

# Commercial Games as an Educational Tool for Teaching and Learning

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## Introduction

The gaming industry has become a multi-billion dollar endeavor for both entertainment and education. Considering this rapid technological advancement, it is inevitable that technological evolution will occur within educational environments and society as a whole (Aldrich, 2005). This evolution of technology holds implications for teaching and learning, training and development by increasing productivity and the delivery of multiple learning situations. The game itself may not provide all the solutions in the learning process, however, technology has become a tool to enhance and develop students' ability to interact cooperatively, improve analytical skills, and provide solutions to problems at hand. With the increasing need to transfer performance on simple game design to future occupational skills, educators and the gaming industry have shifted their focus to more interactive and multimodal delivery solutions. In this light, scholars are attempting to design and conduct research employing rigorous methodologies that show the effects gaming and simulations have on learning. In this paper examples of the "successful" use of gaming and/or simulation in the K-12 setting will be explored.

## Game and Simulations

To better understand the manner in which games and simulations can overcome the negative stereotype as leisure activity; the education community will need to expand our understanding of the multimodality of learning. Gee (2003) and Kress (2003) explain that meaning and knowledge are constructed through multiple avenues such as images, text, symbols, interaction, abstract design, and sound. As such, a new type of "subject/player" is emerging who takes gaming seriously, willing to invest extensive hours toward leisure activities. Schleiner (2001) points out that "within techno-culture and disseminating out across class, ethnic and geographical barriers, younger generations into their late 20s, are devoting increasing amounts of recreation time to addictive computer games" (p 221).

Additionally, frequent gaming is said to help users adjust to a computer-oriented society (Greenfield et al., 1994). In action and adventure computer games, images tend to be more important than words; this shifts the development of representational skills from the verbal to iconic, with players visually manipulating images on a computer screen. In these ways players develop the spatial awareness and the cognitive skills that are so crucial to many computer applications. For some, they foster strategic thinking, multitasking, and social competence, valued skills in the workforce. A new type of "student" expects dynamic learning environments. Learners growing up in the digital age are far more experienced and able at processing information rapidly than were their predecessors and may become bored if they are expected to remain sedentary at school (Mumtaz, 2001; Prensky, 2001). On the other hand, simulations have elements which allow the learner to make costly mistakes without serious repercussions.

According to Appelman and Wilson (2005), simulations have more relationship to real world situations with "levels of fidelity" that provide the learner with challenges, manipulation, authenticity, consequences, control and modeling. Along with modeling, Gee (2003) points out the potential for learners to be mentored into a new affinity group through interaction and practice. With the potential for power and control, that games provide, children have the ability to positively reinforce learning. Games can provide reinforcement along with modeling, which can become one of the keys to learning in education, bringing students and teachers one step closer to additional pedagogical options. In some cases, integration of games and simulations into the classroom has been met with resistance for many reasons. Some parents, teachers, and communities of practice see them as simply entertainment or a source of increased violence in some players. At the very least, games and simulations must be as successful as traditional classroom activities. We must keep in mind that not all games are suited for the classroom (Aldrich, 2005). Yet, educators should be open minded and understand that there are elements of educational games which can be carefully embedded in classroom curriculum. As such, I will discuss five studies which have endeavored to measure the effects of gaming or simulations in K-12 settings.

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