

**ZMATH 2016d.00529**

**Koponen, Tuire; Salmi, Paula; Torppa, Minna; Eklund, Kenneth; Aro, Tuija; Aro, Mikko; Poikkeus, Anna-Maija; Lerkkanen, Marja-Kristiina; Nurmi, Jari-Erik**

**Counting and rapid naming predict the fluency of arithmetic and reading skills.**

Contemp. Educ. Psychol. 44-45, 83-94 (2016).

Summary: Understanding of the factors that underlie the development of fluency in reading and arithmetic is limited. This longitudinal study examined whether verbal counting and rapid automatized naming (RAN) were predictors of arithmetic and reading fluency in a population-based sample and to what extent related early emerging cognitive abilities and socioeconomic background accounted for the predictive power of counting and RAN. In addition, in order to examine the uniqueness of counting as a numerical predictor of reading fluency, the influence of another early number skill – number concept – was controlled. Three hundred and seventy-eight Finnish children were followed from kindergarten to Grade 3 (from 6 to 10 years). The results demonstrated that counting and RAN were powerful predictors of arithmetic and reading fluency. Controlling for phonological awareness, vocabulary, memory, and mother’s education had little impact on the predictive relation of counting and RAN to fluency in arithmetic and reading. The number concept skill did not remove the predictive relation of counting with reading or arithmetic and had only a predictive relation to arithmetic fluency after controlling for cognitive skills. Findings suggest that the strong predictive relation counting had with reading and arithmetic fluency does not exist with all number skills. This finding supports the view that there is something specific in the verbal counting skill related to the development of fluency, which should be studied in the future.

*Classification:* F21 F22 F32 C51 C52 C31 C32

*Keywords:* counting; rapid automatized naming (RAN); arithmetic calculation fluency; reading fluency; longitudinal study

doi:10.1016/j.cedpsych.2016.02.004