Creating Active Learning Spaces in Virtual Worlds

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INTRODUCTION

Virtual reality can advance educational practices, as creating active learning spaces in virtual worlds offers a more natural way to promote interdisciplinary studies that integrate play to engage students (Lansiquot, 2015, 2012; Lansiquot, Cabo, & Cunningham, 2016; Lansiquot & Cunningham, 2016; Lansiquot, Liou-Mark, & Blake, 2015). Role-play can facilitate engagement in interdisciplinary courses for technology students. This chapter will detail how role-playing in virtual worlds can be used effectively to support interdisciplinary studies and place-based learning, extending learning in undergraduate urban technology classrooms.

As educational technology becomes more of an emergent field and more colleges are progressing towards implementing various forms of technology in their curriculum, it is to be expected that the use of virtual worlds will become more predominant. Many colleges are trying to find the perfect way to integrate virtual worlds in order to create a unique learning tool for students to grasp how vast the virtual space can be. However, virtual space has been used in many other ways for a multitude of purposes that are not limited to just teaching. For digital games, there have been many attempts to utilize virtual worlds in order to create an immersive game where the players can experience the game in a complete way. Virtual Boy, released in the United States on August 14, 1995 by the Japanese gaming company, Nintendo, and discontinued March 2, 1996, provided a jarring, immersive virtual reality headset that was clunky and considered obsolete quickly. At the time, however, it proved to be a sufficient stepping stone in order to make the changes to create a better excursion into the virtual world. In the present, there is the Oculus Rift, released in 2016, with a newer virtual reality headset which is a strong foray into an all-around immersive look into a game in which the players are avatars who can manipulate the game as they would in real life.

In addition to its use in games, the virtual world and its massive space are used in training simulations for various professions. For example, the United States Army has implemented virtual training models in a bid to offer a more complete and effective training simulation. The benefit of this simulation is that it offers no harm to the soldiers, who can train as long as they want without risking the physical harm that real training can cause. Also, the simulation can be safely managed and edited so the training experience can be varied, and soldiers can learn how to deal with multiple scenarios. Because the virtual world is so vast and moldable, it can take whatever form its creators have in mind. Thus, the virtual world and its endless possibilities as an educational technology tool are the artist's virtual clay—if we can only find the right angle with which to approach it.

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BACKGROUND

Student learning depends on the ability to create, reflect on experiences, construct understanding, generate rules, and make sense of experiences (Piaget, 1973; Anderson & Krathwohl, 2000; Bruner, 2007). Building on this constructivist perspective, a crucial component of dynamic interdisciplinary studies is problem-based learning, an educational approach that offers the potential to help students develop flexible understanding learning skills. Problem-based learning can also be an effective method for improving classroom engagement (Ahlfeldt, Mehta, & Sellnow, 2005; Duch, Groh, & Allen, 2001). Students learning by solving problems must understand and apply concepts while becoming proficient at new skills. They collaborate to identify what they need to learn in order to solve a problem. They engage in self-directed learning, apply their new knowledge to the problem, and reflect on what they learned as well as the effectiveness of the strategies employed. Rather than simply lecturing and testing students on what was said in lecture, instructors facilitate the learning process by guiding, monitoring, and supporting (Vygotsky, 2006), helping students develop flexible knowledge, successful problem-solving skills, self-directed learning skills, effective collaboration skills, and intrinsic motivation (Hmelo-Silver, 2004).

Student learning can be further improved by adding an interdisciplinary component to courses incorporating collaborative problem solving (Cabo & Lansiquot, 2014; Lattuca, Voigt, & Fath, 2004; Project Kaleidoscope, 2011). Interdisciplinary courses encourage students to connect purposively and integrate cross-discipline knowledge and skills to solve problems in ethically and socially responsible ways. In order to comprehend factors inherent in complex problems, students must synthesize and transfer knowledge across disciplinary boundaries while becoming comfortable with complexity, uncertainty, and varied perspectives. The process demands that they think critically, communicate effectively, and work collaboratively. An innovative and effective way to address technology learning goals is to facilitate interdisciplinary studies via virtual worlds—multi-dimensional spaces composed of communities of practice in which people can establish a sense of presence, learn, socialize, and collaborate (Lave & Wenger, 1991; Schroeder, 2008; Spence, 2008; Downey, 2012).

These interdisciplinary virtual worlds are so effective because education and technology are continually interconnected, and both possess the ability to transform the world in which we live. Virtual worlds are allowing people from a variety of disciplines to create simulations for purposes that fall directly in line with their teachings. Medical virtual reality groups have devoted time to the study and advancement of simulation technology for clinical purposes, and they explore treating mental health as well as the improving motor and cognitive skills. Not only are virtual realities used for professional purposes, but they are also used to gauge patient progress in, for example, social skills. Research has found that students who struggled to become a part of a class group found it far easier to gain acceptance from their peers through the virtual realm, which made it easier for them to collaborate, instilling confidence in them and increasing their motivation. Where the real world has limitations on what can and cannot be done, the ability to introduce practical knowledge to the classroom through a means of fantastical three-dimensional effects makes the educational experience invaluable. Students are able to engage in a hazardous environment (like a construction site) and get a feel for what should and should not happen under drastic conditions, all in the safety and comfort of a classroom. The process is rewarding, and the reward in terms of self-improvement makes incorporating interdisciplinary virtual worlds all the more worthwhile (Abrosimova, 2014).