

## Method

### Participants

Twenty-four undergraduate psychology students (16 women, 8 men, ethnicities: < >) from San José State University participated in this study. They were recruited from an upper division research methods course and participated in partial fulfillment of a course requirement. All participants reported normal or corrected-to-normal vision.

### Stimuli

The stimulus for each trial was presented against a gray background in the center of the screen and was either a word or a face.

**Words.** The word stimuli were drawn from a list of either Good or Bad words. The Good Word list consisted of 16 words associated with positive emotions (caress, freedom, health, love, peace, cheer, friend, heaven, loyal, pleasure, diamond, gentle, honest, lucky, rainbow, diploma). The Bad Word list consisted of 16 words associated with negative emotions (abuse, crash, murder, sickness, accident, death, grief, poison, stink, assault, disaster, hatred, pollute, tragedy, bomb, filth). The words were presented in black 18-point courier new font.

**Faces.** The face stimuli were either of White or Black individuals. There were 16 faces of white individuals and 16 faces of black individuals. Each face showed a section of a human face of varying age cropped from the middle of the forehead down to half of the mouth vertically and to just exclude the temples horizontally. The faces were presented in black and white (not color).

### Apparatus

The experiment was run inside a well-lit individual testing laboratory equipped with a computer, monitor, and standard computer keyboard. The computer used had processor = < > ,

speed = <>, ram = <>, video card = <>, and monitor = <>. The experiment was programmed using E-Prime experiment generation software (Psychology software tools Inc, version 2.03). The viewing distance was 72 cm. Responses were made and collected using the numeric keypad on a standard computer keyboard with the participants using two fingers of either their right or left hand.

### **Procedure and Design**

The experiment lasted for about 10-15 min. Prior to the start of the experiment, each participant signed an informed consent form. The experiment began with written and oral instructions. The experiment had two conditions that were presented in a counterbalanced order across participants. Each participant received both the match and mismatch condition. Each condition consisted of two blocks of trials: one block of 16 practice trials and one block of 64 experimental trials. Participants were given two tasks- the Face Task (whether White or Black) and the Word Task (whether Good or Bad). In each task, the participants had to choose one or the other according to the stimuli presented and press either the '1' or '2' key. There were untimed breaks before each of the two practice blocks and the two experimental blocks. The match versus mismatch depended on the two tasks given to the participants. The match condition was when White/Good and Black/Bad pairs occurred on separate keys. The mismatch condition was when White/Bad and Black/Good pairs occurred on separate keys. The counterbalance was such that the '1' key was always used for the entire experiment for only one of Good, Bad, White, or Black without changing across match and mismatch conditions.

**Each trial.** Each trial began with the presentation of the fixation cross for 1000 ms, then was replaced with the stimulus (i.e., word stimulus or face stimulus). The stimulus remained on the screen until a response was made either by pressing the '1' or '2' key or until response

termination after 3000 ms. Feedback was then presented on the screen for 1500 ms. The feedback indicated if the response was “correct,” “incorrect,” or if “no response” was detected. For correct and incorrect responses, reaction time and percent of trials correct was given.

### Results

Accuracy and reaction time data were analyzed using separate analyses of variance. The experiment was a 2x2 within subject factorial design. The conditions were match versus mismatch and task, each having two levels. The match level was when White/Good and Black/Bad were paired on each key whereas the mismatch level was when White/Bad and Black/Good were paired on each key. The tasks were to identify the face as Black or White and to identify the word as Good or Bad. The data were analyzed using repeated measures analysis of variance for individual participant means for each of the experimental cells. Prior to analyses, one participant was excluded due to an overall accuracy of below 75 percent.

#### Reaction Time

There was a significant main effect of task; namely, the mean face task reaction time (763 ms) was faster than the mean word task reaction time (818 ms) by 55 ms,  $F(1,22) = 5.84, p = .024$ . There was a significant main effect of match versus mismatch; namely, the mean match reaction time (722 ms) was faster than the mean mismatch reaction time (860 ms) by 138 ms,  $F(1,22) = 14.60, p = .001$ . The difference of match between words and faces was larger than the difference of mismatch between words and faces, therefore an interaction effect,  $F(1,22) = .27, ns$ . The mean reaction time was only for those trials that have been responded to correctly. The overall means of reaction time are illustrated in figure 1.

**Accuracy**

There was not a main effect of task; namely, the word task (90.3%) was only slightly more accurate than the face task (89.7%) by 0.6%,  $F(1,22) = .07$ , *ns*. There was a significant main effect of match versus mismatch; namely, mismatch (85.9%) was less accurate than match (94.2%) by 8.3%,  $F(1,22) = 13.69$ ,  $p = .001$ . There was no evidence of an interaction effect between match versus mismatch and task. The accuracy data is illustrated in figure 2.

$p < .1$

✓



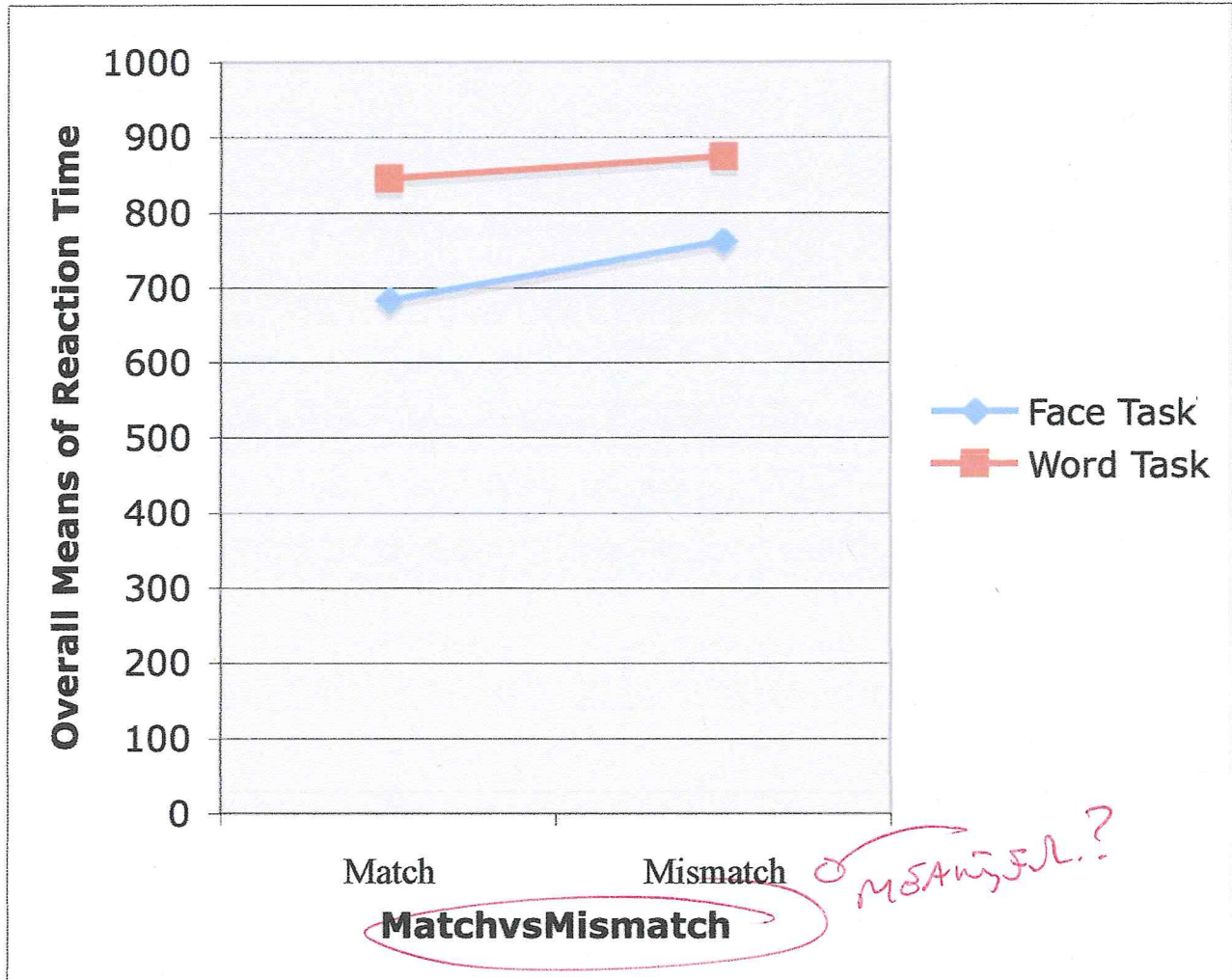


Figure 1. Overall Means of Reaction Time for Correctly Responded-to Trials for the Task by Match versus Mismatch Conditions

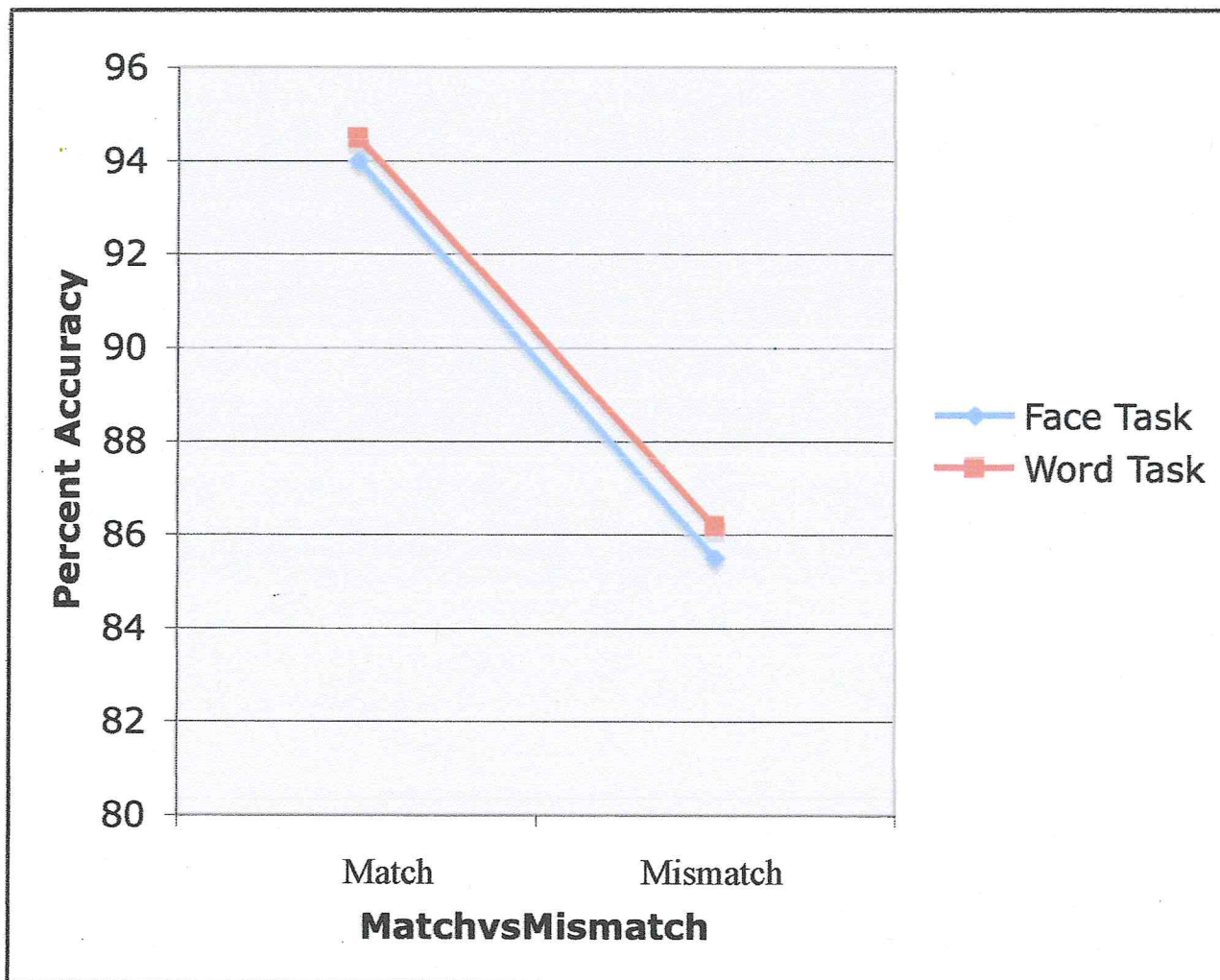


Figure 2. Percent Accuracy of the Task by Match versus Mismatch Conditions.