NOT ALL CORRECT ANSWERS ARE EQUAL: EXAMINING THE ROLE OF STRATEGY IN REPEATING PATTERN ABSTRACTION

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Patterns are a central concept in mathematics education and support later achievement and early algebraic thinking (e.g., Rittle-Johnson et al., 2017). Repeating patterns, a foundational pattern type in early childhood, have been widely studied; however, research has largely emphasized accuracy rather than strategy use. This study investigates whether abstraction strategy use predicts performance in Repeating Pattern Abstraction Task (RPAT) beyond the effects of age and Visuospatial Working Memory (WM) in 4- to 6-year-old children. A convergent parallel mixed method design was employed. 56 preschool children participated in one-to-one interviews. The researcher-developed RPAT (12 items; α = .88) and the Corsi span task were administered to assess visuospatial WM. Responses were scored dichotomously, and children's explanations were coded using a hybrid thematic analysis based on Lüken and Sauzet's (2021) strategy codes. A binomial generalized mixed-effects regression tested the effect of strategy use on RPAT accuracy, while a second regression examined the contributions of strategy use, controlling age and visuospatial WM to RPAT accuracy. Binomial generalized mixed-effects analyses indicated that only sequence awareness and unit identification strategies significantly predicted accuracy. Age 6, compared to age 5, was also a significant predictor, whereas no differences were found between 4- and 5-year-olds. Regression analyses further revealed a quadratic relationship between abstraction strategy use and performance. The final model, including age and visuospatial working memory, explained 76% of the variance in abstraction scores. The current study extends the existing literature about repeating patterning by highlighting the importance of children's explanations and strategy use, beyond the effects of age and visuospatial working memory. In the presentation, further results and implications will be discussed in detail.

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