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The development of children’s algebraic thinking: the impact of a comprehensive early algebra intervention in third grade.

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Summary: This article reports results from a study investigating the impact of a sustained, comprehensive early algebra intervention in third grade. Participants included 106 students; 39 received the early algebra intervention, and 67 received their district’s regularly planned mathematics instruction. We share and discuss students’ responses to a written pre- and post-assessment that addressed their understanding of several big ideas in the area of early algebra, including mathematical equivalence and equations, generalizing arithmetic, and functional thinking. We found that the intervention group significantly outperformed the nonintervention group and was more apt by posttest to use algebraic strategies to solve problems. Given the multitude of studies among adolescents documenting students’ difficulties with algebra and the serious consequences of these difficulties, an important contribution of this research is the finding that – provided the appropriate instruction – children are capable of engaging successfully with a broad and diverse set of big algebraic ideas.

Classification: H32 H22 F32 D32 D42

Keywords: algebra; algebraic thinking; early algebra; intervention; child development; teaching methods; educational practices; educational strategies; student reaction; equations; symbols; mathematical applications; arithmetic; elementary grades

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