
It All Adds Up: Early Math Initiatives in Illinois Executive Summary

Math is all around us, and research suggests that children understand math concepts even before they can speak. Not only are they “born learning,” but they are also born learning math. So why does math seem so hard to so many and why are so many children failing math in school? How can parents and teachers nourish young children’s interest in math so that they will become eager, proficient math students?

Addressing these questions is crucial to our success and future economic well-being as a nation and as a state. U.S. students, regardless of where they live, the color of their skin, or their family income, lag far behind students in other industrialized countries in their math proficiency. The problem starts early. Aside from counting, recognizing numbers, and naming some shapes, the development of math concepts during the crucial years from birth to kindergarten has until recently been largely ignored. Increasing the public’s awareness of the benefits of early math instruction is critical.

As part of a strategic early math initiative launched by the CME Group Foundation in 2010, several educational institutions in Chicago are tackling this issue, starting with the very youngest children and their teachers and progressing through early elementary school. Many teachers of young children lack not only academic grounding in math concepts but also the experience and confidence to create opportunities to exploit children’s natural curiosity about topics such as numbers, shapes, and measurement.

The partners in the early math initiative have developed programs for teachers of young children that combine ongoing professional development, individualized coaching, and opportunities for practice and reflection in a peer community. These have been developed and refined in a variety of informal and school settings where children from birth to age eight spend their days. The grantees have also developed resources and activities for parents, so that they can integrate math talk and play into everyday life.

After four years, the Foundation is able to report that this approach is having positive results, in terms of both teachers’ knowledge, confidence, and instructional skills in teaching early math and children’s assessments as they enter kindergarten. In fact, one observational measure found no math achievement gap between low-income children whose teachers had taken part in intensive math professional development and their higher-income peers.

Along with Voices for Illinois Children, the Foundation offers some suggestions for taking this initiative to scale and recommendations for policymakers, higher education, early learning settings, and school systems. Overall, more attention needs to be paid to how teachers are trained, in colleges and ongoing professional development, to support children’s early math development. Public policies and investments need to support the key change levers of coaching, reflective practice, and professional learning communities.

The system needs to change, too. Principals and other administrators need to know what good math instruction looks like in early childhood classrooms, so that they will support teachers’ professional development and know how to assess teachers in the classroom. That means providing opportunities for principals to be exposed to early math concepts, methods, and evaluation, perhaps through continuing education or leadership academies.

With support from informed principals, teachers can create learning environments where every young child has a chance to explore and absorb the big ideas of early mathematics. They can help parents nurture the joy of discovering math concepts in daily life. In the long run, this will all add up to increased math proficiency among Illinois children and improved competitiveness on the world stage.
