Next Generation Preschool Science (NGPS)

Ximena Dominguez/Phil Vahey, SRI International
Marion Goldstein/Ashley Lewis Presser, Education Development Center
Christine Zanchi, WGBH

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Next Generation Preschool Science

PROJECT GOALS

- Develop, iteratively refine, and evaluate *Next Generation Preschool Science*—an innovative program that can be easily adopted in preschool classrooms to promote young children’s learning of key science practices and concepts.

- The program:
  
  (1) integrates common and established learning experiences, such as book readings/discussions and hands-on explorations, with developmentally appropriate digital activities that provide unique and interactive learning opportunities and

  (2) includes professional development resources to support teachers and guide implementation
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PROJECT GOALS

- NGPS includes 3 curricular modules and related teacher resources.
- Each module covers a different science topic (Big Idea) and provides children opportunities to engage in science practices and talk.
  - Module 1: Life Science (How do plants grow?)
  - Module 2: Physical Science (How do objects move?)
  - Module 3: Earth Science (What makes shadows?)
- Modules include:
  1. Books readings
  2. Investigations that integrate hands-on activities with digital activities (classroom toolkit)
  3. Simulations or games that provide unique opportunities for children to practice engaging in science practices
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Approach

- Iterative design process (1\textsuperscript{st} and 2\textsuperscript{nd} years)
  - Research-based content domain analysis $\rightarrow$ blueprint
  - Feedback from teachers and expert advisors
  - User tests with children
  - Field tests with teachers and children

- Evaluation of implementation and outcomes (3\textsuperscript{rd} year)
  - Pilot to evaluate promise
    - Child assessments
    - Classroom observations

- Examination of sustainability (4\textsuperscript{th} year)
  - Research continued implementation of NGPS program – successes and barriers/challenges
Module 1 User Testing and Field Testing

- Children demonstrated new knowledge and skills relating to some of the learning goals (science content, scientific practices, and science talk).

- Teachers experienced few challenges using the digital tools in conjunction with hands-on activities.

- Teachers may benefit from additional training to support children’s engagement with:
  - some of the scientific practices (such as posing testable questions and interpreting data)
  - some aspects of science discourse (such as responding to the ideas of others).