

## Chapter 8.5

# Multi-User Virtual Learning Environments in Education

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### ABSTRACT

Today's middle school students represent a generation growing up where digital tools abound and where using them for home and school is the norm. Virtual learning environments to include multi-user virtual environments (MUVES) are fairly new to formal educational settings as teaching and learning tools but are growing in popularity. These learning environments have an ability to reach all levels of students in ways that are both familiar and appealing. This chapter reviews interest and trends in educational games and describes beginning teacher reactions to using one of these critical thinking tools designed for middle school students. Recommendations for

future implementation in classrooms are made. Faculty perspectives about these newer forms of educational technology are explored.

### INTRODUCTION

The first game, *Pong*, introduced 35 years ago, kicked-off a multi-billion dollar worldwide industry. Yet, the growth of this industry has not been without controversy. For some time, parents, educators, child advocates, medical professionals, and policymakers have voiced concerns over the content, purposes and influences of interactive and immersive entertainment games. And frankly, who can blame them? A meta-analysis of 35 research studies on videogames concluded that concern is indeed warranted (Anderson & Bushman, 2001).

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Four patterns emerged: exposure to violent games increases physiological arousal, as well as aggressive thoughts, emotions, and actions. With a mounting level of violence, blood, and antisocial behavior found in some games, the video and computer gaming industry, now self-monitors and provides outside packaging with both suggested player age and level of violent content. Despite continued concerns regarding game content, over 40% of American homes currently have a game system available (Rajagopalan & Schwartz, 2005).

However, a new genre of interactive immersive games, multi-user virtual environments (MUVES) used for classroom teaching and learning opportunities. Complete with embedded curriculum content standards, they are growing in popularity due to promising initial findings. They are a distant cousin to the videogames of yesterday, with a framework that supports the learning content contained within, in an age appropriate manner. A quick contrast illuminates a major difference between videogames and MUVES: in a videogame the other characters are often enemies that are fought; in a MUVE they help a seeker learn new information (Olsen, 2006).

Significant findings about MUVES include increased motivation to learn and lessened racial or gender differences as factors in student success. Games have been shown to help convince students of their academic potential with the greatest impact on the bottom third of students (Dede, Ketelhut, & Nelson, 2004; O'Hanlon, 2007). Students also develop social and technology skills and grow in scientific literacy. In addition, stemming from reformed child-rearing practices that have evolved over the last several generations, this equitable pedagogy follows the current movement's ideal of fostering student dignity in educational settings (Fuller, 2006).

MUVES, also called augmented reality simulation games, are a natural outgrowth of this kind of reform as they represent values of learning through trial and error and collaborative and personalized learning. They respect student thinking and em-

power them to learn in ways that are meaningful to their digital culture. "A core feature underlying augmented reality simulation games is that they give students the experience of being competent, independently thinking problem solvers, enabling them to develop identities in relationship to an established community of practice" (Squire, 2006, p. 26).

As one example of alternative active learning that fosters critical thinking in which there is increasing interest, videogames are a tool teacher educators need to share. Teacher candidate understanding of effective implementation in classrooms is needed. Squire (2006, p.19) reviews different kinds of next-generation videogames and documents the growing interest as representative of a "shift toward a culture of simulation, where digital technologies make it possible to construct, investigate, and interrogate hypothetical worlds".

Positive preliminary research in virtual learning environments has encouraged increased funding to explore the impact of new digital media technologies on the youth culture and student learning (Anderson, 2005; eSchool News, 2006; Kirk, 2001; MacArthur, 2006; Squire, 2006). A large endeavor is spearheaded by New Media Corporation, comprised of over 250 institutions, who is examining current technology applications. One of its main initiatives supports the study and exploration of educational gaming. In a recent conference, a session was devoted to the pervasiveness of games available on the Web and their learning potential. Discussed were browser games, alternate reality learning environments, and Web-based collaboration (NMC Conference, 2007). In addition to the study of gaming, preparing students for a future career in gaming has emerged as a trend.

Although gaming has attracted attention in academic settings, initiating a game curriculum at the university level is difficult. Games are interdisciplinary and their development requires simultaneous contributions from different fields. The field of gaming changes constantly, and few

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