Colorado Science and Engineering Fair

2024 Team Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Liminal Spaces and the Uncanny Valley: An Interdisciplinary Virtual Reality and Psychology Experimental Research Design

Team Leader's Name: Ethan Wang

Team Member 1: Aaron Vincentius Chen

Team Member 2: James Kerrane

School and City: Peak to Peak, Laffayette

Sponsor's Name: Ilse Meiler

Category: Behavioral & Social Sciences (BEHA)

Division: Senior (9th - 12th grades)

Abstract (250 words or less):

Liminal spaces are a subset of spaces that induce subconscious anxiety, leading to potential discomfort, diminished attention, and other adverse effects. Previous studies have created similar environments by removing items, adjusting lighting, and altering human presence; however, many studies overlook the potential of object orientation to increase the liminality of a setting. In our experiment, we utilized expertise from an online Unity certification course and research design plans from our school's Senior Psychology course to develop a VR simulation for experimental purposes. During our data collection process, the control group experienced a set of commonly known spaces (Classroom, Grocery Store, and Library) without any alterations. In contrast, the experimental group would see these spaces with disoriented objects and no other changes. Both groups were prompted to advance through each room as they pleased by pressing a large button. During the experiment, we tracked the participants' time spent in each room and provided a survey asking about comfort levels in each space. Our findings revealed that students were less comfortable in disoriented spaces, yet they spent longer in those spaces oddly. We attributed this correlation to students being unfamiliar with those environments and staying longer to explore the new spaces. As society emerges from COVID-19, bringing people back into public spaces, our discoveries about space orientation and comfortability could support return initiatives. On a broader scale, this demonstrates VR technology's potential within psychological experimentation and broader research implementation, revolutionizing human data acquisition.

We hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. We also attest that the above properly reflects our own work.

Team Leader's Signature: ____________ Date: 28/02/24

Team Member 1's Signature: ____________ Date: 02/28/24

Team Member 2's Signature: ____________ Date: 2/28/24

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with your Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.