

**Title: Examining Individual Differences in Response Bias in Recognition Memory**

**Faculty Mentor: Dr. Peter Delaney**

**Student: Gabriel McNair**

**This statement certifies that both the student, Gabriel McNair, and faculty mentor, Peter Delaney, were involved in the development of this OUR URCA award application**

## **Project Goals**

The purpose of this study is to examine whether there is a relationship between personality and recognition memory. It will extend the findings of a recent study conducted by Dr. Peter Delaney, Yoojin Chang, and Dr. Peter Verkoijen that explores strength-dependent recovery (SDR). Sometimes when we fail to correctly recognize a studied item on a recognition test, we nonetheless “recover” it on a later recognition test. SDR is the finding that one’s ability to recover information depends on the number of times the information was initially studied: items that were better learned (but unrecognized on an initial test) are recovered at a higher rate than items that were less well-learned. The results of the study are important to theories in cognitive psychology, because most theories suggest that a test cannot benefit an item if it is not correctly recognized.

This study will attempt to analyze how one’s personality relates to his/her response bias when discriminating studied items from new items. There are well-established techniques for examining response bias in recognition, and some people say “yes” more often and some say “no” more often. Surprisingly, no one has examined this question in the literature. We will also examine whether SDR is larger with people with certain personality traits—again, via correlation.

## **Methods**

The study will be conducted online using M-Turk by Amazon. The personality measure that will be used is the standard NEO or “OCEAN” scale which assesses participants’ openness, conscientiousness, extraversion, agreeableness, and neuroticism by having them answer a questionnaire. Following the questionnaire, the experiment will be identical to the aforementioned one conducted by Dr. Peter Delaney and Yoojin Chang, and Dr. Peter Verkoijen. The participants will be shown a list of nonsense syllable items that will each appear on the screen individually for 4s, some of which will be underlined. Participants will be instructed to pay close attention to the underlined items for a later recall test. The participant will then be shown a second list of items consisting of targets that were underlined from the previous list and new foils, none of which will be underlined. The participant will be told to respond “yes” to the items that appeared underlined in the previous lists and “no” to those that did not. The number of correctly identified items will be scored and matched with the personality data gathered from the OCEAN questionnaire.

## **Role of Faculty Member**

Dr. Delaney introduced and explained the process of his experiment to Gabriel and encouraged him to conduct undergraduate research. He will serve as the primary advisor for this experiment to provide background readings and to ensure that the research process is properly executed. He

will assist in teaching how to conduct experiments through M-Turk and in analyzing the data using statistical software. He will also be a co-author of any manuscripts or presentations.

### **Role of Student**

The student, Gabriel McNair, proposed the idea for the experiment to Dr. Delaney. He will write an IRB proposal, prepare the materials for this project, and collect the data. He will enhance his understanding of the material and apply concepts learned from other studies and information assigned by Dr. Delaney. He will be responsible for conducting a presentation of the project and writing up the results for publication—if they are interesting.

### **Benefits to Faculty Mentor**

This project extends one of Dr. Delaney's most recent papers (Delaney, Chang, Verkoeijen, 2013). The idea of this study is one that has not yet been explored in the literature on either personality or memory. The results, if reliable, could be important to theory development.

### **Benefits to the Student**

Gabriel is an undergraduate psychology major interested in pursuing his Ph.D. This project will help him to propel himself forward in what is the second most common major in the nation. He will gain valuable experience in conducting research, using programs, analyzing and interpreting data, and presenting. This project will enable him to gain a better understanding of the research aspect of psychology and, thus, gather more knowledge of potential career paths. This project will also provide networking opportunities with other people in the field of psychology, which is paramount when applying for graduate school.

### **Justification for Award Amount**

The money is needed to pay participants on Amazon Mechanical Turk. Participants are usually paid \$1 each and we anticipate running 2-3 experiments in addition to pilot studies. For personality correlates, a large sample is likely required. The SDR also requires a large sample to obtain reliably. Additionally, a portion of the money would be used as compensation for Gabriel since he plans to take a temporary leave from his job in order to invest 40 hours per week on this study.

## Literature Cited

Delaney, P.F., Chang, Y., Verkoeijen, P. J. L. (2013). *Analyzing Gains in Recognition Testing: Is Recovery on Repeated Recognition Tests Strength-Dependent?* Manuscript submitted for publication.