



SIMULATION AND VIRTUAL REALITY

Introduction and Definitions

INTRODUCTION AND DEFINITIONS

SIMULATION

“Simulations are activities that mimic the reality of a clinical environment and are designed to demonstrate procedures, decision-making and critical thinking through techniques such as role-playing and the use of devices such as interactive videos or mannequins” - National Council of State Boards of Nursing (NCSBN)

VIRTUAL REALITY (VR) in Education

“This computer-based three-dimensional education tool simulates real-life patient experiences in a risk-free environment, allows for repeated practice sessions, requires clinical decision making, exposes students to diverse patient conditions, provides immediate feedback and is portable” (Jensen & Forsyth, 2012)

360 DEGREE VIDEO

“A video designed to have the viewer feel like they are actually present”

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INTRODUCTION TO EASTERN MICHIGAN SIMULATION PROGRAM

In 2010, discussion between the Eastern Michigan University School of Nursing and St. Joseph Mercy Hospital led to the establishment of a shared simulation space for a new physician assistant program. This space was designed to provide simulation experiences for hospital staff and Eastern Michigan University students from both the physician assistant and nursing programs. Existing space in the hospital was renovated for the simulation center.

Personnel were hired by the hospital to direct and run the simulations and by the university to facilitate the student groups. Facilitators consisted of university faculty in the school of nursing, the physician assistant program, and hospital employees hired for their area of expertise. For example, a nurse currently working in obstetrics at the hospital facilitated obstetrics simulations for students. Training for facilitators included introductory videos on simulation and an orientation to the environment.

Since its opening in May 2014, the simulation center has served more than 10 different health care groups including nurses, patient care technicians, anesthesia providers, respiratory therapists, patient companions, and students in both nursing and medicine.

(Myler & Seuryneck, 2016).

COMMON TERMINOLOGY

- **Augmented reality (AR):** is an enhanced version of the real physical world that is achieved through the use of digital visual elements, sound, or other sensory stimuli delivered via technology (<https://www.investopedia.com/terms/a/augmented-reality.asp>).
- **Confederate:** An individual other than the patient who is scripted in a simulation to provide realism, additional challenges, or additional information for the learner (Levine et al., 2013)
- **Debriefing:** Activity that follows a simulation experience led by a facilitator wherein feedback is provided on the simulation participants' performance while positive aspects of the completed simulation are discussed and reflective thinking encouraged (Society for Implementation Research Collaboration).

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- **Facilitation:** Broadly used to describe any activity which makes tasks for others easy, or tasks that are assisted.
- **Facilitator:** A trained individual who provides guidance, support, and structure at some or all stages of simulation-based learning including prebriefing, simulation, and/or debriefing.
- **Feedback:** Information given or dialog between participants, facilitator, simulator, or peer with the intention of improving the understanding of concepts or aspects of performance.
- **Fiction Contract:** The implicit or explicit agreement among participants and facilitator(s) about how the participant is expected to interact with the simulated situation and how the facilitators will treat that interaction.
- **Fidelity:** Describes the level of realism associated with a particular simulation activity. It is not constrained to a certain type of simulation modality, and higher levels of fidelity are not required for a simulation to be successful. It is typically desirable to increase fidelity where reasonable, however (Society for Simulation in Healthcare).
- **Head mounted display (HMD):** A head mounted display or HMD refers to a VR headset, basically a set of lenses combined with either an inbuilt display or attached smartphone in the form of a helmet or goggles that can be strapped around your head (<https://delight-vr.com/xr-glossary/>)
- **Healthcare simulation** is a range of activities that share a broad, similar purpose – to improve the safety, effectiveness, and efficiency of **healthcare** services (Society for Simulation in Healthcare).
- **Hybrid simulation:** Integrating different types of simulation across different dimensions of applications, purposes, and target populations and assessing the impact or benefit of simulation-based training across the various dimensions (Gaba, 2004).
- **In Situ:** A simulation conducted in the actual patient care area/setting in which the health care providers would normally function in order to achieve a high level of fidelity.
- **Manikin/Mannikin/Mannequin/Manakin (other):** These are part-or-full-body simulators that can have varying levels of function and fidelity. There is usually additional

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descriptive terminology that is added to allow for understanding of what type of manikin is being described (SSH).

- **Modality:** A term used to refer to the type(s) of simulation being used as part of the educational activity. (e.g., task trainers, manikin-based, standardized/simulated patients, computer-based, virtual reality, and hybrid (SSH).
- **Needs Assessment:** A systematic process of identifying gaps in knowledge, skills, or attitudes of the learner.
- **Prebrief (Prebriefing):** An information or orientation session held prior to the start of a simulation activity in which instructions or preparatory information is given to the participants. The purpose of the prebriefing is to set the stage for a scenario, and assist participants in achieving scenario objectives (Lioce et al., 2020).
- **Prompt:** A cue given to a participant in a scenario (Meakim et al., 2013).
- **Standardized patient:** A simulated patient, standardized patient, or sample patient (SP) (also known as a patient instructor), in healthcare, is an individual who is trained to act as a real patient in order to simulate a set of symptoms or problems. Simulated patients have been successfully used in medical education, nursing education, evaluation, and research (Levine et al., 2013).
- **Virtual Reality (VR):** is the use of computer technology to create a simulated environment
- **Virtual reality sickness:** Virtual reality sickness is a feeling of discomfort or disorientation that can occur when experiencing virtual environments (<https://delight-vr.com/xr-glossary/>)

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