



# Neural Response to Personalized vs. Generalized Security Primes

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## Introduction

- Attachment security is associated with beneficial emotional, cognitive, and behavioral outcomes (Schimel et al., 2001).
- Attachment security can be enhanced via exposure to security-related cues or primes:
  - **Generalized Security Primes** = "Love", "Trust", etc.
  - **Personalized Security Primes** = Name of attachment figure
- Not everyone reacts to all primes in the same way
  - Response may be moderated by *attachment style*
  - Insecure people may have negative associations with some security-related worlds, and therefore are unable to benefit from priming in the way that secure individuals do
  - No study has specifically examined this possibility

### Goal:

- Test whether the *type* of prime affects the interaction between attachment style and response to security primes.

### Predictions:

- Response to generalized primes will be moderated by attachment style
- Personalized primes will have similar effects across all participants.

- We used the **Late Positive Potential (LPP)** Event Related Component to test our hypothesis.

→ Reflects both emotional salience and selective attention (Herbert et al., 2006)

Looking at Event-Related Potentials (ERPs) can help us examine specific, time-locked neural reactions to stimuli like security primes.

→ Avoidant individuals suppress their thoughts and emotions; therefore, self-report and behavioral techniques cannot fully answer our question

## Procedure

### Participants

- 10 undergraduates from the University of Kansas were recruited as part of an ongoing study.

### Preliminary Questionnaires

- WHOTO (Fraley & Davis, 1997)
  - Names of attachment figures
- Familiar Neutral Name List
  - List of common male and female names in the United States
- Experiences in Close Relationships Scale (Brennan et al., 1998)
  - Measure of attachment style

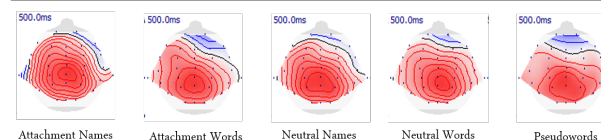
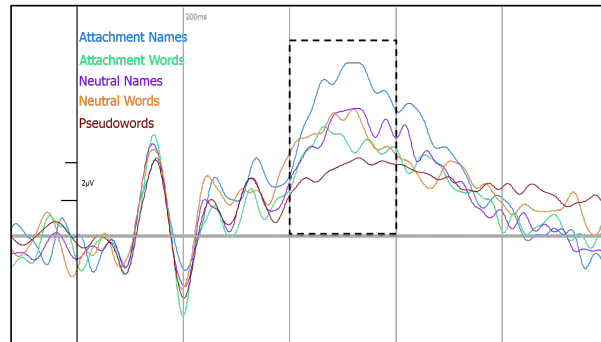
## Stimuli/Design

### Lexical Decision Task.

- 240 stimuli were randomly presented:
  - 30 Attachment Names (from WHOTO)
  - 30 Neutral Familiar Names (from questionnaire)
  - 30 Attachment Security Words ("Love", etc.)
  - 30 Neutral Words (e.g., "Instance")
  - 120 Pseudowords ("Baze", "Grumed")
- Participants were asked to determine whether or not each stimulus was a word.
- Stimuli and task were prepared using E-Prime software.

## Results

- Paired t-tests for the mean amplitude over the centroparietal region from 400-600ms.

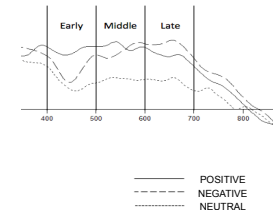


- 1) Larger LPP amplitudes for personalized vs. generalized primes.  $t(9) = 3.698, p < .01$ .
- 2) Larger LPP amplitudes for all words and names relative to pseudowords.
- 3) No significant difference between generalized attachment words and familiar names/neutral words.

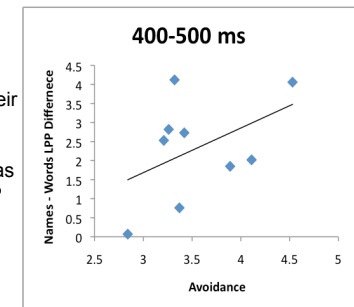
For more information, please contact Andrew Miller at [ammiller@ku.edu](mailto:ammiller@ku.edu).

## Effects of Attachment Style

- Previous studies (e.g., Foti, Hajcak, & Dien, 2009, Benau et al., 2014) have found that the LPP for unpleasant stimuli tends to peak and sustain at a later time window (600-700 ms, vs. 400-500 ms for positive stimuli).



- Regression analysis predicting mean LPP amplitude, entering avoidance, anxiety and their interaction as predictors.



- Attachment avoidance was associated with lower LPP amplitude in response to generalized vs. personalized primes.

## Discussion

- The LPP was found to be sensitive to differences in type of attachment security prime.
- Larger LPP in response to personalized prime across all participants suggests that attachment names are highly emotionally salient for both secure and insecure individuals.
  - Insignificant peak in response to generalized primes may reflect individual attachment-style differences.
- Disparity between early LPP response to personalized and generalized primes indicates that avoidant individuals may process words such as "love" as negative stimuli.
- We will compare effects of attachment avoidance at several time intervals as we continue to collect data.

## Selected References

Foti, D., Hajcak, G., & Dien, J. (2009). Differentiating neural responses to emotional pictures: Evidence from temporal-spatial PCA. *Psychophysiology*, 46(3), 521-530.

Herbert, C., Kissler, J., Junghofer, M., Peyk, P., & Rockstroh, B. (2006). Processing of emotional adjectives: Evidence from startle EMG and ERPs. *Psychophysiology*, 43(2), 197-206