The Role of Distraction on Children's Mathematical Performance

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Abstract:

To enhance children's achievement in mathematics, it is essential to identify the factors that influence and hinder their mathematical learning. Little is known about how distraction influences children's cognitive performance in mathematics, specifically when they solve arithmetic tasks. This study was conducted with 300 primary students in Hong Kong. They were asked to perform computational estimation tasks under both natural and distraction conditions to investigate their strategy execution (a strategic variation in arithmetic) and the performance gap reflected the influence of distraction. Additionally, multiple tasks were conducted to assess children's inhibitory control, including shape matching, arrow flanker and animal matching (modified version) tasks, as well as working memory, including animal updating, backward digit span and Corsi backward tasks. Their reaction time and math fluency were assessed via a simple processing speed task and an arithmetic task. Structural equation modeling is currently being conducted to examine the relationships among the constructs and to estimate the math performance under the two study conditions. Preliminary findings will be presented during our presentation. Understanding of mechanisms underlying the effects of distraction on children's arithmetic provides a foundation for designing effective curricula to foster mathematical development and to assist those children with math learning difficulties.