Childrens Mathematical Strategy Choices are not Influenced by Number Magnitude

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Abstract

When solving mathematical equivalence problems (e.g. 5 + 3 + 6 = _ + 6), children use a variety of problem-solving strategies (Perry, Church, & Goldin-Meadow, 1988). We investigated factors potentially influencing how children choose strategies and solve problems, including the size of the numbers, the problem structure, and the structure of childrens strategy repertoires. We predicted that childrens strategy choices would be influenced by both the size of the numbers and the problem structure. We found that, contrary to our expectations, childrens strategy choices and their accuracy were not influenced by the size of the numbers in the problem. We also predicted that there would childrens strategy repertoires would reveal conceptual structure. Children were highly consistent in their strategy choices across problems, and individual strategies showed evidence of varying affinity with one another. Childrens repertoires appear to reflect childrens emerging understanding of equivalence, providing a potential target for personalizing instruction in mathematical equivalence.