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Is there a strategy switch cost when switching strategies within one task?

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Abstract

Switching from one task to another typically induces performance costs, but it remains unclear whether switching strategies within the same task also induces similar switching costs. In this study, the Building Sticks task, a simple problem-solving task, was used to investigate whether strategy switching produces costs comparable to task switching. By using a task-switching paradigm, participants completed pure blocks (using a single strategy) and mixed blocks (switching between two strategies), allowing direct comparison of switch and nonswitch trials. We measured both reaction time (RT) and a Linear Integrated Speed-Accuracy Score (LISAS). Results showed that switch trials were significantly higher than nonswitch trials for both RT and LISAS measures. Moreover, splitting participants at the median accuracy revealed that high-accuracy individuals consistently showed smaller switch costs (RT and LISAS) than low-accuracy individuals. We conclude that strategy switching within a single task triggers robust performance costs, partially mitigated by stronger baseline accuracy.