Chapter 16
Pioneering in the Virtual World Frontier

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ABSTRACT

Immersion in virtual worlds presented opportunities for simulating the qualities valued in face-to-face classes with the flexibility afforded by online learning. Immersive learning engaged educators, curriculum designers, campuses, conferences, and educational community groups to devise new ways to collaborate and engage learners. Dreaming of opportunities that were not possible in the online classroom, educators saw the potential of building communities in virtual worlds. They gathered to share their and to employ novel approaches to address educational challenges. This chapter explores the phenomenon of selfhood and society integral to the development of a vibrant educational community. At the heart of virtual world education is an ecosystem of institutions, groups, and conferences comprised of the early adopters and pioneers who stimulated their imagination and pooled their resources to encourage and strengthen the community and cast their eye to the future.

INTRODUCTION

With the decline of learner motivation and engagement in the study of science, technology, engineering, and math (STEM), education sought to find novel ways to engage and inspire interest in STEM disciplines. Increases in software capability, social virtual worlds, and high speed internet access made it possible to offer classes set in virtual environments where students studied within 3D spaces.

Similar to any historical record, identifying the beginning of virtual world education is a challenge. Perspectives vary depending on the role, technology used, and the level of immersion experienced during online classes. The narrative offered here is internal and employs an ethnographic lens to report the events and to share how it felt to experience the early discoveries in 3D situated learning.

From the fictional roots found in Neal Stephenson's (1993) book Snow Crash, the Metaverse emerged as the 3D Web, a collection of virtual worlds comprised of grids, which are interconnected regions that reside on servers, often within virtual machines (VMs) to optimize their resources and processing re-

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quirements. Within the Metaverse resides the technologies that make the worlds come alive, including commercial virtual world servers, and a wealth of software for 3D design, animation design, scripting languages, compilers, interpreters, and libraries, physics engines that simulate the real world behavior, and the people, represented by avatars. The avatars, as educators, came into these worlds, encouraged by institutions and inspired by early adopters and their successes.

What were the forces that drew educational institutions to issue a call to action that stimulated attention from over 150 countries? Highlights from the early work explore how the culture evolved and the people within them formed into communities and support networks. While thousands of groups exist, the ethnographic lens features the major events and group work and shares insights into their early goals, challenges, and discoveries. The summary reflects on the future, and the ongoing work in developing programs that first assess the character strengths that define selfhood and society within a virtual community.

BACKGROUND

The River City project (Dede, 2003) fueled the imagination of educators with a historical multiuser virtual environment (MUVE) created for middle grade science students. Designed within a commercial virtual world called Active Worlds®, the science-oriented learning environment was funded by National Science Foundation grants led by Harvard's Chris Dede (2003) in collaboration with the Virtual Environments Lab at George Mason University, the Smithsonian's National Museum of American history, and research partner Thoughtful Technologies, Inc.

The goal was to help learners discover a love of science. The curriculum mapped to established assessment methods and gave educators tools for studying the *cognitive audit trails*, which served as both a metaphor and a method of assessing when learners were ready for the next level. River City represented the early promise of virtual world education and employed a team-based approach to using scientific methods to analyze and address serious problems while increasing interest and a desire to study science.

The River City simulation featured traveling back in time to address 19th century problems and in particular, three diseases using 21st century tactics. It wove historical, social and geographical content amid the threat of diseases that stemmed from airborne, water-borne, and insect-based sources within the immersive landscape. Harvard University's Graduate School of Education coordinated the design, with pilot tests conducted with Boston public schools and the implementation of the immersive MUVE (Dede & Ketelhut, 2003). The project reflected on scalability issues and how to offer the environment to schools throughout North America. Over 100 teachers and 5,000 students studied in River City across twelve states during the first two years. The River City project inspired the educational community and served as a road map for what might be possible for teaching other subjects. Active Worlds was a popular tool with educators, but a variety of forces, including financial and ownership changes led educators to seek other opportunities.

There®, a virtual landscape that encouraged the public to join the developers' community, encouraged educational use during their beta test that led to a small, but devoted group of educators. The strengths included access to diverse content and technological affordances that supported safe use (dressing rooms appeared when changing the avatar's appearance, classroom animations, vehicle physics, and an education special interest group), but also implemented a content creation and submission system that required review board approval to ensure that the content met community standards, after which, the

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