The Utilization of Augmented Reality in Curriculum Development for Students with Dyscalculia Ad Dyslexia in Applied Science Education: a South African University Case Study

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Abstract

This study investigates the integration of augmented reality (AR) technology into curriculum development for students with learning disabilities within the faculty of applied science in a South African higher education institution. The prevalence of learning disabilities such as dyscalculia and dyslexia among tertiary students in South Africa underscores the need for innovative pedagogical approaches that cater to diverse learning needs. Augmented reality, with its interactive and immersive features, enhances the accessibility and efficacy of educational content for students with learning disabilities. This research employs a qualitative systematic literature review approach. By examining the perceptions, experiences, and learning outcomes of both students and educators, this study aims to identify the benefits, challenges, and best practices associated with utilizing AR technology in curriculum development for students with dyscalculia and dyslexia. Additionally, the study explores the contextual factors unique to applied science education in a South African higher education institution that influence the implementation and effectiveness of AR-based interventions. Findings from this research contribute to the growing body of knowledge on AI in education, inclusive education practices and provide practical insights for educators, curriculum developers, and policymakers seeking to leverage technology to support diverse learners in higher education.

Keywords: Augmented Reality; Curriculum Development; Dyscalculia; Dyslexia; South African Higher Education