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Event-Related Potential Effects Associated with Insight Problem Solving in a Chinese Logograph Task

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ABSTRACT

The electrophysiological correlates of insight and non-insight problems solving were studied using event-related potentials (ERPs). Participants were given some time to guess Chinese logographs and then presented with an answer to judge whether it matched the logograph. Results showed that the insight trials elicited a more negative ERP deflection (N300-500) than did the non-insight trials in most scalp regions. In a later time window from 600 ms to 1100 ms, the insight trials elicited a more positive ERP deflection (P600-1100) than the non-insight trials, mostly in central regions. The results indicate that the early N300-500 effect may reflect cognitive conflict resulting from the breaking of mental set and the later P600-1100 effect may be related to the formation of novel associations, both crucial to the occurrence of insight.

KEYWORDS

N300-500; P600-1100; Insight; Event-Related Potentials; Chinese Logograph

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