Chapter 15
Benefits of Virtual Worlds in Educational Environments

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ABSTRACT

In this chapter, the authors describe the project of a virtual world that they developed in their university and with their students. In this work, they joined concepts like social networks and virtual reality, creating a virtual model of the University Miguel Hernandez (UMH), where students are able to walk around the campus, inside the buildings, chat with other students, and moreover, use videoconferencing rooms where students talk and see other students in the same virtual world. The authors describe this project, called UMHvirtual (available in http://virtual.umh.es), which has been supervised by the authors, implemented by a group of students, and focused on all the university students.

INTRODUCTION

Virtual reality has been widely used in research environments of universities and recreational applications for the general public. However, there have not been many proposals (Dimitropoulos & Manitsaris, 2011) that make use of virtual reality in an integrated platform, available to the public in a university environment and with educational purposes. In this chapter, we will present some platforms that make use of virtual reality, and we will discuss their main characteristics and the similarities and differences with the platform we propose. The following section describes the features and functionality of the platform UMHvirtual showing illustrations and screen captures of the virtual worlds created.

In the project UMHvirtual, we have created a platform and a virtual world that represents the facilities of the Miguel Hernández University, available to the students and to other users or

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visitors who could be interested in this university or in virtual worlds in educational environments. In this portal, visitors (who can be members of the university community or not) can visit the various campuses of the University, walking between buildings and "chat" with other visitors in a multiuser environment. The talks are conducted in common chats rooms with public or privates instant messages. In addition, if students wish, they can log on to a multiuser videoconferencing room created with OpenMeetings (Caladine, 2008) for each virtual world, so users can chat and see each other in real time. Besides the creation and customization of the characters or avatars, you can create groups, polls, or voting within the community. All these services have been incorporated into UMHvirtual but do not show a significant development with respect to other virtual communities, nor are they focused in particular educational environments.

UMHvirtual proposes new tools available to students and visitors in a virtual world. Firstly, it offers some features to inform and guide visitors through the facilities of the University Miguel Hernández. In this way, the visitor who walks through the virtual worlds gets to know the facilities offered to the university community perfectly. Secondly, UMHvirtual offers educational tools such as videoconferencing between teachers and students, virtual museums, such as the one for mathematics (Galiano, Herranz, Perea, Polo, & Sanchez, 2008), virtual laboratories where students can experience the physical behavior of various laws varying variables for each experiment, or three-dimensional visualizations of molecular structures impossible to visualize otherwise. In addition, each student has a customized avatar and can contact their classmates in a virtual environment to share educational experiences in the same virtual room. In the next section, we will detail more concisely the services that these virtual worlds provide to the students compared to other virtual worlds or other conventional education systems.

BACKGROUND

Virtual reality (Burdea & Coiffet, 2003) has evolved considerably in recent years, mainly in videogames over computers and last generation consoles. Young people and students are used to using virtual reality environments primarily. With this interest in virtual reality, social networks have created several Internet-based virtual reality such as Second Life (Trahan, Adams, & Dupre, 2011), IMVU, Exit Reality, or Habbo.

Second Life is the best-known 3D virtual community. It was created in 2003 and enjoys a wide international attention. One of its main features is that the world is created by its users and they can interact, play, communicate and do business in it as well One of its advantages is that the registration in this community is free and enables users to modify any aspect of the virtual world or even build anything in 3D. Any characteristic related with the physical appearance of the avatars, their movements or sounds are also customizable. Second Life has its own economy and its own currency, called Linden dollars, used by residents to buy and sell items created within the virtual world. This community is different from others because Second life does not use a Web browser. The users need a specific application to run it, with very high system requirements. Despite its virtues, Second Life has not garnered much success as expected, but it was a milestone in the way we navigate and interact with other users on the Internet.

IMVU is another 3D community similar to Second Life, which also has enhanced capabilities to use custom avatars and environments, allowing the user to interact with the person he is chatting with. It also allows members to develop contents to be bought by other members. The approach of this community is to chat and have fun in 3D scenes. Users can shop and dress their own stylish, custom designed avatars, decorate their own 3D space and connect with new people around the world. The main difference with Second Life is