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Use of student-constructed number stories in a reform-based curriculum.

Summary: Twelve classes using the reform-based curriculum, Everyday Mathematics (EM), were observed early in first grade. The two lessons observed involved students generating and solving addition and subtraction number stories. In these lessons, teachers were directed to help students link these number stories to representations (pictures or objects) and equations. Because this curriculum emphasizes invented procedures and number sense, the lessons also call for whole-class discussions of students’ solutions. Further, the curriculum assumes that teachers will build upon and extend the children’s mathematical thinking, highlighting these alternative solution methods and supporting the students’ explanations. Results show that students were successful at making up, telling, and solving number stories and used a range of solution methods, including the mathematical representations available in the classrooms. However, only about three-quarters of the teachers established explicit links between the stories and mathematical representations, with fewer than half representing the stories as numbers and equations. Although student-based explanations play an important role in helping children develop solution procedures with understanding, solution methods were only elicited in half of the classes observed, and multiple methods in one-fourth of the classes. Implications for reform curricula, especially how they might clarify new goals for teachers, are discussed.

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