University of Salerno in Second Life (SL) are summarized. The aim of these experiences was to obtain a deeper understanding of the pedagogical benefits and potential drawbacks that may be reported when using virtual worlds to support the learning activities most commonly included during a course. The use of virtual worlds for cooperative purposes has already been subject to extensive research (De Lucia, Francese, Passero, & Tortora, 2008; De Lucia, Francese, Passero, & Tortora, 2009b; De Lucia, Francese, Passero, & Tortora, 2009c). Therefore, this paper concentrates on two other types of learning activities for which the advantages of using Virtual Worlds from the pedagogical point of view are not so obvious: direct instruction and individual learning. Activities of the first type make use of the social dimension of the 3D virtual technology, while the activities of the second type do not. The conclusions derived and the lessons learned from these experiences inform a set of recommendations for the design of learning activities in 3D Virtual Worlds presented at the end of the paper. It is expected that these guidelines could be of use to designers in setting up effective 3D virtual learning environments. Prior to describing the experiences and the guidelines, the characteristics of 3D Virtual Worlds that make them particularly appealing for learning processes are presented.

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