

Introduction

Self-Face Recognition (SFR) may be an indicator of self-awareness (Keenan, 2000). Is this ability any different from General Face Recognition (GFR)? Is this ability different in the two cerebral hemispheres? Our study compares SFR in the two normal hemispheres using tachistoscopic presentation.

Methods

• Participants:

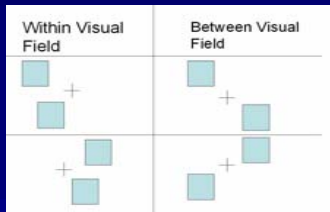
Thirteen undergraduate students (5 male) completed this experiment for course credit.

• Design:

This experiment was conducted using E-Prime. Subjects focused on a center fixation cross.

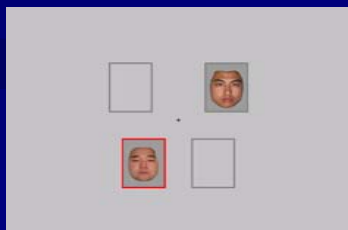
Two images were tachistoscopically flashed on each trial, a Target (highlighted in red) and a Distractor.

Target and Distractor were randomly presented to four possible locations:



Task: Is the Target (highlighted in red) "self" or "not self?"

180ms presentation



#1
• Stimuli:

- 1) A photo of the subject's own face (self-face).
- 2) A photo of a gender-matched stranger's face (other-face).
- 3) A scrambled face (neutral-face).

• Task:

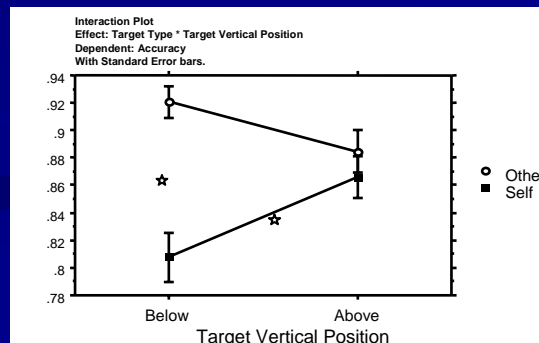
Two alternative forced choice, with bimanual responses indicating whether the Target was "self" or "not self."

• Data Analysis:

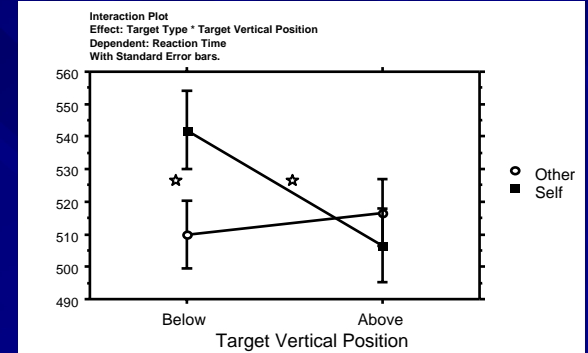
A 2 (Target Type: self vs. other) x 3 (Distractor Type: self vs. other vs. scrambled) x 2 (Target Vertical Position: above vs. below) x 2 (Distractor Vertical Position: above vs. below) x 2 (VF: left vs. right) ANOVA was completed.

Dependent variables were mean accuracies and median reaction times.

Results



• Subjects were less accurate whenever the Target was a self-face and presented Below Fixation, $F(1, 12) = 12.04, p = 0.0046$.



• Subjects were slower whenever the Target was a self-face and presented Below Fixation, $F(1,12) = 8.182, p = 0.0143$.

Conclusions

• Consistent with previous research, both hemispheres were capable of SFR (Uddin, 2005).

• Performance was poorer (accuracy and reaction time) whenever self-face Targets were presented Below fixation.

• Below fixation, the upper features of the face are closer to the fovea, while Above fixation, the lower features of the face are closer to the fovea.

• Relative acuity of facial features plays a role in SFR and not in GFR (no GFR Above or GFR Below differences). This suggests that SFR relies more on a feature-based recognition strategy than on a holistic face recognition strategy.

References

Keenan, J. P., Wheeler, M. A., Gallup, G. G. Jr., Pascual-Leone, A. (2000) Self-recognition and the right prefrontal cortex. *Trends in Cognitive Sciences*; 4: 338-344.

Uddin, L.Q. Rayman J., & Zaidel, E. (2005) Split-brain reveals separate but equal self-recognition in the two cerebral hemispheres. *Conscious Cognition*; 14(3) : 633-40