

Chapter VIII

A Window on Digital Games Interactions in Home Settings

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ABSTRACT

This chapter presents an analysis of the dynamics of children's digital games interactions, which take place in their home surroundings, based on empirical case study. Since digital games have become one of the main building blocks in children's world, there is a need to examine the impact of the widespread use of digital games in children's everyday life. The study's framework served as a window for close observation of the ways young children spontaneously play digital games and interact with each other. Theoretical implications for digital games research and the pedagogical implications regarding the design and implementation of interactive learning environments are discussed. In addition, there are methodological challenges of finding new pathways for studying the complex relationships between digital games and real-world learning interactions. The study's findings and their implications could serve as a small step in perusing these challenges.

THEORETICAL BACKGROUND

Like other popular media, digital games have become the building blocks of our children's world. Ellis (1983) argues that children usually play in groups, and when they do not, they share their experiences socially. Hence, playing digital games cannot be properly understood as simply a human-machine interaction, but it should be examined in social and cultural spheres that are

perhaps more important than the game itself. Gee (2003) argues that through informal game playing, children learn how to participate in what he calls "meaningful spaces," which are shaped by children's interaction with virtual agents and with each other. Nijholt (2001) also claims that since learners have become more accustomed to interacting with virtual agents during their digital games experiences, learning environments should include smart artificial intelligent agents

for scaffolding the learning process. Moreover, there are many indications that digital learning environments such as digital games and virtual reality environments may provide the cognitive bridge between concrete experiences and scientific concepts (Dede, Clarke, Ketelhut, Nelson, & Bowman, 2003). A bridge of this sort is crucial in enabling students to cope with complex problem solving and other high-level thinking skills that are at the core of scientific and technological issues. Dede et al. (2005) designed a multi-user virtual environment (MUVE) called River City, in which the learner plays a researcher in a 19th century city. In order to cure the epidemic that already spread in the city and to solve any other ecological problems, the learner is forced to collaborate with his peers. The learner uses his avatar to search for clues and interact with smart avatars while performing scientific inquiry tasks. Dede et al. (2005) found that incorporating game-based scenarios increased the high school students' motivation and engagement in learning activities, improved students' attendance, and decreased students' disruptive behavior. Furthermore, both minorities and women performed successfully in River City. Despite the positive outcomes of the River City project, only a few studies systematically examined learning in virtual environments (VEs), which incorporate games mechanisms (Barab, Thomas, Dodge, Carteaux, & Tuzun, 2002; Keating et al., 2002), and fewer studies have described the learning by digital games which takes place in informal home surroundings (Mitchell, 1985).

Over the past five years since the creation of the MUVE River City, innovations in 3D game engines, artificial intelligence technology, and high-band communications have paved the way to the widespread distribution of massive multiplayer online role-playing games (MMORPGs), such as World of Warcraft, RuneScape, and Maple Story, to name a few. Thomas and Brown (2007) argue that the ability to play one's imagination and to see and experience from many different

vantage points in MMORPGs provides a new set of tools for imaginative and innovative thinking. For that reason, studying MMORPGs empirically would enhance our understanding regarding their educational potential to become:

...spaces where work and play, convergence and divergence, and reality and imagination intertwine in a dance where students grow to understand the importance of communities of practice and learn how to be the things they imagine. (p. 169)

The need for conducting empirical studies is also one of the main conclusions stated in de Freitas' report (2007) on game-based learning and their potential use in education:

More research needed to provide empirical evidence for how game-based learning can be used most effectively. Need for more rigorous baseline studies that can quantify how much and in which ways games and simulations are currently being used most effectively to support learning. (p. 60)

Additionally, de Freitas (2007) emphasized the need for embedded games into practice to ensure effective learning, and that the use of both commercial-off-the-shelf (COTS) games and proprietary games should be embedded for effective practice based on sound pedagogic principles and design. Hence, it would be interesting to examine what children do while playing digital games and what kind of effective teaching and cheating pedagogies they perform, while playing with their friends. De Freitas (2007) concluded that game-based learning may provide new opportunities for reconsideration of how people learn and for supporting the development of new immersive spaces where learners may produce their own materials, share learning experiences, and practice skills of the 'real world'. This may have enormous implications in coming years, as:

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