VIRTUAL REALITY MANUAL HANDLING INDUCTION TRAINING: IMPACT ON HAZARD IDENTIFICATION

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Abstract

Use of Virtual reality (VR) for safety training programs enables instructors to present a wide variety of controlled stimuli to multiple, dispersed users. Often VR scenarios replace traditional text information with a visual representation and assumptions are made on how interacting with the computer-generated scenarios will improve skills. Research investigating whether VR does in fact improve safety skills and in what areas of learning or skill development this medium is superior is limited. This project assessed a VR training program in manual handling developed for two high risk industries, Mining and Construction. Manual handling training delivered to novice trainees via either non-interactive PowerPoint slides or interactive VR scenarios were compared. While participants scored similarly in multiple-choice assessments the interactive VR group scored significantly higher when assessed by visually-based assessments such as photographs (30% more correct answers) and video (20% more correct answers) of manual handling events. Through use of a visual identification assessment, both groups were able to identify when another person was using correct manual handling techniques more than incorrect techniques. However, the VR group were 15- 20% better at identifying when others were undertaking dangerous manual handling actions which has important implications for contributing to safer workplaces. Using a visual rather than multiple choice assessment, not only assessed their knowledge, but also their hazard awareness. Results are discussed in terms of the effectiveness of interactive VR versus passive text-based training and the importance of assessment to ascertain the range and type of knowledge gained during safety training.

Keywords: Manual Handling, safety induction, hazard awareness, virtual reality