

FURTHERING

Girls' Math Identity



FHI 360 – in partnership with the New York Academy of Sciences – is leading a capacity-building project for the National Science Foundation to support the groundwork necessary to advance research and practice on girls' math identity. The project is guided by a diverse planning committee comprised of researchers and practitioners who are thought leaders in the fields of gender identity, STEM identity, math identity, youth development, and teaching and learning. Expanding the research base to explore how we can develop a strong math identity in girls is at the heart of this work. STEM and math identity are two important elements within the larger context of academic identity and achievement.

What is Math Identity?

Mathematics identity refers to a person's beliefs, attitudes, emotions, and dispositions about mathematics and their resulting motivation and approach to learning and using mathematics knowledge (Martin, 2000). It involves the ways students think about themselves in relation to mathematics and the extent to which they have developed a commitment to, are engaged in, and see value in mathematics (Cobb, Gresalfi, & Hodge, 2009). It is through social processes and shared experiences that individuals develop identity and gain a sense of self and meaning (Lave & Wenger, 1991; Boaler & Greeno, 2000). Students learn to engage in practices through communities and develop a sense of self in relation to the practices and communities in which they learn.

What is a NIC?

A Networked Improvement Community (NIC) is an intentionally formed network of educational professionals and practitioners working with researchers to address a practical problem of high importance. The network accelerates the development, testing, and refining of interventions, and then spreads those interventions into a variety of contexts (e.g., in school experiences, informal/out of school experiences, practitioner professional development). The Girls' Math Identity NIC aims to improve middle school girls' math identity as a way to broaden participation in STEM. We are working together to identify what we know and still need to know about how to develop a positive and productive math identity, and how to disseminate that knowledge in the field in order to further research and improve practice.

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Programs and Materials for STEM Education

Playtime is Science: An Equity-Based Parent/Child Activity Program

Playtime is Science, a hands-on science curriculum for children in grades K-2 is unique in its focus on physical science, strong parent involvement, and accessibility for children with a wide range of disabilities. This standards-based program was designated a Promising Gender Equity Program by the U.S. Department of Education. *Playtime is Science* was pilot and field-tested in New York City schools, and expanded nationally with support from the National Science Foundation.

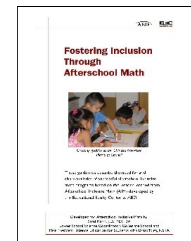


After-School Math PLUS (ASM+)

ASM+ was developed as a collaboration between EEC, after-school centers, and local science museums to increase skills and interest in everyday math. Youth engage in fun, hands-on, real-world math activities and learn how to build exhibits based on their work at a local science museum. An implementation guide and four themes: Jump Rope Math, Built Environment, ArtMath, and MusicMath are included in the ASM+ kit. Each activity contains role models, family and literacy connections, and modifications that make it accessible for students with a broad range of physical, sensory, cognitive, and social/emotional disabilities.

Afterschool Inclusive Math (AIM)

AIM builds on EEC's After-School Math PLUS program. In this partnership between inclusive after-school programs and science/technology museums, youth with and without disabilities worked together on inquiry-based math activities and displayed their work at a culminating event for families. A set of guidelines, "Fostering Inclusion Through Afterschool Math," provides a checklist for an exemplary after-school inclusive math program, and includes lessons learned and management tips. These unique guidelines are downloadable at www.edequity.org.



Great Science for Girls (GSG)

GSG worked with ten intermediary sites to build the capacity of afterschool centers to deliver programming that broaden and sustain girls' interest and persistence in science, technology, engineering, and mathematics. GSG provided professional development, on-site consulting services, on-line support systems, and a handbook of best practices. For up-to-date information and resources designed for after-school centers, visit www.greatscienceforgirls.org.

After-School Science PLUS (AS+)

AS+ is an inquiry-based activity program for youth between the ages of 6-14. Ten core activities include diverse role models, career education materials to expand students' views about who does science, literacy connection ideas, family outreach materials in English and Spanish, and resources. The activities use culturally familiar, readily available materials to convey the idea of science as being part of the students' everyday life. An implementation guide geared to the needs of after-school centers provides staff development tools, resources, and parent/family outreach materials.



EEC develops programs and materials that promote bias-free learning in school and after-school settings. We provide professional development, consulting services, and community partnerships. Our goal is to eliminate inequities based on gender, race/ethnicity, disability, and level of family income.