

# Be a Scientist! First Year Evaluation Executive Summary

The EDC Center for Children and Technology (CCT), a nonprofit international research organization, conducted the formative evaluation of the first year's implementation of the Be A Scientist! (BAS) project. The goal of this five-year afterschool family science program project is to provide quality science and engineering courses to underserved families in New York City and Los Angeles. It targeted underserved first graders and their families in the Spring 2010.

Guiding by formative research questions (e.g., X) and using multi-method research approach (e.g., X), CCT researchers uncovered evidence of the project's positive impact of BAS on participants and implementation challenges.

## Program Impact

- Established and maintained successful partnerships.
- Recruited underserved families in Los Angeles and New York City.
- Trained undergraduate engineering students.
- Supported the successful implementation of most of the family science courses.

## Impact on Families

- Provided them access to science content and experiments that they would not otherwise have access to in their communities.
- Exposed them to scientific concepts and the engineering design process (build, test, and redesign) through observation, inquiry, and collaboration.
- Offered them appropriate, entertaining, and educational science activities.
- Afforded increased social interaction within and across families.

## Impact on Undergraduate Engineering Students

- Improved their communication and time management skills.
- Increased their grasp of the scientific concepts they taught to the families.
- Developed leadership skills and an interest in teaching.

## Implementation Challenges

- BAS faced program management, training, and instructional challenges in its first year.

## Recommendations

- *Program Management:*
  - Make the entire implementation process transparent
  - Develop operational plans of the family science program ahead of time
  - Provide clear management and implementation guidance to BAS staff and partners.
  - Ensure parents' long-term involvement in the program during and after the sessions end.
- *Training:*
  - Provide opportunities for the undergraduates to practice their teaching skills with the same age group that they plan to teach in the program.
  - Help undergraduates figure out how to involve equally parents and children in the lessons.
  - Help them adjust their lessons while teaching in order to meet the learners' needs.
- *Instruction:*
  - Clarify roles and responsibilities of program staff and volunteers ahead of time and inform families before starting the lesson.
  - Get a sense of what families know about the scientific and engineering concepts you plan to teach them. It is key to deal with their scientific and engineering misconceptions.
  - Provide direct instruction that uses a great deal of visual material to improve comprehension and translation/language issues.
  - Help children ask better scientific and engineering questions.
  - Avoid the use of a lot of scientific jargon and complex concepts.
  - Avoid creating a competitive climate during the design and testing process.
  - Introduce concept maps in lesson plans or other more relevant assessment tools.
  - Provide more oversight and feedback to undergraduates during the initial sessions.