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A learning trajectory in 6-year-olds' thinking about generalizing functional relationships.

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Summary: The study of functions is a critical route into teaching and learning algebra in the elementary grades, yet important questions remain regarding the nature of young children's understanding of functions. This article reports an empirically developed learning trajectory in first-grade children's (6-year-olds') thinking about generalizing functional relationships. We employed design research and analyzed data qualitatively to characterize the levels of sophistication in children's thinking about functional relationships. Findings suggest that children can learn to think in quite sophisticated and generalized ways about relationships in function data, thus challenging the typical curricular approach in the lower elementary grades in which children consider only variation in a single sequence of values.

Classification: I23
Keywords: algebraic reasoning; early childhood; teaching experiment; functional relationships
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