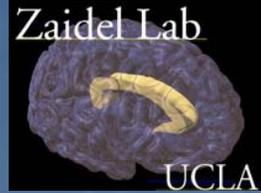




Is Self-Face Recognition Special? Evidence from the Recognition of Facial Emotions



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CNS 2008 Poster # A 56
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Introduction

- Is Self-Face Recognition (SFR) different from the recognition of familiar faces?

- To answer this question, we examined face recognition and emotion recognition abilities in the two cerebral hemispheres of normal participants using their own faces and the faces of familiar others as stimuli.

- We hypothesize that:

- SFR differs from the recognition of familiar others in how emotions differentially affect the identification of the face, and vice versa.

- There are hemispheric differences in the recognition of emotions and the identities of self and others.

Methods

- **Participants:** Forty five right handed subjects (24 male) participated.

- **Stimuli:** Happy and Sad pictures of participants themselves and of their classmate friends were used as stimuli.

- **Procedure:** Stimuli of faces were presented one at a time to subjects' left or right visual hemifield on a computer screen for 150ms.

- **Tasks:** All participants identified the *Emotion* of the face, and identified the *Identity* of the face, in counterbalanced orders.

- **Inventory:** Subjects also completed the Self Construal Scale (SCS) (Singelis, 1994). The SCS is a measure of cultural orientation on both independence and interdependence dimensions.

Results

- ANOVA of Face Type (Self, Friend) x Emotion (Happy, Sad) x VF (LVF, RVF) for *Emotion* and *Identity*:

- Significant Face Type x Emotion interactions for Reaction Time (RT) in both tasks (see line graphs).

- Significant correlations between SCS Interdependence subscale with Performance only on the *Emotion* task (see correlation table).

Example of Task and Stimuli



- **Identity Task:** Is the face shown 'self' or 'friend'?

- **Emotion Task:** Is the face shown 'happy' or 'sad'?

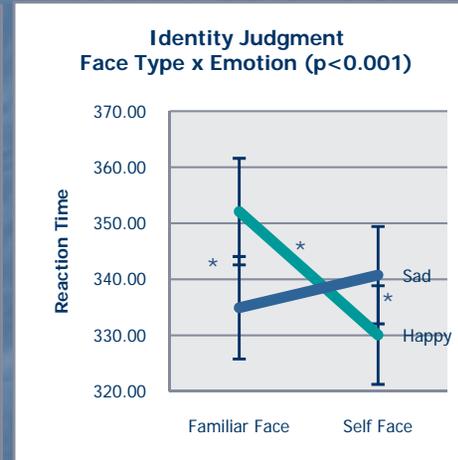
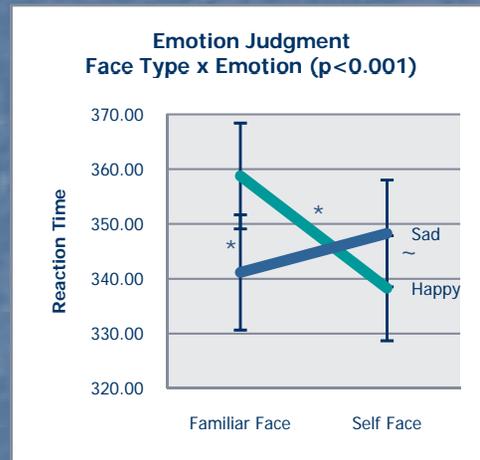


Sample Stimuli

- Self Happy
- Friend Happy

- Self Sad
- Friend Sad

ANOVA Graphs: Task and Emotion



Correlations: SCS Interdependence and Task (n=38)

	Emotion Task – Friend Happy	Emotion Task – Friend Sad	Emotion Task – Self Happy	Emotion Task – Self Sad	Identity Task – Friend Happy	Identity Task – Friend Sad	Identity Task – Self Happy	Identity Task – Self Sad
SCS Interdependence	-0.453	-0.465	-0.353	-0.395	-0.167	-0.226	-0.250	-0.271
Significance	p=0.004	p=0.003	p=0.030	p=0.014	p=0.316	p=0.173	p=0.129	p=0.100

Discussion

- Emotions affects the recognition of identity. Sadness is recognized faster than happiness in familiar others but not in ourselves.

Since emotion affects the recognition of identity, we conclude that face recognition is not modular relative to emotions. We further posit that a sad friend 1) marshals greater resources from us (danger, distress, etc.) than a happy friend, 2) generates greater activation when encountered, and 3) results in better performance in the tasks. This pattern does not occur for SFR.

- Since identity affects the recognition of emotion, we conclude that Emotion recognition is not modular relative to identity.

- In the *Emotion* task, RT was consistently negatively correlated with the SCS Interdependence subscale across all 4 conditions. Thus, people who are more collectivistic or see themselves as more interconnected with others were faster at recognizing emotions regardless of face identity and the emotion expressed. There were no significant comparable correlations in the *Identity* task across any of the conditions. It appears that an interdependent cultural orientation is linked specifically with faster recognition of emotions, and not just the identity of a person.

Conclusion

- Our data suggest that SFR and familiar face recognition are different in how identity recognition is affected by the emotions of the faces, as well as how emotion recognition is affected by the identity of the faces.

- A sad emotion in a familiar face marshals more resources than a happy emotion in the same face. This is not the case for our own faces.

- The degree to which a person is collectivistic or interconnected with others is associated with speed of recognizing facial emotions.

References

- Singelis, T.M. (1994). The Measurement of Independent and Interdependent Self-Concepts. *Personality and Social Psychology Bulletin*, Vol. 20, No. 5, 580-591