Chapter 36
Serious Games for Exhibition Contexts: Limitations and Design Decisions

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ABSTRACT

In contrast to developing home versions of educational games, the development of games for museums and exhibitions is faced with specific limitations and requirements. Thus, the game designer has to consider restrictions concerning not only its content and learning objectives, which need to be related to the exhibition, but also the limited time available for playing and for understanding its mechanics, as well as restrictions due to the game's location in the exhibition. Furthermore, typical problems related to serious games must be considered, such as creating both an educational and engaging experience for players. The authors' recommendations presented in this chapter refer to experiences made in two case studies performed by Digital Media Master students of the University of Applied Sciences Bremerhaven, Germany. Relevant design decisions of these two projects are illustrated and discussed, especially with respect to the limitations of exhibition environments. The chapter concludes that if digital technologies are well-balanced with the physical environment, a profitable combination between an interactive game and a traditional exhibition can enrich the overall visitor experience.

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INTRODUCTION

In the last years, museums and exhibitions have been taking increasing advantage of their educational potential by improving their collaboration with schools and by offering hands-on activities for young visitors. Favoured methods of motivating young people to learn from the exhibition are treasure hunts or orienteering races through the museum, as well as interactive and multimedia exhibits. Hein (1998) coined the term of a "constructivist museum" meaning a museum integrating a diversity of learning possibilities and thus offering a playful and social experience that engages all of the senses (pp. 155). Likewise, Wakkary and Hatala (2006), referring to Bell's term of "cultural ecologies" in Bell (2002), see museums as environments where visitors perform rituals that are not part of their everyday life, and where they interact in order to learn and to play. The combination of both playing and learning effectively supports reflection on experiences (Wakkary & Hatala, 2006, p. 1).

As fun is one of the important motivators for learning, and due to the increasing popularity of games, "game-based learning is discussed as an effective approach to teaching and learning" (Prensky, 2001, p. 106). If museums want to address young visitors belonging to "today's 'Net Generation', or 'digital natives', who have become disengaged with traditional instruction", as Van Eck (2006, p. 17) states, they are especially open to integrating digital game-based learning applications into their exhibitions. Also at fairs, which have the purpose of informing the public about certain topics or products, serious computer games have the potential to address young people.

A range of projects already explores the use of games in exhibition contexts. Besides online games, which may be used for preparing for a museum visit (see e.g. Din, 2006), current projects concern mainly games to be played on mobile devices, thus drawing on the potentials of mobile technology to innovate the traditional electronic museum guide. These projects have led to mobile games that present high-resolution images, video clips, and interactive animations, automatically adapt to the user context, to their specific needs and preferences, and mediate collaboration amongst groups of visitors (compare e.g. Cabrera et al., 2005, Wakkary et al., 2009, Laurillau & Paterno, 2004, Papadimitriou, Komis, Tselios, & Avouris 2006). These solutions are generally aimed at making artefacts publicly available and bringing alive what is known about the context of them in a way that attracts interest of especially young visitors. However, studies reveal several problems that also risk to emerge and may be viewed as counterproductive (see e.g. Hsi, 2003, Kwak, 2004, Wakkary & Hatala, 2006, Fraser et al., 2004): Interactive and multimedia-based devices tend to distract visitors from their appreciation of the physical museum object and to disrupt social interaction, rather than directing the attention to the environment and its exhibited objects. Museums criticise also the fact that digital technologies seem to replace well-established conventional methods including the role of museum experts and pedagogues.

Therefore, in two projects performed by students of the International Digital Media master study program at the University of Applied Sciences Bremerhaven, we chose a 'simple' approach that does not aim to substitute but to complement existing pedagogical offers: Also due to the requirements of the exhibition organizer, who preferred having guided tours by experts instead of having mobile devices as guides, we decided to develop terminal-based applications to be integrated within the exhibition. In both projects the game content refers to the exhibition, giving another perspective on certain aspects of its topic and aims to provoke curiosity for further respectively deeper exploration of it.

The first project was performed in cooperation with the German Maritime Museum in Bremerhaven. For their medieval exhibition on Hanseatic Times and the ancient boat known as a Hanseatic

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