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Bridging Executive Function and Metacognition through Post-Error Slowing

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Abstract

Executive function and metacognition are two core concepts in cognitive psychology, yet research linking EF and metacognition directly remains rare. It has been suggested that error monitoring can be used as a window to study the association between EF and metacognition (Roebers, 2018). Error monitoring is indexed by post-error slowing, a phenomenon describing a delayed response in actions after error commissions. The present study uses hierarchical multiple regression to investigate whether EF and metacognition can both predict PES. Individual constructs of EF are measured by four computerised-based tasks. Metacognition is assessed by a simplified version of the Self-Regulated Learning Questionnaire (Dowson & McNerney, 2004). A total of 456 participants (M age of 11.9, SD = 0.92) are included in the final analysis. Results indicate that two EF constructs: inhibition and planning, predict corresponding PES in inhibition and planning tasks. Only the regulation component of metacognition predicts PES in the planning task.