An Online VR Training with Virtual Humans and Omnidirectional Images for Fall Hazard Recognition

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ABSTRACT

Online safety training is an increasingly utilized tool to deliver flexible learning opportunities for workers in the construction industry. Traditionally, online safety training relies mainly on text and images for delivering trainee learning and assessment methodologies. This study investigates the use of online virtual reality (VR) environments powered by virtual humans and omnidirectional images to offer an alternative safety training method for fall hazard identification. A pilot study using a between-subjects experiment design was completed with construction management students to compare online traditional and VR training approaches. Construction students trained using one of two online methods – traditional or VR – to identify fall hazards. Subsequently, student learning was assessed in an online virtual environment to determine their hazard identification capabilities. Metrics regarding hazard identification index (HII) and time of completion were collected from the students. The results of the training did not detect statistical differences between traditional and VR student scores for HII or the time required to complete the training and assessment activities. It was concluded that the VR deliver was equivalent in terms of hazard identification knowledge with traditional training.