

Chapter XIX

The Educational Approach of Virtual Science Centers: Two Web Cast Studies (The Exploratorium and La Cité des Sciences et de l'Industrie)

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Abstract

This chapter looks at ways of examining informal e-learning environments to address innovative pedagogy, from two well-known institutions, where the theme of science is promoted within virtual centers, in a manner that is motivating for both online and onsite visitors. The author argues that real-time interactions such as Web casting act as a focus that enriches the people's interest and thus enhances the notion of Public Understanding of Research (PUR), while "being socialized" through the scientific community. Science centers have recently expanded their mission beyond hands-on interactive exhibits, by adopting a reflective perspective drawn from a multidisciplinary approach to technological progress; that is, covering sociological, political, historical, philosophical and even ethical issues through online conferences and live demonstrations for visitors to become involved in topical debates. This allows them to

form their own viewpoints on contemporary concerns ranging from genetic engineering and sustainability to space exploration. Within the diversity of educational resources offered by virtual science centers, it is suggested that museologists should emphasize a comprehensive description of scientific-related matters, tackling subjects, people and places, rather than objects themselves in order to genuinely fulfill a social need and arouse the audience's curiosity.

Introduction

At the turn of the third millennium, the museology semantics has been deeply altered with the dissemination of content through information technologies (IT), thus encouraging Web exhibit designers to reconsider the concepts of interactivity and interaction with their visitors. Many scholars in technological education have shown that IT improves the attention span of a large audience and is stressed to be relevant, challenging, lively and straightforward learning (Sankar & Kaju, 1999). It also enables an instructor-generated collaborative process (Hiltz, 1993), which ensures useful knowledge transfer for the public.

The contribution of IT has sparked significant changes in the curators' philosophy and is considered to be at the forefront of innovation for museums (Walsh, 1992). Computer-based exhibits are reported to be of high appeal for enticing people's interest in general topics like health, history and space; it is difficult to describe a disease, feel for a historical epoch, know a recognized figure, appreciate a chemistry experiment or visualize the Big Bang through fixed images (Bernier, 2003).

Virtual museums are not an exception, because they permit an individualized exploration from home where users are likely to be best positioned to determine what information they are looking for (Bazley et al., 2002). Moreover, they offer countless narrative storytelling and multiple content presentations with respect to both the visitors' receptivity and the subject areas to accommodate varied learning styles (Bernier, 2005). Hence, the Web has rapidly imposed itself as a technological device for improving one's apprenticeship in the sciences, natural history and the arts.

The advent of the World Wide Web has indeed broadened access to museums through pedagogical use of resources and therefore managed to expand knowledge, thus enabling the development of various innovative e-learning environments, such as global digital networking (Jackson, 1997; Witcomb, 1997), real-time demonstrations (Semper, 1998; Kjeldsberg, 1999), advanced database index interfaces (Siegel & Grigoyeva, 1999; Stuer et al., 2001), interactive telepresence (Koliou et al., 2001; Barbieri & Paolini, 2001), virtual reality (Andrews et al., 2004), online conferences (Vescia, 2002; Alexander, 2004a), remote educational programs (Schaller et al., 2002; Szalay, 2003), virtual guided tours (Bernier, 2002; Korteweg & Trofanenko, 2002), and content personalization (Oberlander et al., 1997; Beler et al., 2004), as well as Web-based discussion forums (Nilsson, 1997; Bernier & Bowen, 2004). These specific types of Web presentations should help the visitors to obtain a unique "behind-the-scenes" view of knowledge and reestablish their own ability to learn.

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