

Chapter 13

Enhancing the Educational Experience of Calabrian Cultural Heritage: A Technology-Based Approach

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ABSTRACT

The aim of this chapter is to illustrate a technology-based approach for promoting and diffusing Calabrian cultural heritage of the ancient Magna Graecia period (VIII cent. B.D.- I cent. A.D.) in a global perspective.

To achieve this goal, the chapter focuses on the use of 3D technologies, on virtual and augmented reality, with emphasis on the stereoscopic Virtual Theatre. These innovative tools support the creation of a global vision of the fragmentary archaeological Calabrian heritage, as well as the possibility to play with the virtual findings as in a videogame, by choosing what to explore and the contents to access. Moreover, these technologies exploit the entertaining components of the systems in order to provide personalized and interactive educational contents.

INTRODUCTION

In recent years, a great deal of research in the development of efficient Information and Com-

munication Technologies (ICTs) has driven to an increasing effort in the realization of virtual cultural goods, in order to support and promote knowledge transfer related to Cultural Heritage (Knipfer et al., 2009). As a consequence, the new

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concept of “Virtual Heritage” has been introduced, referring to the use of three-dimensional computer modelling in order to virtually reconstruct monuments, buildings, and finds (Roussou, 2002; Dretakis et al., 2005). Hence, an increasing amount of both digitalized museum materials (Styliadis et al., 2009) and cultural heritage educational contents have become available on the web, stimulating interest and curiosity especially in young people (Parry, 2005; Cutri et al., 2008; Tonta, 2008). These materials offer a new kind of experience that is formative and amusing at the same time (Petric et al., 2003; Mason & McCarthy, 2006; Owston et al., 2009; Adamo et al., 2010): this new kind of learning has been called “Edutainment”, thanks to the mixture of the two terms “education” and “entertainment” (Bilotta et al., 2009; Pantano & Tavernise, 2009).

Knowledge transfer and acquisition in a both powerful and stimulating way enriches the experience, by focusing on a technology approach capable of supporting a deeper understanding of the artistic heritage in all of its components. Moreover, an archaeological site acquires visibility at a global level through the emphasis on its distinctive aspects (Bertacchini et al., 2007). In this view, Calabria region in Southern Italy represents a meaningful example of a very important but almost unknown archaeological site. In fact, it is a surely underestimated territory that offers a wide cultural and artistic patrimony as heritage of the Greek colonial expansionism in the Mediterranean area, which dates back from VIII cent. B.D. to II cent. A.D. (for this reason, the zone is also known as “Magna Graecia”).

The present work illustrates how a technology-based approach linked to Virtual Heritage, based on virtual tours, navigation system, virtual theatre, and virtual museum have been applied to Calabrian cultural patrimony in order to enhance users’ learning experience, as well as to promote the territory.

BACKGROUND

Emerging technologies such as virtual worlds have been heralded as powerful tools capable of radically transforming learning and teaching. Moreover, mobile technologies and internet are daily used by learners for both accessing to rich digital media contents and communicating with others in order to reach new didactic experience beyond the traditional ones in classroom (Bertacchini et al., 2008; Kuznik, 2009). For instance, educational involvement in the 3D online world “Second Life” has become fashionable (Herold 2010), as well as engaging web-based communication platforms have been realized in order to allow students to easily access different learning tools, such as program information, course contents, teaching assistance, discussion boards, document sharing systems, and learning resources (Chen, 2009). Many claims have been made about the “added value” which can be gained from interacting with these kinds of virtual representations, such as easier learning, better understanding and training, more engagement and pleasure (Scaife & Rogers, 2001), social skill development, high motivation (Hamalainen, 2008). For this reason, some advanced tools have been used as powerful device for training people with certain disabilities (Parsons et al., 2006), whereas user interfaces have become more intuitive by both following the requirements of the individual learner and reinforcing the drive towards more personalized didactic and greater educational autonomy (de Freitas & Neumann, 2009). Therefore, the aim of an edutainment virtual tool is to provide students with challenges related to the learning task (Kiili, 2005), by exploiting one of the main characteristic of cultural heritage virtual environments related to the possibility to provide new experiences, by enabling users to interact with objects and navigate in 3D space in ways usually possible in the physical world (e.g. ruined or fragmentary objects, disappeared locations). In fact, anything that has been present in ancient daily life is virtually real-

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