

Visual immersion: Design of the second experiment

In order to determine whether it was the space visuals that generated the AWCH experiences, rather than other features involved in the VSL of the first experiment, we decided to shift away from the mixed reality of the VSL. We stripped away the narrative elements and the physical VSL structure and conducted the second experiment in a VR cave setting, using Northrup Grumman's Virtual Immersive Portable Environment (VIPE). This environment provided a 180° simulation screen, so that the natural vertical and lateral ranges of view surrounded the periphery within the panoramic projection. The participant was seated in a comfortable gaming-style chair, centrally positioned for a full view of the screen. The limitations involving gravity and being earth bound were still in effect. The immersive visual simulation, however, gave us more control over the immediate environment. In the first experiment we found greater effects from the visual of earth, so we dropped the deep space condition and the conditions that involved views of the ISS and the moon. We also introduced a control condition.

Participants viewed a control condition first, and then one of two experimental conditions. That presentation order was consistent for the optimization of recall and the control of effect size from the magnitude of the viewing area. Groups were assigned randomly prior to participant arrival. During the control condition, participants viewed a geometric shape moving distally with similar levels of speed, light contrast, and direction as used in the experimental visuals.

In experimental condition 1 participants viewed images of the earth moving distally, with a starting point near-earth, finishing with the entire globe in view from space (the focal condition: FOC). Specifically, participant's perspective began at with an aerial view of the University of Central Florida campus based on satellite images, and slowly withdrew from the earth, completing with a space-view of Earth. The aerial view of UCF is somewhat iconic since it is designed in a circular fashion and was easily recognized by the participants.



Focused condition: time elapsed: 6 seconds

Experimental condition 2, started with a “global” vantage simulation (GLO): participants viewed the earth from near-space, with the eastern hemisphere in partial view. This condition began with a near-space vantage and moved outward to the same space-view of

Earth as the FOC group. In both experimental conditions, the image moved at the same pace both in orbit and trajectory, and contained similar light/dark contrasts. All conditions lasted for 7 minutes each. All simulation conditions used original digital animation that incorporated actual satellite images with artistry.



Global condition: time elapsed: 6 seconds



Focused condition: time elapsed: 6 mins. 45 seconds



Global condition: time elapsed: 6 mins. 45 seconds