DOCUMENTATION

of

PSYCHOPHYSIOLOGY SESSION PROCEDURES

in

MIDUS Refresher Neuroscience Project (P5)

University of Wisconsin ♦ Center for Healthy Minds

August 2019

INTRODUCTION

This document is intended to provide an overview of the Neuroscience Project's (P5) MIDUS Refresher psychophysiology data collection protocol and the measures collected during the session. Partial variable names have been provided where appropriate. For more detailed information on variable names and data collection procedures, please see (*MR_P5_VARIABLE_NAMES_08-02-19.doc* and *MR_P5_MEMO_README_20190802.docx*).

Sessions typically began late morning (between 11:30 a.m. and 12:00 p.m.), after completion of the Biomarker Project's (P4) protocol at the UW Hospital (Madison, WI), and ended early evening (between 5:00 and 5:30 p.m.). Whenever possible, all of the following measures were collected in the order listed below. In some cases, some data could not be provided due to time constraints during the day of the session, technical difficulties, or inability of participant to complete the task. In these cases, the appropriate missing value was listed (See *MR_P5_MEMO_README_20190802.docx* and *MR_P5_DOCUMENTATION_OF_SCALES_05-09-19.doc* for further information on missing values).

Neuroscience Project (P5) Psychophysiology Protocol & Variable Naming

1. **Questionnaires Part 1:**
    a. State-Trait Anxiety Inventory – State Form (STAI-X1), TIME 1 **[RA5SS1]**
    b. State-Trait Anxiety Inventory – Trait Form (STAI-X2) **[RA5SST]**
    c. Positive Affect Negative Affect Schedule-Now, TIME 1 **[RA5SP1]**
    d. Positive Affect Negative Affect Schedule-General **[RA5SPG]**
    e. Dispositional Positive Emotion Scale (DPES) **[RA5SDP]**

Further information regarding questionnaires can be found in:

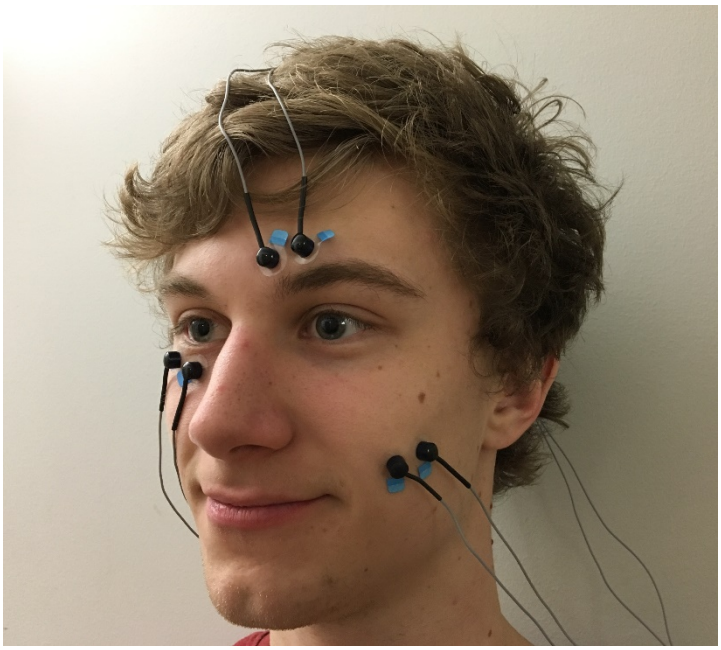
MR_P5_DOCUMENTATION_OF_SCALES_05-09-19.doc

2. **Hearing Test [RA5O]:** Tones of various frequencies (250, 500, 1000 Hz) were played for participants in one ear at a time. Participants indicated when they were able to hear a tone. Data represents the lowest decibel level at which participants were able to hear a tone at a particular frequency in each ear.

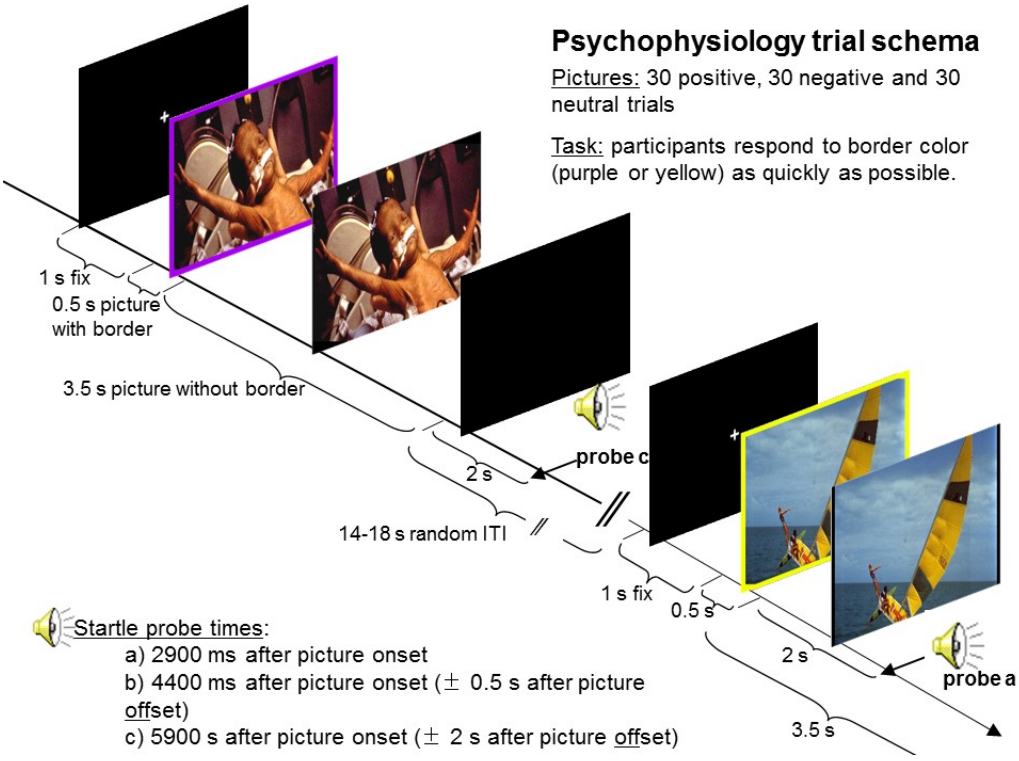
3. **Psychophysiology Task:**
    a. Physiocheck – tests physiological signals
    b. Practice trials
    c. Baseline – five-minute recording while participant is at rest
        i. Heart rate variability (EKG) **[RA5K1]**
    d. Emotional response task with border identification response times and accuracy (4 blocks ~7 ½ minutes each):
        i. Corrugator EMG **[RA5C]**
        ii. Eyeblink startle reflex (EBR) **[RA5B]**

iii. Zygomaticus EMG **[RA5L]**

Sensor Application: One EKG sensor was placed about an inch below participant's right collarbone, and one sensor was placed midway between participant's left hip and rib cage. Facial EMG sensors were applied to the corrugator supercilii, zygomaticus major, and orbicularis oculi, as shown in the figure below:



MIDUSRef Psychophysiology Task Schema:



Further information regarding the Psychophysiology task can be found in:

MR_P5_INSTRUMENTS_08-02-19.doc

4. Questionnaires Part 2:

a. STAI-X1, TIME 2 **[RA5SS2]**

b. PANAS-NOW, TIME 2 **[RA5SP2]**

c. Emotion Regulation Questionnaire **[RA5SER]**

d. Cube and Paper Task **[RA5D]**

e. Interpersonal Reactivity Index (IRI) **[RA5SIR]**

Further information regarding questionnaires can be found in:

MR_P5_DOCUMENTATION_OF_SCALES_05-09-19.doc

5. CANTAB

a. Motor Screening Test (MOT) **[RA5NM]**

b. Intra-Extra Dimensional Set Shift (IED) **[RA5NI]**

c. Affective Go/No-go (AGN) **[RA5NA]**

d. Information Sampling Test (IST)**[RA5NS]**

e. Attention Switching Task (AST) **[RA5NT]**

f. Emotion Recognition Task (ERT) **[RA5NE]**

g. Cambridge Gambling Task (CGT) **[RA5NG] ***

i. *Note that CGT data is typically collected on the second day of participation in the neuroscience project (i.e., the day of the MRI scan).

Further information regarding CANTAB tasks can be found in:

MR_P5_DOCUMENTATION_OF_CANTAB_08-02-19.doc

6. **Free Recall [RA5F]**

For the free recall task, participants were given *up to* 15 minutes to recall as many of the pictures seen during the psychophysiology task as possible by writing descriptions onto a blank sheet of paper. Written descriptions were carefully matched to the appropriate picture. Data are given as total number of pictures correctly recalled by valence, by social and nonsocial picture types, and overall.

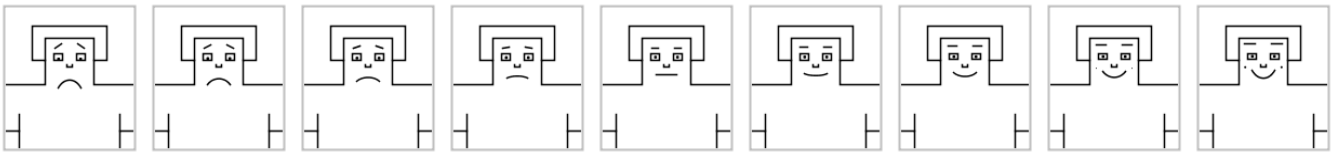
7. Picture Ratings Task

a. Valence (Unpleasant vs. Pleasant) **[RA5TV]**

Participants rated the images viewed during the psychophysiology task by valence on a scale of 1-9 using Bradley and Lang's Self-Assessment Manikin (1994):

UNPLEASANT PLEASANT

1 2 3 4 5 6 7 8 9

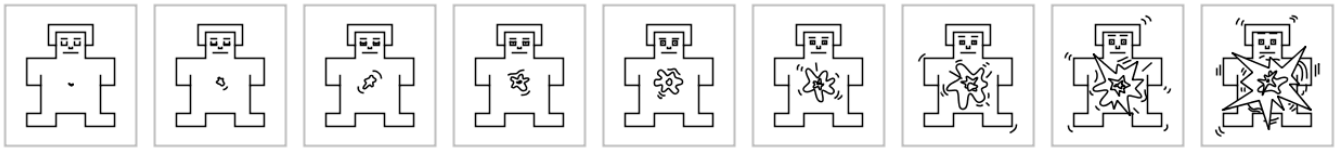


b. Arousal (Calm vs. Excited) **[RA5TA]**

Participants rated the images viewed during the psychophysiology task by arousal on a scale of 1-9:

CALM EXCITED

1 2 3 4 5 6 7 8 9



Mean ratings of valence and arousal are provided for each category of picture valence (positive, negative, and neutral).

REFERENCES

Bradley, M. M., & Lang, P. J. (1994). Measuring emotion: the self-assessment manikin and the semantic differential. *Journal of Behavior Therapy and Experimental Psychiatry*, *25*(1), 49–59.