1. **TITLE**

What is behavior?

1. **DATES**

Start Date: On Approval

End Date: July 1, 2021

1. **INVESTIGATORS**

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1. Check if data will be collected from or about any of the following protected populations: □ minors □ prisoners □ pregnant women □ fetuses □ institutionalized mentally disabled (individuals residing as patients in an institution who are mentally ill or retarded; emotionally disturbed; psychotic; or senile).

**PURPOSE AND BACKGROUND**

The present protocol is intended to cover a range of studies, all employing similar behavioral paradigms. This protocol incorporates several aims covered by this lab. These aims are

*1)* Understanding whether there is a consistent definition of behavior that is used among researchers.

*2)* Understanding whether this definition is different between people who work in different subfields.

Data collected in these studies will be used for further analysis.

1. **STUDY DESIGN, PROCEDURES, AND ANALYSIS PLAN**

Although our planned experiments deal with the effects of a range of manipulations of human performance and decision making, all have a similar structure. The specific task that subjects will perform will vary according to the specific experiment, but in general participants will be presented with visual and/or auditory stimuli on a computer monitor and/or via standard speakers or headphones, and then be asked to make a decision, either a judgment about the stimuli, a prediction about the next stimulus, or a choice between several stimuli. In some trials, participants will receive feedback (a positive or negative number of points or cents accrued presented on the monitor, or a picture of a small food item such as an m&m candy, or a small quantity (~1ml) of juice or water reward delivered orally through a plastic tube fastened to a pacifier held in the participant’s mouth) following their decision.

The experiments will be conducted in two forms, either in-person or online. Online experiments will be divided into: 1) online experiments run via Princeton’s SONA student subject pool and 2) online experiments run via Amazon.com’s Mechanical Turk service. Amazon Mechanical Turk provides willing online participants the opportunity to perform simple tasks on a computer for small monetary rewards. The in-person experiments will be further divided into: 1) experiments performed in the lab and 2) experiments performed outside of the lab.

Emotion-eliciting stimuli in the form of film clips will be used to induce happiness and sadness in participants belonging to their respective conditions. All other stimuli and task situations used in the planned experiments will be physically and psychologically innocuous, that is, not emotionally charged, offensive or highly stressful.  All auditory stimuli will be presented at a maximal level of 70dB, which is equivalent to the intensity of normal conversation.

Each testing session will include task instructions, the presentation of stimuli and collection of responses and debriefing. To minimize fatigue, discomfort or eyestrain, subjects will be offered rest periods as required during a test session, at least once every 15 minutes, but often more frequently. During these rest periods subjects will be able to move around the room, stretch and speak. At the end of the experiment, subjects will be given a debriefing interview or summary sheet that describes the hypothesis being tested and the logic of the experiment (i.e., how does the experiment test this hypothesis), and the experimenter will answer any questions that the subject might have regarding the experiment.

The number of participants run in each study will be less than 400, with in-lab studies running 20-70 participants. Larger Mechanical Turk and in-person outside-of-the-lab studies may run closer to 400 participants. The total duration of each session (including instructions) will not exceed one hour. We will collect informed consent from each subject prior to subjects’ starting the experiment (see Section 7 for more details on how we will collect consent.) At this time, subjects will be informed that they can end their participation in the study at any time. We will use the standard informed consent document previously approved by this panel, modified to fit the specific details of the particular study. Two copies of this consent form have been attached – one for in-lab studies, the other for Mechanical Turk studies. Analysis of the data from all experiments will include a range of behavioral measures including reaction times, error rates and perceptual classification decisions. For some studies we will, in a separate session, also administer an initial standard battery of tests assessing various cognitive measures such as reaction time, working memory, and IQ. Indicators used may include, but are not restricted to, Raven's Progressive Matrices, an N-back task for working memory and a digit substitution test. In addition, for some studies we will administer questionnaires on affect (PANAS; Watson et al., 1988), hypomania (HPS; Eckblad and Chapman, 1986) and general behavioral characteristics (GBI; Depue et al., 1981). We will also administer questionnaires on impulsivity (BIS-11; Patton et al., 1995); ADHD (Adult ADHD Self-Report Scale (ASRS) Version 1.1; Kessler et al., 2005); anxiety (GAD-7; Spitzer et al., 2006; Spielberger State-Trait Anxiety Inventory; Spielberger, 2010); uncertainty (Intolerance of Uncertainty Scale; Carleton et al., 2007); and extraversion (IPIP Neo Extraversion Scale; Donnellan et al., 2006). A copy of each of these questionnaires has been attached to this amendment.

1. **SUBJECT SELECTION AND WITDRAWAL**

**Inclusion Criteria.** We will recruit participants from the academic community, which will include students, as well as other community members. Participants from the following range will be recruited: 18-90 years old. The racial, ethnic, and gender characteristics of the recruited sample will approximate the demographics of the source population.

**Exclusion Criteria.** No subjects who meet the inclusion criteria will be excluded from this study.

**Subject Recruitment.** Student recruitment will be done through notices posted to university related use-net lists, flyers posted around campus, and the Princeton University subject pool. To expand the recruitment to include other community participants, notices on the Niv lab website, electronic bulletin boards, on local radio stations, and local newspaper advertisements may also be utilized. In experiments in which juice or water rewards are used, subjects may be asked to refrain from drinking for 2 hours to a maximum of 4 hours (depending on the season) prior to the experiment. In experiments in which pictorial food rewards are used, subjects may be asked to refrain from eating for a maximum of 5 hours prior to the experiment. In experiments where participants 60 and older will be recruited, outreach efforts will extend to local social and community centers, as well as other pertinent organizations (e.g. the Community Auditing Program). Recruitment for this age group may also include posting flyers outside campus in public places of interest. For the Amazon Mechanical Turk experiment, subjects will be recruited entirely through Amazon.

For in-person outside-of-the-lab experiments, subjects may be recruited on the day of the experiment through signage and word of mouth.

**Early Withdrawal of Subjects.** During the consent process at the beginning of the session, subjects will be informed that they may withdraw at any time simply by closing the survey.

**Compensation.** Participants will not receive material compensation for this study.

1. **INFORMED CONSENT**

For experiments conducted online, it will not be possible to request signed consent. In lieu of this, subjects will be asked to press a button or check a box on a web form indicating their consent.

1. **DECEPTION**

No deception will be used in our studies.

1. **DEBRIEFING**

After completion of the study, participants will be given a full description of the scientific purpose of the study, and offered the opportunity to email questions and comments. The debriefing form will be tailored to match the experimental purpose of the study mentioned in this protocol.. For the online version the debriefing form will be available for the subjects.

1. **JEOPARDY**

Participation of subjects will not place any group or class of individuals in physical, legal, social and/or psychological jeopardy.

1. **RISKS**

This study involves minimal foreseeable risk. No vulnerable populations will be recruited and no sensitive or personal information will be collected. The risks to participants amount to the innocuous effects of the routine mood inductions involved (happiness, sadness, disgust, and fear) and to those involved in sitting in a chair and using a computer, that is, boredom or mild frustration with the task. It will be made clear to every subject that he/she can halt the experiment at any time and for any reason.

1. **RISK/BENEFIT RATIO**

Other than the possible psychological reward of participating in research, this paradigm provides no direct benefit to the subject. There are no known harmful risks involved. Information gathered will be used to advance our understanding of behavior, information which may eventually contribute to the diagnosis, treatment and cure of neurological and psychiatric disorders.

1. **SUBJECT CONFIDENTIALITY**

Subjects will be assigned a coded designation that will deprive the collected data of any connection to the subject’s identity, while the actual names, contact information, and other personal information will be kept in a locked file cabinet, with access available only to persons listed in this application. If any information obtained from this study is published, it will be written so that the identity of the subjects will remain confidential.

Mechanical Turk worker IDs will not be shared with anyone outside of the research team and will be removed from any data sets if any information from the study is published.

1. **OUTSIDE AGENCIES**

The only outside agency involved in this research is Google.com, which will administer the online study. Google serves as an honest broker (a centralized custodian who controls data and will not release codes or IDs), and their privacy policy is outlined here https://www.mturk.com/mturk/privacynotice#info. Participation on Mechanical Turk (and this experiment) is entirely voluntary. Participants may choose not to provide any data they do not wish to. The researchers will not have access to personally identifiable data regarding the users of Amazon’s Mechanical Turk system who participate in this study.

1. **TRAINING AND CERITIFICATION**

All University personnel who interact with human subjects or with identifiable subject data as part of this research project must complete the University’s training program and be so certified prior to initiating contact with subjects or identifiable subject data. Furthermore, all third-party contractors or subcontractors or collaborating institutions who personnel will interact with human subjects or with identifiable subject data as part of this research project must certify to the IRB that their personnel have undergone appropriate internal training as well. Please respond to the following questions:

* 1. Have all investigators identified above completed the University's training program (please check appropriate box): **Yes**.

If No, please complete the training program immediately after reviewing ORPA's homepage information about this procedure.

* 1. Are there any current or anticipated future employees or students working on this project who will interact with human subjects or with identifiable subject data? **Yes**.

If Yes, please state that you understand that such personnel must complete the University's training program before they may interact with subjects or identifiable subject data.

**If any other students or employees are to be involved in this research in a capacity in which they interact with subjects or identifiable subject data, we will file an addendum to this application with their names and certification of their Princeton human subjects training prior to permitting their involvement.**

* 1. Are there or will there be any third party contractors or subcontractors or collaborating institutions working on this project whose personnel will interact with human subjects or with identifiable subject data? **No**.

Please note that the IRB will not approve this study unless all proper training is completed or certifications are received.

**18.** **SIGNATURES**

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Principal Investigator Graduate Student

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Graduate Student Graduate Student

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

**Checklist for Submission**

Please be sure that you have submitted all of the following, whenever appropriate.

□ Contact information for all participating investigators

□ Consent forms that include a description of the research

□ Debriefing forms, if needed

□ Complete Questionnaire or interview protocol and recruitment letters (in English if research is being conducted in a foreign country)

□ IRB approvals

□ Certificate of Human Subjects training

□ Secure storage of data

□ Secure storage of consent forms, separately from data

□ Signatures