

PERCEPTIONS OF VIRTUAL AND AUGMENTED REALITY ADOPTION IN SOUTH AFRICAN UNIVERSITIES OF TECHNOLOGY: A SYSTEMATIC REVIEW

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ABSTRACT

Virtual Reality (VR) and Augmented Reality (AR) are increasingly transforming higher education worldwide by enabling immersive, experiential, and simulation-based learning environments. South African Universities of Technology (UoTs), with their strong emphasis on applied, and industry-aligned education, present a particularly relevant context for the integration of these technologies. Despite growing interest, evidence regarding the perceived impact of VR and AR within South African UoTs remains fragmented and dispersed across disciplines. This systematic review synthesises empirical research on the perceived impact of VR and AR adoption in South African Universities of Technology, with a focus on stakeholder perceptions of usefulness and ease of use, key barriers and enablers to implementation, and implications for practical integration models. The review followed the PRISMA guidelines, with searches conducted in Scopus, Web of Science, ERIC, Sabinet, and Google Scholar for studies published between 2020 and 2025. From 55 identified records, 31 peer-reviewed empirical studies met the inclusion criteria and were analysed using thematic synthesis. Three major themes emerged: perceived learning enhancement and industry readiness; institutional readiness and infrastructure constraints; and socio-technical barriers and adoption enablers. Findings indicate that students, lecturers, and administrators generally perceive VR and AR as beneficial for enhancing experiential learning, motivation, and practical skill development aligned with industry needs. However, high costs, infrastructure limitations, limited training, and policy gaps constrain sustainable implementation. The review concludes that while VR and AR demonstrate strong perceived potential to enhance teaching and learning in South African UoTs, successful integration requires structured institutional readiness models, strategic policy alignment, and sustained capacity building. Future research should focus on validating implementation frameworks and conducting longitudinal studies to measure long term educational and institutional impact.

Keywords: Virtual Reality; Augmented Reality; Technology Adoption; Higher Education; Universities of Technology; South Africa; Perceived Impact; Systematic Review.