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Letter to Editor

# Integration of Virtual Reality to Medical Education Training in Africa

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## Abstract

This article demonstrates the required implementations of Virtual reality in medical education in Africa. Following that, it also highlights the importance of virtual reality in the rehabilitation of patients and corresponding recommendations.

**Keywords:** Virtual Reality; Medical Education; Medical Schools

Many medical schools train medical students with experiential training conventionally via cadavers, mannequins, training software in which these tools have been employed to train medical professionals for years excellently. However, there has been progressive development in virtual reality training as many medical schools have integrated it into their medical training curriculum [1]. Virtual Reality (VR) is principally a computer-generated simulation. Which substitutes an individual abode and an event of immersive 360 habitats that can be generated employing computer-generated content [2]. 360 photos and videos VR was discovered with potency to address principal challenges in Africa's education and the healthcare system as numerous schools financed by the government are overcrowded with students merged with inadequate teaching and financial supplies [2]. Students can experiment in virtual labs to examine the human body with VR as a learning aid 2. The first-generation virtual reality (VR) modeled simulated surgery was done in 2009 to eliminate brain tumors. Succeeded by webcasting colon surgery at St Bartholomew's Hospital in London which was the foremost in the chronicle of medical science via a 360-degree camera. Which captured and telecasted the surgery throughout the period and make it available to high numbers of viewers globally. The application of VR has been adopted since 2020 by hospitals and medical universities to train specialists, carry out surgery and give education in medical training remotely [3].

Medical students principally learn in the confine of the classrooms all around the pre-clinical years of medical school with the absence of real-life exposure, not until clinical rotations which have minimal surgical rotation and give small duration for practical surgical exposure. VR provides a prospective clinical episode for medical students preceding surgical residency via observation of medical procedures and comprehends medical procedures from a first-person viewpoint which will project students above the curve from a preliminary level [1]. Furthermore, apart from expertise/adroitness VR gives occasions for medical students to develop sen-

sitivity towards the patients which is one of the great virtues in the medical profession through the experience of certain patient's diseases namely be vision loss, hearing loss, vertigo, in addition, VR helps to evolve Psychomotor expertise, sensory sharpness, and cognitive planning necessary for clinical skills to undertake multiplex medical procedures [1,5].

Medical doctors are required to undertake surgical operations immaculately and rapidly in which through the adoption of virtual reality (VR). Procedures can be done in a completely immersive situational condition. Medical students can utilize medical virtual reality training for more standard surgical operations which, are lifesaving. Furthermore, it obtains actual/concurrent appraisal of their performance. Working in the emergency room entails resilience and expertise, espousing virtual reality will assist students to make prompt decisions and undertake surgical procedures that will rescue victim's lives and support their situations [1,5].

With virtual reality dependence, cadavers will be required, limited in training medical students in human anatomy as VR is espoused to learn precise and real genuine anatomy of the human. Namely cardiovascular system, central nervous system, muscles, and bones in a fully immersive habitat [1].

Normally in medical training, trainees evolved their dexterities by observing mentors which have been greatly restricted by the pandemic globally 3. Most elective medical procedures have witnessed indeterminate postponement due to the outbreak which strangulates the opportunities for in-person clinical training. VR creates conducive learning abide for surgeons undergoing training through virtually simulated operating rooms which invigorate their credence, develop good competency and procedures, obtain good experience and prevent them from the highly infectious virus 3,4. Corroborated by a report from students' apprehension of VR-based medical training which disclosed 77% of medical students regarded training via VR to be a dependable avenue for preliminary clinical evaluation,94% stated that VR is an epitome for diagnostic operation, and 81% valued VR functionality in therapy alternative [4].

In the course of the COVID-19 pandemic, VR was greatly utilized in remote areas to enhance telemedicine, organize, heal and give accurate understanding to patients about their diseases [4].

VR has been espoused in recuperation and rehabilitation with a good result as the technology utilized in VR applications hoodwinks the brain into thinking in another real life. Such as a bedded patient is virtually shifted to an altered reality where the victims can relish an immersive experience of hiking, snorkeling, etc. known as a VR distraction treatment, such virtual experience causes the brain to escape the present reality resulting to reduce agony and worry [3].

The provision of sufficient funds by government and private agencies for the prolific operation of VR as hardware and software to run this simulation are of high cost, provision of government blueprints and stimulus to run VR as a business in Africa. Training of medical trainees to be experienced in maintaining the better working condition of VR in Africa and in laparoscopic or robotic techniques which, are rarely utilized in low-income countries.

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