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**Examining the relationship between rapid automatized naming and arithmetic fluency in Chinese kindergarten children.**

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Summary: Rapid automatized naming (RAN) has been found to predict mathematics. However, the nature of their relationship remains unclear. Thus, the purpose of this study was twofold: (a) to examine how RAN (numeric and non-numeric) predicts a subdomain of mathematics (arithmetic fluency) and (b) to examine what processing skills may account for the RAN-arithmetic fluency relationship. A total of 160 third-year kindergarten Chinese children (83 boys and 77 girls, mean age = 5.11 years) were assessed on RAN (colors, objects, digits, and dice), nonverbal IQ, visual-verbal paired associate learning, phonological awareness, short-term memory, speed of processing, approximate number system acuity, and arithmetic fluency (addition and subtraction). The results indicated first that RAN was a significant correlate of arithmetic fluency and the correlations did not vary as a function of type of RAN or arithmetic fluency tasks. In addition, RAN continued to predict addition and subtraction fluency even after controlling for all other processing skills. Taken together, these findings challenge the existing theoretical accounts of the RAN-arithmetic fluency relationship and suggest that, similar to reading fluency, multiple processes underlie the RAN-arithmetic fluency relationship.

*Classification:* F21 F31 C51 C31
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