Processing emotional words and nonwords: an evaluative conditioning ERP study

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Abstract

Numerous studies have shown that word recognition differs depending on the emotional connotation of a particular word. Emotional connotation, i.e. differences in emotional valence and arousal, have been shown to affect response times and accuracy measures in the lexical decision task and to modulate very early (80-120ms; e.g., Hofmann et al., 2009) and later components of the event-related potentials (ERP). It is widely accepted that words receive their emotional connotation through the learning of emotional-semantic associations, but direct evidence for this proposal is lacking. To address this question we conducted an evaluative conditioning study using meaningless pseudowords. Participants learned associations between randomly selected 50 pseudowords and 150 affective pictures and between another 50 pseudowords and 150 neutral pictures on five consecutive days. Each pseudoword was associated with more than one picture and with different pictures (of the same connotation) each day to guaranty that only the emotional connotation and not a particular association to one picture was learned. This was tested in both, a subsequent ERP lexical decision study and in an explicit valence judgements task. The results reveal effects of learned negative connotations in pseudowords in early and late ERP components, replicating the effects known from word processing. These findings support the assumption of learned associations as the basis of a words' emotional connotation. Still, the nature of the very early effects that are most probably related to modulated attention to emotional (pseudo)words is in need of further clarification.

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