Masked Priming Effects on Metaphor Comprehension in Chinese English Learners: An ERP Study

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In the area of unconscious vision, masked priming offers the promise of automatic, strategy-free lexical processing in semantic priming. It has been taken as an indicator of completely automatic processes occurring deep within the lexical processing. It is controversial to explain the effects observed with masked priming by any single mechanism, whether lexical or sublexical. However, it can be a promising tool that under some conditions it shows sensitivity to masked variables. To investigate the nature of how metaphors are decoded when the target words are preceded with masked primes, this study used event-related brain potentials (ERPs) to examine Chinese and English metaphor processing from Chinese-English learners (EFLs). Participants were asked to judge whether metaphors with different masked primes (metaphorical primes/literal primes/unrelated primes) were sensible or not. For Chinese metaphors, parameter-free cluster permutation analysis of the brain responses revealed that clusters at the left temporo-occipital areas had larger negative amplitude for the target metaphors preceded by metaphorical primes compared to those preceded by the literal primes within the 240-280ms time window. For English metaphors, comparable priming effects with larger positive amplitude (LPCs) for the target words after the metaphorical primes were found at the central brain area within the 400-550ms time window. The results show that metaphorical masked primes have an influence on both L1 and L2 metaphor processing, which can be attributed to a more automatic activation consistent in metaphors interpretation per se. The different patterns of brain responses for metaphor processing in Chinese (L1) and English (L2) support Defaultness Hypothesis and Graded Salience Hypothesis (GSH).