Chapter 3
Clinical Simulation in Nursing Education:
Immersive Educational Tech for Nurses and Midwives

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ABSTRACT

Virtual reality simulation has revolutionized the healthcare sector by fusing human skills with cutting-edge technology to promote patient-centered care, clinical efficacy, and a compassionate digital healthcare ecosystem. In order to enhance nursing education by providing dynamic and engaging learning settings, the goal of this research is to assess the transformative potential of virtual reality. Through familiarization with state-of-the-art technology through the use of immersive pedagogy and technology framework, the paper proposed a fresh way to nursing education and clinical practice. Student nurses can fully immerse themselves in a personalized

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virtual reality as if they were actually there, interact with their surroundings, and learn in a dynamic and pedagogically informative digital ecosystem by donning VR headgear or goggles. Virtual reality can be used to create incredibly lifelike simulations that allow trainee nurses to practice problem-solving skills without really putting themselves in danger as clinical simulation offers deep understanding of real-world situations.

INTRODUCTION

The global healthcare initiative that propelled the integration of nursing education into higher education institutions have resulted in a rise in the enrollment of nurses and midwives in the career training programs(Oyekunle, Ugochukwu, Rosa, Rodriguez, & Fatai, 2024). The clinical practice situation is already complicated and inadequate, and the amount of nursing students vying for the limited occupational and career progressive available space simply makes it worse(Lowman & Harms, 2022). There is a focus on clinical knowledge and dexterity, and entry-level competencies are expected of nurses and midwifery students(Ryder et al., 2024). Nurse educators are bringing back old techniques for student skill development in response to the problems with clinical space and practice adequacy(Rodríguez, de Cortez, Gómez, Pérez, & Huuskonen, 2024). The need for proactive and contemporary methods to be incorporated into the teaching curriculum is required to be updated as the health industry debates how much high fidelity simulation can be situated within the clinical experiences, ushering in 3D computer simulation model into the mainstream educational syllabus(Jagatheesaperumal, Ahmad, Al-Fuqaha, & Qadir, 2024). In order to prepare students for clinical practice, 3D computer simulation model is designed to enhance teaching, learning and understanding of anatomical systems and its responses to environmental and chemical stimulus. This aligned with the viewpoint of active pedagogic stimulations and is used in the context of health and nursing education. It is linked to the growth of the clinical judgment, decision-making, and problem-solving abilities required by nurses and midwives in the health services, as well as the emotional competencies essential to the work process and all-encompassing care(Malekzadeh, 2017). It is also mentioned that the simulation is acknowledged for encouraging a secure learning environment where a mistake does not endanger the patient.

Given that the architecture of the simulation can influence improved learning results, figuring out what makes it up can help fund the development of more assertive simulation-based experiences (SBE) in nursing and health sector(Cant, Cooper, & Ryan, 2022). Furthermore, SBE formulators can create trustworthy simulation scenarios for clinical practice by using the components of simulation design that