

N400 Investigation of Semantic Priming Effect to Symbolic Pictures in Text

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Abstract : The purpose of this study was to investigate if incorporating meaningful pictures of gestures and facial expressions in short sentences of text could supplement the text with enough semantic information to produce an N400 effect when probe words incongruent to the picture were subsequently presented. Event-related potentials (ERPs) were recorded from a 14-channel commercial grade EEG headset while subjects performed congruent/incongruent reaction time discrimination tasks. Since pictures of meaningful gestures have been shown to be semantically processed in the brain in a similar manner as words are, it is believed that pictures will add supplementary information to text just as the inclusion of their equivalent synonymous word would. The hypothesis is that when subjects read the text/picture mixed sentences, they will process the images and words just like in face-to-face communication and therefore probe words incongruent to the image will produce an N400.

Keywords : EEG, ERP, N400, semantics, congruency, facilitation, Emotiv

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