Brain activity related to categorization and encoding of words

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Abstract

Brain activity at the moment of event presentation could be treated as a predictor of memory performance hereafter (Paller, et al, 1987). The purpose of this study was to compare brain activity before and after presentation of words according to the subsequent recall performance. For this aim, a matching task with two words, first, a category name (prime) and, secondly, a target word that may or may not have been a member of the aforementioned category. Thirty-four participants (19–23 years) were asked to judge whether a target word was a member of a category identified by the priming word that preceded it. Then participants were asked to recall the target words presented earlier. Memory test was unexpected by subjects. For words which were recollected, RT was shorter than for words which were forgotten. Subjects remembered more words which were in matching trials than in mismatching trials. An ERP comparison supported our behavioral findings and revealed that LPC amplitude was greater for words which were remembered later than for words which were forgotten. Moreover brain activity preceding presentation of the target word was more negative going for words remembered later than for words which were forgotten. In conclusion, we see that processes that precede the presentation of the target word as well as processes that are active at the moment of categorization affect encoding, as our findings show these processes are dependent on whether the words in a trial are matched or mismatched. Supported by RFH Grant 11-36-00314

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