Effect of Virtual Reality Immersiveness on Protection Motivation of Tornado Hazards

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Virtual reality (VR) and virtual worlds have increased in popularity and are used in many areas, including education, digital commerce, and entertainment (Eschenbrenner et al., 2008; Nah et al., 2011). Advancement in VR technology has increased the degree of immersiveness that is possible – as in the case of Fish Tank Virtual Reality with head tracking and a conventional monitor, as well as Cave Automatic Virtual Environment (CAVE) with a projection system, a tracking system, and a computer system (Forsberg et al., 2008). In this research, we will study the immersiveness of VR animation in the context of tornado disasters to assess whether the immersiveness of VR animation of a tornado increases the sense of realness of experiencing a tornado, and whether the perceived sense of realness increases protection motivation. Drawing on the presence and protection motivation theories, we hypothesize that VR immersiveness increases the perceived sense of realness with partial mediation by spatial presence and involvement, and the perceived sense of realness in turn increases protection motivation with fear induced by the VR experience of a tornado as a mediator (Rogers, 1975, 1983; Schubert et al. 1999; Stewart, 2015). We plan to conduct a laboratory experiment with different degrees of VR immersiveness to test our research hypotheses.

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