

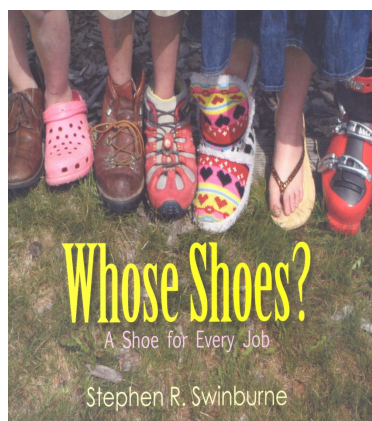
What Does Rigorous and Responsive PreK-3rd Look Like?

A Case Study in Early Mathematics Education

Jie-Qi Chen

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Classroom Images



- 1. What kind of shoes are you wearing today?*
- 2. If we made a book about the kinds of shoes in our class, how could we organize all the shoes?*

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Classroom Images



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Video Analysis

1. Who is doing the thinking?
2. What are they thinking about?
3. How did the teacher promote mathematical thinking?

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Who is doing the thinking?

Children

- Drawing
- Constructing
- Counting and comparing
- Predicting

Learn math with hands, eyes, ears, and mouth.

Teacher

- Goal Setting
- Materials Selecting
- Grouping
- Math Talk

Is purposeful, thoughtful and planful in teaching.

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What are they thinking about?

Big Mathematics Ideas

- Identify, describe, and organize data by attributes (e.g., shoes with strings, zippers, or straps)
- Count and compare data on a graph to answer questions (e.g., which category has the most?)
- Understand that data analysis is specific to situation or questions (e.g., how will the graph look on a hot day?)
- Mathematize the situation and solve problems (e.g., building mathematical problem situations into the fabric of children's lives)

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How did the teacher promote mathematical thinking?

- Make connections from concrete to pictorial to abstract understanding in mathematics (e.g., real shoe graph, pictograph, prediction)
- Ask meaningful questions to promote mathematical understanding (e.g., will the graph look same on a hot day?)
- Make suggestions to guide children in mathematical thinking (e.g., make sure you draw the strap, let's count to find out which category has the most.)

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Early Mathematics Education Project

2007-2011

PreK-K CPS Teachers

- 150 schools
- 291 teachers
- 9,312 students served year

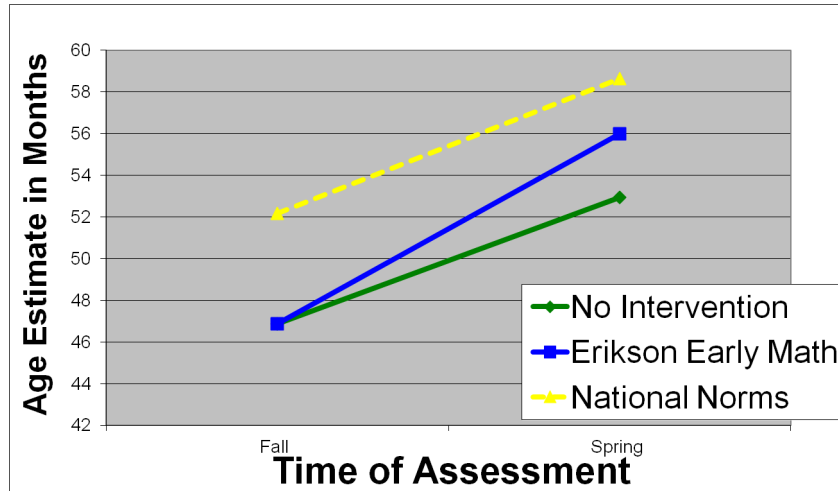
2011-2015

PreK-3rd CPS Teachers

- 8 schools
- 154 teachers
- 4,620 students served/year

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Narrowing the Achievement Gap



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Erikson EME Project, 2009

Rigor— Curriculum Standards

???



- We teach children, not the curriculum.
- We use standards to help children grow, not to ignore their developmental needs.
- Curriculum and standards are the means, rather than the goal of education.

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