Chapter 6
The Educational Value of Digital Games:
Possibilities and Limitations of the Use of Digital Games as Educational Tools (The Spore Case)

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ABSTRACT

Games have always been present in the development of the human society, facilitating ways of social interaction and contributing to the maturation of culture. Today, digital games present themselves as one of the most common forms of entertainment, especially for children and teenagers, combining the playful factor with pedagogical advantages, promoting changes in terms of cognitive, behavioral and psychomotor skills in its users.

The use of digital games in educational contexts encourages active, critical, autonomous and participated learning processes, overcoming some of the limitations presented in more 'conventional' methods, engaging players in non-passive forms of acquiring knowledge and skills. Aiming to demonstrate how digital games make the learning process possible by allowing the development of critical thinking, outlined during the act of playing, we will proceed to a critical analysis of Spore, a game created by Electronic Arts in 2008, demonstrating how the player places himself in an active learning situation which is self controlled and self regulated, facilitating the comprehension of phenomena that are not a part of formal teaching.

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INTRODUCTION

Gaming is considered to be a key element in child development as children, when playing, assimilate and transform their reality (Piaget, 1983). Vygotsky (1989) finds that engaging in games helps the development of creative activity among students, enhancing their abilities.

In a game, children always behave beyond the normal behavior for their age, and for their daily behavior; in a game is as if it they are larger than they actually are. (...) the game contains all developmental tendencies in a condensed form and is, itself, a major source of development (Vygotsky, 1989, p.117).

Winnicott (1975) highlights the importance of playing, which is conceptually identical to gaming (Huizinga, 2001), in children lives, referring that playing is universal, leads to social relationships, is a way of communication and is engaging. According to Winnicot (1975), it's by playing that both children and adults enjoy the freedom of creation, mobilizing their whole personality. And only by using creativity can the individual discover the self, in a process of increasing self-awareness and independence.

Huizinga (2001) suggests that gaming was a key factor in the genesis of culture in human history, stating that "the novelty factor underlying cultural processes is the creator of various fundamental forms of social life and the spirit of playful competition inherent to gaming is undoubtedly a very old social impulse" (Huizinga, 2001, p. 34), closely relating games to human expression and competition.

In today society, many authors consider digital games powerful learning tools that promote informal learning in an active, autonomous, collaborative and participative way (Prensky, 2001a; Gee, 2003).

DIGITAL GAMES AND GAME-BASED LEARNING

Engaging Digital Games

We can define a digital game as a game to be played using technological devices throughout human - computer interaction, and that has, associated to it, a narrative (Pivec and Kearney, 2007; Gee, 2003).

A game, acording to Zimmerman (2004) is a fictional interactive activity without obligations, with rules, a defined time and space and quantifiable outcomes. The game play is the free space of movement within a rigid structure (Zimmerman, 2004).

Malone (1981) and Prensky (2000) list six fundamental elements of an engaging digital game: rules, goals and objectives, outcomes and feedback, conflict/competition/challenge/opposition, interaction, and representation.

Malone (1981), refering to digital games, states that "in order for an environment to be challenging, it must provide goals whose attainment is uncertain (p.50)".

Jones (1998) argues that, for a digital game to be engaging it must obey to the following standards:

- incorporate tasks with clear goals;
- goals that the player can achieve and complete;
- the ability to concentrate on the task;
- tasks which provide immediate feedback;
- a deep and effortless involvement in the game play;
- being able to allow the player to loose concern over the self;
- altering the sense of time.

There are several typologies outlined to proceed to the classification of digital games, as the one from the British Educational Communications and Technology Agency (BECTa, 2003)[1], which outlined a typology that attempts to encompass