Chapter 28

Serious Games:
Issues and Challenges for Teaching and Training

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ABSTRACT

While the study of serious games is gradually increasing, the potential of serious games to help increase the effectiveness of training and learning has also been a subject of debate in much of the literature published in the field of teaching and training. The purpose of this chapter is to review what has been studied in the literature regarding serious games for teaching and training. By discussing the foundation of game-based learning, the study not only discusses some of challenges and impacts of serious games for teaching and training, but it also outlines some of the fundamental issues and considerations for the effective use of serious games and strategy of game-based learning.

INTRODUCTION

The wider use of games has led to the development of serious gaming, or edu-gaming for engaging learners and keeping their motivation levels high (de Freitas & Griffiths, 2007). A serious game is a game designed for the primary purpose of solving a problem rather than for pure entertainment.

Serious games can be entertaining; however, the fun and entertainment is sacrificed to make a serious point since their main purpose is to train, investigate, or advertise.

Ritterfeld, Shen, Wang, Nocera, and Wang (2009) state that serious games have become an important genre of digital media. Although many of the studies being conducted have not produced firm conclusions (de Freitas & Jarvis, 2007), many advantages of serious games can be found in lit-

erature and experienced while experimenting with the games in training sessions (Pannese & Carlesi, 2007). For example, Prensky (2000) indicate that serious games merge high engagement and powerful content, and they can trigger profound reflections and permit a rapid understanding of complex business environments (as cited in Pannese & Carlesi, 2007). Westera, Nadolski, Hummel, and Wopereis (2008) state that games can provoke active learner-involvement through exploration, experimentation, competition, and co-operation and also address the changing competences needed in the information age, such as self-regulation, information skills, networked co-operation, problem solving strategies and critical thinking.

Today, the use of games and game technologies for purposes beyond entertainment is generally referred to as serious games (Sawyer, 2007). Derryberry (2007) states that what makes serious games different from the rest is "the focus on specific and intentional learning outcomes to achieve serious, measurable, sustained changes in performance and behavior" (p. 4). As a result, serious games have represented a new form of experiential and situated learning (Pannese & Carlesi, 2007). While the study of serious games is gradually increasing, the potential of serious games to help increase the effectiveness of training and learning has also been a subject of debate in much of the literature published in the field of learning (as cited in de Freitas & Jarvis, 2007). The purpose of this chapter is to review what has been studied in the literature regarding serious games for teaching and training. By discussing the foundation of game-based learning, the study not only discusses some of challenges and impacts of serious games for teaching and training, but it also outlines some of the fundamental issues and considerations for the effective use of serious games and strategy of game-based learning.

SERIOUS GAMES

Serious games include games that make use of computer technology and advanced video graphics and that are used for the purposes of learning and training (Crookall, 2010). In general, serious games can be used in emergency services training, military training, corporate education, health care, and every level of education, including all kinds of schools and universities (Derryberry, 2007). Michael and Chen (2006) point out how serious games are geared toward a large variety of audiences, including primary or secondary education, professionals, and consumers. Without a doubt, serious games have been applied to a broad spectrum of application areas and audiences.

Defining Serious Games

Since there is no single definition for serious games, the actual meaning of the concept is questioned when discussing serious games (Susi, Johannesson, & Backlund, 2007). Abt (1970) originally began to use the term of serious games and discussed the idea of an "explicit and carefully thought-out educational purpose." In his book, he states, "Games may be played seriously or casually. We are concerned with serious games in the sense that these games have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement" (Abt, 1970, p. 9). However, this does not mean the games under the serious games are not entertaining, enjoyable, or fun, but have serious purposes.

Now, the term "serious games" is used most commonly to describe "games that have serious purposes," not games simply for entertainment (Purdy, 2007). Michael and Chen (2006) define serious games as "games that do not have entertainment, enjoyment, or fun as their primary purpose" (p. 21). So, what exactly are the differences among the "game," "video game," and

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