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Exploring the Functional Role of Post-Error Adjustments during a Flanker Task

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Abstract

After committing an error, people slow down to avoid subsequent errors. This post-error slowing (PES) is sometimes considered a functional adaption that leads to improved post-error accuracy (PIA). However, the co-occurrence of these two phenomena is inconsistent, bringing into question the functional role of PES. We first reanalyzed previous flanker data to investigate the functionality of these adjustments by comparing RT and accuracy between post-correct and post-error trials. Using a flanker task with absent, congruent, or incongruent distractors, we can explore whether cognitive demand differences yield different effects on PES and PIA. Instead, a significant PIA effect was uniformly observed across conditions, while a not significant post-error speeding effect suggests they are distinct phenomena. A second experiment with a shortened cue period and intertrial interval produced only a marginally significant post-error speeding effect. In sum, these data suggest these phenomena are distinct and their occurrence is reliant on task demands.

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