IAT 445

Robin C. A. Barrett

Design Hypotheses leading up to Category-VR

In the design of my final project, I have to be careful, as the sole designer, coder, and marketer on my team, not to overstretch myself or commit too many resources to features that might get scrapped from the final project. As such, it will be necessary to conduct some research to guide my final steps as we get closer to the end of the semester.

**Design Hypothesis 1:**

My first hypothesis is that the instructions given to users in my experimental environment will be sufficient for them to be able to learn the skills necessary to learn the experiment in a relatively short amount of time.

I will measure the degree to which this I achieve this, I will have the participants play the tutorial, as well as a few practice trials of the real experiment. Following this, I will get them to fill out a survey asking them for their thoughts on the instructions using a 5-point Likert Scale Questions would include:

* “I feel that the tutorial did a good job preparing me for the experiment”
* “I felt that the tutorial was clear and easy to follow”
* “I did not feel confused when I started the experiment after having completed the tutorial”

If people generally feel that they know what they need to do once they enter the real experiment, then it is unlikely that they will need extra guidance from a research assistant which will not be available in the case that we do remote testing.

Because this is self-report data, there is always the chance that participants will answer with what they think I want to hear. To combat this bias, it will be important to have at least one open ended, short answer question in the survey that asks “How could the tutorial of this program be improved” to allow for people to give more negative opinions of the product.

**Design Hypothesis 2:**

My second hypothesis is that because VR does not allow for participants to be distracted by things in their home, they will be able to enter a state of flow while trying to learn the categories of this experiment.

I will measure this by having participants fill out the Flow for Presence Questionnaire (Redaelli & Riva, 2011) after having completed a moderate amount of trial blocks.

This test is a peer-reviewed measure that has several validation studies behind it, and so it will give us a good idea as to whether or not this experiment was able to elicit a flow state in some participants.

Again, being self-report data, there is always the chance that response could be marred by an expectancy bias

**Design Hypothesis 3:**

If there is variability in the degree to which different people experience flow while partaking in my research study, I would be very interested to know if the degree to which someone enters flow while in VR has any impact on their performance in the experiment itself as they learn to recognize the different categories.

I would measure this by comparing the interpretable findings of the Flow for Presence Questionnaire to the tracked data for each participant, and see if there are any differences in how well participants who achieved flow did in terms of three major indicators:

* How many people in the flow groups reached the criterion point of learning (defined as when they are able to make 10 correct choices in a row) vs those who did not enter flow?
* How do the reactions times of people in flow compare to those who did not enter flow across the span of the experiment?
* Is the overall accuracy across the experiment higher for those who entered flow vs those who did not?

It’s totally possible that people who do not enter flow still perform well-enough to reach the criterion point, and if the task is inherently too easy, then we might see a floor effect where both groups do equally well not because of a lack of difference between their state of minds, but because the task was simply too easy. Flow also might not correlate with reaction time, and so these three findings must be taken in conjunction with one another to produce a unified verdict on whether or not the flow state has an impact on performance.

**References:**

Redaelli, Claudia & Riva, Giuseppe. (2011). Flow for Presence Questionnaire. 10.1007/978-1-84996-172-1\_1.