

# Virtual Reality Application for Improved Learning and Retention

by NINAH ADAMILO WAMINAJE

## ABSTRACT

The integration of virtual reality (VR) technology in biology education provides an enhanced learning environment that encompasses immersive and interactive experiences. This approach addresses the existing challenges in the Nigerian education system, caters to various learning styles, and contributes to improved student retention and engagement. The effectiveness of this educational method is supported by a comprehensive research methodology that combines qualitative and quantitative approaches.

## INTRODUCTION

This study evaluates VR's educational potential. VR allows for immersive learning that transcends traditional limitations. It addresses implementation and inclusion issues. VR boosts student retention. User testing examines VR's impact on Nigerian biology instruction. This study highlights interactive approaches in biology. It compares VR modules to traditional methods of teaching.

## METHODOLOGY AND RESULT

In order to assess user retention, two student groups were selected using a random selection process. The experimental group utilised a virtual reality Biology programme, whilst the control group received conventional PowerPoint-based instruction. Following the completion of the sessions, both groups underwent an identical exam, wherein the virtual reality group achieved an average score of 6.5294, while the non-virtual reality group obtained an average score of 6.3888. This study used a mixed methods approach to investigate the effects of virtual reality on retention rates. It combines qualitative analysis of open-ended surveys with quantitative analysis of questionnaire data. The holistic method employed in this study offers a thorough understanding of educational behaviour, shedding light on the intricate nature of involvement and revealing the impact of virtual reality.

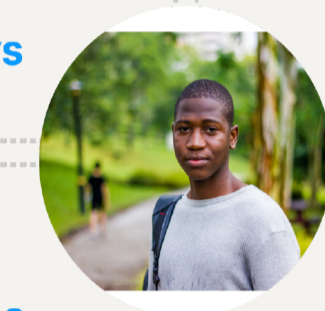
Average performance VR group (First test)	Average performance non-VR group (First test)	Average performance VR group (Second test)	Average performance non-VR group (Second test)
6.5294/10	6.3888/10	7.0526/10	5.7333/10

- . I need to pass my exams
- . I want to understand this course
- . I need to carry out practicals
- . I need to learn how to draw biology diagrams

- . what if I don't understand this course before my exams?
- . what if I don't remember what i have studied?
- . what if i don't learn how to draw?
- . the school does not have practical lab materials, what can I do?

Says

Thinks



Does

Feels

- . Add more study hours
- . Get varieties of textbooks
- . Form a study group
- . Watch Youtube videos

- . Hopeful that the extra study hours will pay off
- . Anxious about understanding the course without practicals
- . Frustrated that there is no enough practicals carried out.

## CONCLUSIONS AND FUTUREWORK

This study suggests VR-enhanced education research areas. The prolonged exposure effects of VR, the effects of lighting on VR experiences, the potential benefits of better graphics in educational VR applications, ergonomic VR system design, multidisciplinary studies to understand the broader implications of VR in education, and the potential.

In summary, quantitative analyses and surveys show that virtual reality improves educational achievement and information retention. VR technology performed better in retention tests, showing potential prospects. The poll showed persistent interest for virtual reality regardless of technological understanding. Comfort has little effect. The association between comfort, prior experience, and user experience is weak. Virtual reality in teaching has great potential, independent of comfort or experience. This research adds to the body of knowledge on VR's educational efficacy, suggesting it might revolutionise pedagogy.

## IMAGE BOARD

