

## Virtual Reality in Simulation Based Medical Education: The New Trend

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Simulation-based teaching is an educational system that simulates real-life scenarios, allowing students to gain practical experience without the risks involved with real-life practice [1]. Simulation-based medical education (SBME) has become increasingly popular in medical education. Basic clinical skills and non-technical skills such as communication skill and decision making can be efficiently enhanced by SBME instruction as well [2]. The integration of advanced technology in recent years has allowed SBME to evolve according to the advancements of the digital era. In medical education, virtual reality (VR) is quickly becoming a popular and effective tool, especially for simulation-based teaching and learning. VR can provide a secure, monitored, and interesting learning environment for students in medical education by incorporating it into the curriculum.

Virtual Reality allows an immersive learning environment by allowing the medical students to immerse themselves in lifelike clinical environments, such as operating rooms, casualties, or patient wards which make it easier for them to practice clinical skills, make quick decisions, and react to real-time situations. With the help of virtual reality (VR), medical students practice taking medical histories, diagnosing illnesses, and treating patients by programming them to display different medical conditions. An infinite number of case scenarios can be created by manipulating these virtual patients to mimic various reactions.

Students can navigate real-time clinical decision trees in virtual reality. For instance, based on patient reactions, they can decide on diagnostic tests, start therapies, or modify management strategies. In a realistic, virtual setting, learners can practice skills like suturing or making incisions. It also allows medical students to make mistakes without actually hurting patients, which is crucial for high-stakes skills like intubation, cardiopulmonary resuscitation (CPR) and complex surgeries. VR simulations give multiple opportunities to learn procedures or scenarios thereby building competence and confidence before treating real patients.

Virtual Simulators provide instant feedback to the students which help them to identify mistakes and pick up the right methods more quickly [3, 4]. Additionally, they have the ability to monitor student's progress over time, producing performance data that can assist teachers in determining the strengths and weaknesses of their student's performance. Mannequins, cadavers, and medical equipment can be costly to maintain. Some of these expenses are removed by the use of VR-based simulations in medical education, providing high-quality educational experiences.

Even though access to VR hardware and software may necessitate a large infrastructure investment, virtual reality with its immersive and safe learning environment has the potential to revolutionize simulation-based teaching in medical education. Traditional educational methods should be supplemented by virtual reality, not replaced. But like any technology, it must be carefully integrated and continuously evaluated to guarantee that it offers an efficient education that enhances conventional teaching techniques.

### References

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