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Integration of Words to Previous Linguistic Context is Modulated by Vocabulary: An ERP study

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Abstract

Reader's ability to integrate words into the preceding linguistic context via inferences making is one fundamental component of reading comprehension. However, the underlying processes that contribute to effective word-to-text integration are not yet fully understood. In this study, we investigated the contribution of variables underlying lexical representations (e.g., vocabulary), and general reading skills (text comprehension) to the integration of words across sentences in a sample of adolescents. To do so, we implemented an event-related potentials experiment, in which we contrasted two sentential context conditions: a repetition condition and an inference condition. The cognitive cost of inferential processing was estimated by comparing the amplitude of the semantic N400 component in both conditions. Participants' individual differences in vocabulary and reading comprehension were included to examine the role of different components in this process. The results showed that participants with lower vocabulary exhibited a larger and extended cognitive cost of inference-making in the N400 component relative to participants with a higher vocabulary. No such differences were observed for text comprehension groups. These results indicate that vocabulary reduced the cost of integration during inference processing. Our findings contribute to the understanding of the mechanisms underlying real-time text comprehension.