A cross-cultural study on the perception of the use of immersive virtual reality in health and safety training for professional chemical engineers

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Abstract

The use of immersive virtual reality (IVR) has become a feasible alternative to conventional training methods. This is due to the fact that IVR provides the user with a dynamic, immersive, interactive, and safe training space where they can construct their knowledge through trial and error techniques that reflect real-life situations and events. With the rapid development of IVR tools, it is important to understand the direct determinants affecting professionals' decision towards this new technology for training purposes. Yet, little is known about the specific factors that impact the intention to use IVR in the training environment. The purpose of this study is to examine the key factors that may hinder or facilitate the adoption of IVR in health and safety training; and to provide a preliminary analysis of a framework that predicts the level of IVR technology acceptance in a cross-cultural context. To understand professionals' perceptions towards IVR, a conceptual framework was developed through adapting and modifying the Unified Theory of Acceptance and Use of Technology (UTAUT2). Data was collected using an online survey from professional chemical engineers who were either coming from developed or developing country. These were analysed using structural equation modelling based on SmartPLS 3. The findings from this study will help the stakeholders, especially company executive officers to understand the issues facing IVR adoption in different cultural settings. Moreover, the results will guide them in formulating appropriate strategies to improve the acceptance of IVR by both developed and developing countries.

Keywords: Virtual Reality, UTAUT2, Technology adoption, Training, Culture, Health and Safety.

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