# Chapter 11
# Who am I as a Healthcare Provider?
## Identity and Transformative Learning in Virtual Environments

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## ABSTRACT

*The U.S. healthcare delivery system relies on the formation of ad hoc teams of highly-trained, experienced, providers of various specialties. The providers work in interprofessional teams that converge to address situations around acute patient care. Various models of virtual training provide structured opportunities for interprofessional education, whereby learners engage with roles and responsibilities essential for their professions and active collaboration with other team members. This learning is transformative as it influences the development of professional identity and teamwork skills needed for successful collaborative practice in interprofessional teams. This chapter explores the role of training health care professional students using virtual simulations and the emerging potential of virtual and augmented reality for health professional education.*

## INTRODUCTION

It is common for healthcare providers to work in ad hoc teams that converge around acute patient care situations to stabilize, diagnose and treat illness or injury. These interprofessional teams must perform at a high level of reliability to deliver safe and appropriate patient care. Unfortunately, optimal team function may not be attained in every situation. Poorly functioning healthcare teams have a higher rate of adverse patient outcomes. Due to these concerns, health professional training programs have incorporated interprofessional educational activities as a way to teach roles and responsibilities and encourage

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positive interactions between learners in health professional programs. This chapter examines the role of virtual environments in training healthcare providers and addresses the following questions: How do interactions occur in virtual spaces created for learning? What is the role of personal and professional identity in professional training? How do experiences in virtual environments provide opportunities for transformative learning? Can learning in a variety of settings trigger the process of transformative learning?

We start by reviewing healthcare team composition and types of virtual interactions that may be applied to healthcare teams. We then discuss the development of professional identity and identify ways in which the transformative learning theory can be used to explain how learning in virtual environments may change attitudes and behaviors. We illustrate this approach through describing a learning activity set up for health professional learners across different virtual spaces. We conclude by discussing the limitations of using virtual reality (VR) in health professional training and present future directions for the use of virtual and augmented reality (AR) in health professional education.

## VIRTUAL SPACE TRAINING FOR HEALTH PROFESSIONAL TEAMS

Teamwork in healthcare settings is similar to teamwork in other disciplines with a few distinctions. Patient care demands 24/7 coverage by a team capable of efficient, high quality care. Although team composition is fluid due to the constraints of shift-work, team roles are often stable and may be fairly generic, for example, the role of providing chest compressions or rescue breathing, the role of surgeon or anesthesiologist. In some cases, there is a need to rotate the leadership structure, for example, the anesthesiologist is the leader in the operating room when anesthesia is being administered (also known as induction) and the surgeon takes over the leadership role once the patient is under anesthesia (Hughes et al., 2016). Learners who are just beginning to understand their roles on the healthcare team are often part of the team. There is an established hierarchy which is particularly evident when learners are working with senior physicians but may not be as obvious when there are multiple senior team members providing care.

All healthcare teams are at risk of making medical errors if team members lack strong communication and conflict management skills. For this reason, there is increasing attention to the role of teamwork at all levels, from training to practice. Teamwork training programs such as the Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS), developed by the Agency for Healthcare Research and Quality (AHRQ) and the Department of Defense have been used to train an estimated 1.5 million healthcare providers (Hughes et al., 2016).

Even though these learning opportunities are significant, they are still not sufficient to address the gap in the teamwork skills at all levels of healthcare systems. Virtual spaces or virtual environments provide an opportunity for instructors and learners to engage with each other from remote locations and across geographically separated campuses or other types of locations (Figure 1).

These virtual spaces allow for many more participants in the learning activity. They eliminate the need for travel and reservation of space in a simulation center but ultimately the scheduling difficulties may still arise for educators and learners. Scheduling problems can only be eliminated with asynchronous learning. While this approach also becomes more engaging in a virtual space, interprofessional learning activities should be structured to accommodate the conventional definition of involving students of two or more professions. Whether engaging learners or practicing healthcare providers, any intervention must