Chapter 14
A 360-Degree Perspective of Education in 3-D Virtual Worlds

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ABSTRACT

Three-dimensional virtual world environments are providing new opportunities to develop engaging, immersive experiences in education. These virtual worlds are unique in that they allow individuals to interact with others through their avatars and with objects in the environment, and can create experiences that are not necessarily possible in the real world. Hence, virtual worlds are presenting opportunities for students to engage in both constructivist and collaborative learning. To assess the impact of the use of virtual worlds on education, a literature review is conducted to identify current applications, benefits being realized, as well as issues faced. Based on the review, educational opportunities in virtual worlds and gaps in meeting pedagogical objectives are discussed. Practical and research implications are also addressed. Virtual worlds are proving to provide unique educational experiences, with its potential only at the cusp of being explored.

INTRODUCTION

Advanced technological media have the potential to enhance online learning and education. As courses move to on-line formats, challenges emerge in meeting some of the common and core objectives in learning and education, which include engagement, interactivity, collaboration, and experimentation. Many instructors have looked to a range of technologies such as wikis and blogs (Guru & Siau, 2008) to discussion forums on Blackboard to better achieve these objectives but there are limitations faced.

One particular technology that presents new opportunities to achieving these objectives is three-dimensional (3-D) virtual world technology which provides a common space for individuals to interact and creates a learning environment that can better suit their needs. One may establish replications
of reality in this virtual space for individuals to
to enhance existing technologies’ capabilities
better achieve these goals. The environments
offer abilities to communicate and collaborate
with others in a shared virtual space that is cre-
ated by the users and foster potential for educa-
tional and cooperative activities. Typically, the
virtual environments are created by the users.
These capabilities afford new opportunities for
creativity to abound and for idea generation and
experimentation to flourish. Users can learn
through their own discovery processes, as well as
learn through their interactions and collaborative
efforts with others.

Accounts of educational applications of virtual
worlds provide insights into various opportuni-
ties that exist and are being realized, along with
issues that have been encountered. This article
addresses these applications and opportunities
by focusing on 3-D virtual world environments
in educational contexts. Specifically, this article
reviews the literature that addresses current ap-
lications, benefits, and issues of virtual worlds
in education, then summarizes opportunities and
gaps of these virtual worlds for consideration in
education, and highlights implications for both
practice and research.

3-D VIRTUAL WORLDS
IN EDUCATION

Educational institutions continually explore new
opportunities to bring the classroom online as
technology continues to grow in sophistication
and capabilities (Erickson & Siau, 2003). Some
pursue this endeavor to create greater opportuni-
ties to reach students through distance education
programs. However, some have extended this
concept of using Internet-based technologies to
teach by creating more sophisticated virtual real-
ities or virtual worlds to expand on the interaction
that takes place among students as well as with
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