

Engel, M., Claessens, A., & Finch, M. A. (2013). Teaching students what they already know? The (mis)alignment between mathematics instructional content and student knowledge in kindergarten. *Educational Evaluation and Policy Analysis, 35*(2), 157-178.

Kindergarten mathematics skills are important for subsequent achievement, yet mathematics is underemphasized in kindergarten classrooms. Using nationally representative data, this study explored the relationship between students' school-entry math skills, classroom content coverage, and end-of-kindergarten math achievement. Although the vast majority of students entered kindergarten having mastered basic counting and able to recognize simple geometric shapes, their teachers reported spending the most instructional time, about 13 days per month, on these basic skills. On average, exposure to basic mathematics content was negatively associated with achievement in kindergarten. Although students with the lowest levels of math skills benefited from exposure to basic content, other students benefited from exposure to more advanced content.

Gavin, M. K., Casa, T. M., Adelson, J. L., & Firmender, J. M. (2013). The impact of challenging geometry and measurement units on the achievement of grade 2 students. *Journal for Research in Mathematics Education, 44*, 478-509.

Gavin et al. describe the effects of the 2nd grade Project M2, a differentiated math curriculum for Kindergarten – 2nd grade, geometry and measurement units. Both standardized assessments (ITBS) and open-response assessments were used to examine the differences in mathematics achievement in a quasi-experimental study. The results of the 2nd grade

cohort are reported, with students in the experimental group demonstrating statistically significant differences on the open-response section and no differences on the ITBS.

Williams, D. R., & Dixon, P. S. (2013). Impact of garden-based learning on academic outcomes in schools: Synthesis of research between 1990 and 2010. *Review of Educational Research, 83*, 211-235.

Using a framework of methodologically inclusive advancements in research synthesis methods (MIRS), Williams and Dixon reviewed 48 studies on academic outcomes of school gardening education at primary to high school levels. Garden-based learning is an experiential and hands-on learning tool that integrates multiple curriculum objectives. In 40 studies that assessed direct learning outcomes, such as impact on academic content areas, 83% found positive effects, 2% found negative effects, and 15% found that learning did not change after the intervention. The majority of the studies included garden-based learning in grades 3-5, pointing to the need for research in lower and upper grades. Overall, the study results demonstrated support for garden-based learning; however, the authors acknowledged the need for more rigorous research methodologies to substantiate the value of this type of learning.

Additional Articles

Olthouse, J. M. (2014). Gifted children's relationships with writing. *Journal for the Education of the Gifted, 37*, 171-188.

Matsko, V., & Thomas, J. (2014). The problem is the solution: Creating original problems in gifted mathematics classes. *Journal for the Education of the Gifted, 37*, 153-170.

Ysseldyke, J., Tardrew, S., Betts, J., Thill, T., & Hannigan, E. (2004). Use of an instructional management system to enhance math instruction of gifted and talented students. *Journal for the Education of the Gifted, 27*(4), 293-310

