

Abstract

This article reviews research on the mathematics achievement outcomes of all programs with at least one study meeting inclusion criteria. 78 studies evaluated 61 programs in grades K-5. The studies were very high in quality, with 65 (83%) randomized and 13 (17%) quasi-experimental evaluations. Programs were organized in 8 categories. Particularly positive outcomes were found for tutoring programs. One-to-one and one-to-small group models had equal impacts, as did teachers and paraprofessionals as tutors. Technology programs showed modest positive impacts. Professional development approaches focused on helping teachers gain in understanding of math content and pedagogy had no impact on student achievement, but more promising outcomes were seen in studies focused on instructional processes, such as cooperative learning. Whole-school reform, social-emotional approaches, math curricula, and benchmark assessment programs found few positive effects, although there were one or more effective individual approaches in most categories. The findings suggest that programs emphasizing personalization, engagement, and motivation are most impactful in elementary mathematics instruction, while strategies focused on textbooks, professional development for math knowledge or pedagogy, and other strategies that do not substantially impact students' daily experiences have little impact.