Chapter 14
Using Virtual Environments to Achieve Learner Outcomes in Interprofessional Healthcare Education

Michelle Aebersold
University of Michigan, USA

Dana Tschannen
University of Michigan, USA

ABSTRACT

The use of simulation in the training of healthcare professionals has become an essential part of the educational experience. Students and practitioners need to learn a variety of technical, interpersonal, and clinical judgment skills to be effective healthcare practitioners. Virtual simulation can provide an effective training method to facilitate learning and can be targeted to develop specific skills in the area of Interprofessional Education (IPE). This chapter reviews the literature around simulation techniques and outlines a development process that can be used to develop virtual simulations to meet a variety of learning objectives including IPE. Specific issues and solutions are also presented to ensure a successful educational experience.

INTRODUCTION

Quality and safety are ongoing concerns in the healthcare environment. A recent article in the Journal of Patient Safety found 210,000 patients die each year from preventable medical errors (James, 2013). The Joint Commission (2013) attributes over 70% of these errors to failures in communication, with the majority of failures occurring between various disciplines. This has led to an increase focus in the area of interdisciplinary or interprofessional education (IPE). The World Health Organization (WHO) defines interprofessional education as "When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (WHO, 2010, p.7)

DOI: 10.4018/978-1-5225-2237-9.ch014

In May 2011, the Interprofessional Education Collaborative published a set of core competencies for interprofessional education, which included competencies related to values/ethics, roles/responsibilities, interprofessional communications and teams/teamwork (Interprofessional Education Collaborative Expert Panel, 2011). Many academic and practice institutions have struggled with the implementation of these competencies due to a variety of challenges in both space and cost barriers. One promising methodology that may assist in attainment of these core competencies includes simulation. This chapter will provide an example of the use of one type of simulation method; virtual simulation to address the growing need for IPE to improve competencies in the area of communication.

BACKGROUND

Patient safety is currently one of the most urgent issues facing our health care systems. Beginning with the Institute of Medicine's (IOM) (Kohn, Corrigan, & Donaldson, 2000) report on patient safety in which it was reported up to 98,000 people die each year because of medical errors, patient safety has become an urgent concern for both health care administrators and those educating the future generation of health care providers. The IOM (2003) has made recommendations on health care education focused around their vision, "All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches and informatics" (http://www.nap.edu/catalog/10681.html, p. 3). In particular their recommendations around teamwork include the need to develop skills around communication and collaboration. Evidence has shown that effective team performance requires team members effectively communicate with each other and have a shared goal; such as improving patient care (AHRQ, 2003). Additionally communication failures are at the root cause of many sentinel events analyzed by The Joint Commission (a regulatory agency that accredits hospitals) (http://www.jointcommission.org/sentinel_event.aspx). Many factors including how different professions train their students to communicate create the challenges in communication that currently exist between physicians and nurses in particular (Leonard, Graham, & Bonacum, 2004).

As a result of this focus on fostering IPE many health science schools have focused efforts on utilizing simulation as a means to achieve competencies in this area. Several studies have been published in this area utilizes different approaches. In a study by Liaw and colleagues (2014) nursing and medical students engaged together in simulations using standardized patients and high-fidelity computerized mannequin simulators. The students played their respective roles in caring for a patient who was going in to septic shock and becoming quite ill. Students were able to practice skills such as roles, communication, teamwork and handoffs; meeting several IPE competencies. Pre/Post evaluation showed a significant improvement in self-confidence with no significant differences between groups and the participants were highly satisfied with their learning. In another study by Dillion, Noble and Kaplan (2009) nursing and medical students engaging in a mock cardiac arrest code blue simulation to determine their perception of the value of simulation as an IPE learning experience. The results showed the experience to be a positive one and an increase in understanding of both their own roles and the other person's roles were found. In other areas IPE is met through a combination of curricular activities and simulation activities.

Simulations as proposed in this chapter could be defined as educational simulations. Aldrich (2009) considers educational simulations as a subset of immersive learning simulations. He also classifies serious games as subset of immersive learning simulations as well as games. This is part of his overall taxonomy in which sims are the broad category that includes computer games for entertainment and immersive