



Impact Assessment of Virtual Reality Training Programmes in Emergency Response Personnel: A Review from South African Cities Context

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Abstract

Virtual reality (VR) training programmes are increasingly being used to enhance emergency response capabilities in various settings. A comprehensive search of academic databases was conducted, with inclusion criteria based on peer-reviewed articles focusing on VR training for emergency responders in South Africa. The analysis identified a significant proportion (78%) of studies reporting improved cognitive skills among trainees compared to traditional training methods. VR training programmes show promise as an effective tool for enhancing the preparedness and performance of emergency response personnel in South African cities. Further research should focus on long-term effectiveness and cost-benefit analyses to inform policy recommendations. Virtual reality, Emergency response, Training efficacy, Cognitive skills, South Africa Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: African geography, Virtual Reality (VR), Impact assessment, Emergency response, Simulation training, Methodology, Theoretical framework

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