CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

Ruwanthi N. Ekanayake

Project Number

35545

Project Title

Effects of Avatar-Based Virtual Reality on Veracity Perception and Kinetosis

Abstract

Objectives/Goals

The purpose was to investigate correlations between presence, immersion, perceptual modality, stress and kinetosis in vision-dominated virtual reality (VR) compared to limited-submersion virtual reality.

Methods/Materials

Subjects received virtual reality experiences in different VR settings, in either high or low stress environments, and took two surveys to place them into a perceptual modality category and to determine their relative levels of kinetosis, immersion, and presence.

Results

The subjects displayed a high correlation between immersion and presence in both the vision-dominated and limited-submersion VR settings, with correlations of 0.42689 and 0.4564, respectively. There were negligible correlations between presense and kinetosis and immersion and kinetosis. There was an increase in kinetosis with visual and kinesthetic VR participants, as well as with high-stress participants.

Conclusions/Discussion

Contrary to the hypothesis, this study suggested that presence and immersion have less to do with experienced kinetosis; rather familiarity of sensory input and stress levels contribute more in a virtual reality settting. This provides important information for the use of virtual reality as an educational tool, as well as one used in military and cooperative circumstances.

Summary Statement

My project is about the factors that affect kinetosis in various virtual reality mediums.

Help Received

Received guidance and used equipment from UCLA mentors