

# Appendix H

## Learning While Playing: Design Implications for Edutainment Games

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### ABSTRACT

*This chapter reports on the initial results of a study conducted in the project FunTain. The main purpose was to identify general guidelines/implications for edutainment games, in order to guide designers of such games as they often lack in design guidelines. Usability evaluations were conducted on an edutainment game in order to find usability problems. These findings were analyzed and used as input in focus group meetings, held with joint teams of game designers and HCI experts. The outcome of the focus groups was a proposal of a list of ten general design guidelines. Findings indicate that users had problems in understanding the underlying model for the game as well as identifying the knowledge related content. Experts, further, gave comments about feedback problems and different types of consistencies. Some of the implications from the findings are guidelines for earning and losing points, scoring and performance feedback and game object characteristics.*

### INTRODUCTION

Currently, both research and practice show a great interest in studying and developing ways to use computers in various forms to support and enhance

interaction between humans. Although the issue of human-to-human interaction by use of computers is of great relevance and importance, we still must not forget about the interaction between humans and computers. New factors and aspects, not previously grasped by the Human Computer

Interaction (HCI) discipline, are becoming recognized as important in the interaction between users and technology. Aspects such as emotions, experiences and entertainment are more and more frequently considered when designing and developing new computer applications in many different areas.

Entertaining experiences is one of these new aspects that today are becoming in focus not only in traditional areas of entertainment, but are currently used in previously non-entertaining contexts as a mean to improve products and user/consumer experiences. Examples of this could be found both in the physical world (i.e., restaurants and theme parks) but also in computer contexts such as on the World Wide Web and in different kinds of software (Pine II & Gilmore, 1999; Wolf, 1999). The application of entertainment in previously non-entertaining environments and contexts opens up new research questions, as entertainment is applied and used with purposes beyond creating plain amusement and fun for the user. One of the areas where entertainment is applied with purposes beyond just creating an amusing experience is the area of edutainment, where entertainment is used in combination with education in order to create a motivating and successful environment for learning.

Adams et al. (1996) describe edutainment as a blend of education and entertainment, pursued in multimedia software. The description, or definition, indicates that the two major dimensions of importance in edutainment is some kind of pedagogy (education) and some kind of “fun” or entertaining experience (entertainment). Edutainment is therefore one example where research on new appliances of entertainment in previously non-entertainment contexts may be conducted.

Considering the definition of the edutainment concept (as a blend of entertainment and education), we might conclude that design of edutainment includes the design of both entertainment and educational aspects in a design artifact. This may cause some difficulties. The pedagogical aspects

that are of importance for the educational part of the artifact may in some cases be in opposition to the aspects of importance for the entertainment part of the artifact. There seems to be a need for some kind of trade-off to be made in order to achieve a good result in the design of both the entertainment and the education in the artifact. A parallel could be made to Nielsen’s (1999) discussion about content and package of the content in a web page design context. According to Nielsen (1999) the users of a web page are focused on the content of the page and consider the user interface, or package, as a barrier through which they reach for the content they want. Despite a cool, sizzling or “killer” interface or environment, the usability of a web page would be negatively affected if the content of the web page fails to deliver something to the user (Nielsen, 1999). Therefore, Nielsen (1999) concludes that content is king.

There is a need for design guidelines and implications when designing edutainment under these circumstances. This paper reports from an initial study conducted for the purpose of providing guidelines/implications for design of edutainment games (an instance of edutainment), performed within the FunTain project, a joint project between HCI academics and game design practitioners. The purpose of this chapter is to report the findings from initial usability evaluations on an edutainment game in order to provide design implications for design of edutainment games.

### **Qualities of an Edutainment Artifact**

In related work, suggestions of aspects that are of major importance for educational software and multimedia can be found. These suggestions should be of importance also in design of edutainment artifacts such as edutainment games.

Adams et al. (1996) suggest that multimedia products for educational purposes should be designed with the following aspects in mind: effective learning, effective teaching, effective communication of the content and effective use

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