

40/10 – “Psychophysiological investigations of interference resolution during memory retrieval”

– only abstract available

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Objectives: This experiment was designed to investigate changes in neural activity during a retrieval task, assuming that the demands placed on monitoring the contents of retrieval increase as the numbers of stimuli to which memory judgments are required also increase.

Methods: We measured event-related potentials (ERPs) because they index processes related to retrieval monitoring. Participants first studied words in one of two colours. Studied and unstudied (new) words were then presented in a neutral colour. ERPs were acquired while people made old/new and then study colour judgments to the words.

Results: ERPs associated with correct judgments to new words (correct rejections) and correct colour judgments to old words were compared for the first and the second halves of the retrieval task. The differences between these two classes of ERPs were not the same over the task from 1000ms post-stimulus. Response accuracy did not vary, and reaction times were slower in the second half.

Conclusions: These ERP differences occurred in a time period where ERPs have been shown to index retrieval monitoring operations. The findings indicate, therefore, that not entirely the same retrieval processes were engaged over the complete retrieval task. Alongside the absence of evidence for this change in an experiment where auditory rather than visual contexts were used at study, these findings suggest the outcome is not simply an effect of time on task. It is possible that the changes across halves index additional processes engaged as the demands placed on distinguishing between similar memory representations increase. Irrespective of the accuracy of this account, however, these findings indicate there are circumstances where making functional inferences about patterns of neural activity in brain imaging experiments based on data averaged over the entirety of retrieval tasks can lead to inaccurate functional characterisations.

Keywords: Retrieval Monitoring; Episodic Memory; Event-related potentials.