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Contextual Effects on Metaphor Processing of Chinese Four-Character Idioms: An ERP Study

Metaphor is not only a language phenomenon, but also a way of thinking. As a kind of metaphoric linguistic expression, the Chinese four-character idioms have several features such as conventionality, inflexibility, figuration, etc. which stipulate the meanings of idioms. However, the ultimate comprehension of metaphor relies on the contexts where metaphor occurs. But so far few studies have addressed the effects of contexts in the processing of metaphor.

ERPs have been widely used in the researches of cognitive linguistics as it has high temporal resolution and is noninvasive to the human body. The linguistic stimuli used in this research are Chinese four-character idioms which can be interpreted both literally and metaphorically with high familiarity and semantic transparency. In the experimental design, each idiom is put in three kinds of contexts including literal-bias context, metaphorical-bias context and unrelated context. Through the analysis on N400 evoked in the processing of idioms in different contexts, the present study aims to explore the contextual effects on metaphor processing and to investigate the hemispheric differences and the degree of activation when processing the literal and metaphorical meanings.

The ERP results of the experiment show that processing idioms in literal-bias contexts evokes larger grand average N400 amplitude when it is compared to that in metaphorical-bias contexts. It proves that the metaphorical meanings of Chinese four-character idioms with high familiarity and semantic transparency are accessed firstly.

As for the differences of the activated regions, the results of the experiment show that the right anterior part of the brain is more activated when processing idioms in literal-bias contexts while both the left and right anterior parts of the brain are involved when processing idioms in metaphorical-bias contexts. The result also reflects that the further the semantic distance is, the more active the right hemisphere is.

In a word, the present study shows that for Chinese four-character idioms with high familiarity and semantic transparency, their metaphorical meanings are salient and activated automatically upon encounter. They are understood more quickly, smoothly and with smaller effort in metaphorical-bias contexts than in literal-bias contexts. Therefore, the metaphorical-bias contexts facilitate the understanding of the metaphorical meanings of these idioms. The literal-bias contexts inhibit the understanding of their literal meanings. With more effort, the nonsalient literal meanings would be activated with the help of the literal-bias contexts.