Chapter 20

Video Games in Education: Opportunities for Learning Beyond Research Claims and Advertising Hype

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ABSTRACT

There has been an abundance of writing about video games in education. Characteristic of a young field, much of this work is theoretical and not necessarily based on data (de Freitas, 2006). Classroom integration strategies rely on researchers’ arguments, anecdotal evidence, and teachers’ pragmatism. Unfortunately, video games are often created for profit and to entertain, leaving many additional issues to consider (i.e., marketing, effectiveness, etc.). Researchers’ arguments combined with video games’ widespread popularity and potentially spurious advertising may leave teachers confused or misinformed. To exemplify this issue, this chapter contrasts the salient properties of a commercial game (Spore), an immersive context with game-like features (Quest Atlantis), and a pedagogically based immersive context (GlobalEd 2). Specifically, the authors describe the educational and technological affordances of three contexts, the limitations associated with each, and the necessary yet pragmatic steps involved in their classroom use.

INTRODUCTION

Video games have become both a national and international phenomenon. In the United States, nearly all students (97%) report that they play some form of electronic game (i.e., computer, web, portable, or console; Pew Internet and American Life Project, 2008). By virtue of this popularity, games given rise to new industries including professional gaming, sale of digital resources, and game-for-pay industries in Europe, North America and even Asia (Bailey, 2006; Dibbel, 2007; Jimenez, 2007). Sales figures reached $21.3 billion in 2008 (Ault, 2009) and continue to show strong signs of growth, even...
in an economic recession (Pham, 2009). The commercial appeal and success of video games is often used as part of an argument promoting the use of video games as learning tools.

However, industry professionals are commonly interested in creating entertaining games that provide a significant and often sustainable source of revenue (e.g., subscription models). By contrast, educators and researchers are committed to understanding and leveraging the educational attributes of games. These two goals are not always aligned. Researchers espouse the educative properties of games (e.g., Gee, 2003; Schrader & McCreery, 2007; Squire, 2006; Steinkuehler, 2006; Young, Schrader, & Zheng, 2006). However, developers do not necessarily leverage the current knowledge base when creating games even though researchers’ arguments are abundant, convincing, and pervasive.

The popularity of games combined with the many arguments associated with their use in classrooms may have unfortunate outcomes. For example, these “experts” in the field may persuade teachers to adopt games-based learning tools without due and careful consideration. Other, more skeptical educators may remain unsure about the effectiveness of games as learning tools. Regardless, there is little information about effective strategies or approaches to utilizing games in classrooms. Without empirical guidance, these emphatic claims about video games in education and the associated decisions to bring them into classes may be premature.

As is common in new fields, there are few studies to guide educators. The studies that exist document a wide array of helpful outcomes, including positive influence on motivation and reinforcement (Malouf, 1987; Millar & Navarick, 1984), spatial ability (Greenfield, Brannon, & Lohr, 1994; Subrahmanyam & Greenfield, 1994) and the development of complex motor skills (Day, Arthur, & Gettman, 2001; Mane, Adams, & Donchin, 1989). Moreover, several authors have postulated that games can also further skills in terms of communication (Steinkuehler, 2004; Squire, 2003), collaboration (Schrader & McCreery, 2007; Squire, 2006), and problem solving (Gee, 2003; Young et al., 2006).

However, it is clear that researchers must continue to examine video games as learning tools. Unfortunately, the development of new technology frequently outpaces academic understanding of those tools in education. In extreme cases, games designed and promoted around content may lead to undesired consequences. For example, Spore is a game designed around the concept of evolution, but play is likely to reinforce misconceptions, rather than promote scientific understanding (Bean, Sinatra, & Schrader, 2009). Given that there is a large market for all video games, developers may rush to create educational titles so they may attempt to capitalize on market trends. As a result, arguments in the literature extolling the virtues of games may not align with the affordances present in contemporary video games.

Fortunately, many of these issues can be resolved if researchers and educators are capable of moving beyond discourse extolling the virtues of educational gaming and toward the meaningful incorporation of immersive contexts into curricula. In service of this idea, this chapter describes the salient technological and educational affordances of three starkly contrasting environments that vary in terms of their ludic characteristics. Specifically, the attributes of a commercial game, a game-like immersive context developed for education, and an immersive pedagogical space are compared (Spore, Quest Atlantis, and GlobalEd 2, respectively). More importantly, this analysis provides a framework to examine the meaningful integration of video games in education. In the process, we expose an unfortunate inability for Spore to directly support disciplinary objectives as well as the compromises made by Quest Atlantis and GlobalEd 2 in order to create salient and accessible game-based instructional interventions. Ultimately, we examine implications for educators, researchers, and designers.