CREATING EQUITY IN THE CLASSROOM

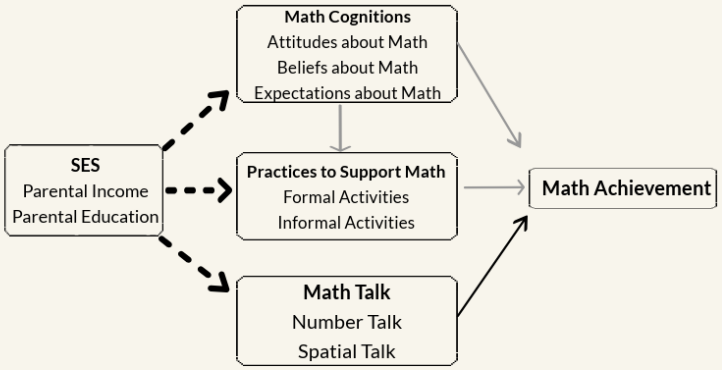
By: Ajla Bilajbegovic & Jennifer Hamilton

Low socioeconomic status (SES): Measured by a child's parental educational level and income level

What do we know?

"Children from families with low socioeconomic status begin kindergarten and first grade with lower math skills than their more affluent peers and make less progress throughout early elementary school" (Backman, Degol, Elliot, Scharphorn, Nokali & Palmer, 2018, p. 417)

At Home Factors

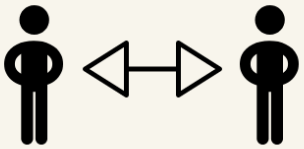


Adapted from: (Bachman & Elliot, 2018)

Why Equity Matters

Divide in Understanding Begins to Form

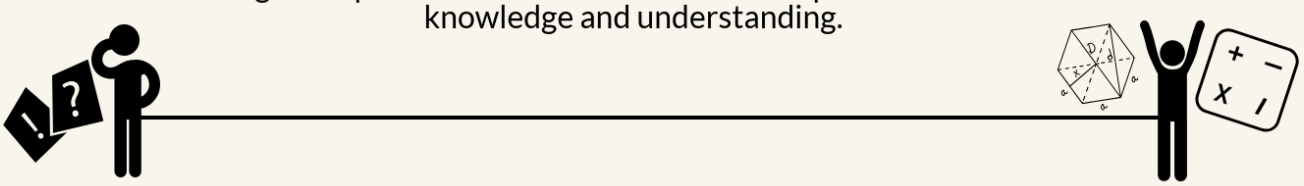
- If differences in mathematical understanding are not addressed, students from low income backgrounds tend to drift farther apart with regards to academic success from their more affluent peers



What mistakes are we making as teachers?

WE MAKE ASSUMPTIONS

From what research tells us we, at times unintentionally, categorize our low SES students on a spectrum of inability. We can mistakenly assume that all students who come from low SES households share the same foundational math knowledge. We place them on the left end of the spectrum without full consideration of their knowledge and understanding.



WE NEED TO EXPAND OUR CURRICULUM CONTENT

Lower SES students receive less higher-order conceptual math activities and more procedural instructions often focused on basic math skills (Bachman et al., 2015). Research has shown that although procedural mathematics knowledge is important for students to practice, it is an understanding in conceptual skills that predicts success in mathematics achievement in later years.

Procedural Skills vs Conceptual Skills

This includes, calculation, basic number concepts, counting and symbolic mapping knowledge.

Example: 1 + 2 = 3

Understanding, strategy and reasoning

Example: Write down as many combinations of numbers that add to 10.

What Can We Do To Help?

Primary Activities

Students in kindergarten and primary grades can work through card games to develop their numerical knowledge. Mixing theses games into a math program has been shown to increase students mathematical knowledge and understanding.

Card Games

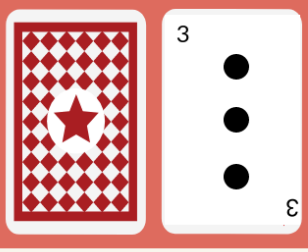
Game: WAR

- Teacher creates a set of playing cards with simple symbols
- Students and their partner each take 20-25 cards
- Students turn their cards over one at a time, and identify who has the greater number
- If students struggle, they are encouraged to count the symbols on the card

Game: MEMORY

- Teacher creates a set of playing cards with simple symbols
- Cards are organized into pairs and flipped and placed in rows
- Students turn their cards over one at a time, attempting to find matching pairs

NOTE: These cards are designed with simple symbols and are hand created by the teacher



Other Activities

Incorporating a large range of patterning activities has been shown to increase students spatial awareness skills, which is a known indicator of future mathematics success (Rittle-Johnson et al., 2017).

Ideas for Centres in the Kindergarten Classroom

- Beading
- Pattern Making
- Building Center
- Symmetry Games

Junior Ideas

Social Justice Activity

This math activity integrates math and the concept of global inequality. Students are asked to estimate the world's population distribution across the continents and how global wealth is distributed across those continents. They then calculate the actual amounts based on provided data and engage in global trade negotiations. This activity has cross-curricular connections with math, geography, language (writing), and social studies. This lesson allows students to engage with social issues that have an impact on their lives. Follow up activities can discuss the unequal distribution of wealth within countries and cities and how it impacts their own lives directly.

- Teacher gives student the number of people and wealth per continent
- Students disperse around the classroom to each “continent” after figuring out each continent’s percentage of the world population
- The wealth of the world is represented by two bags of cookies and are distributed based on the wealth of each continent with each person given an equal share of the wealth
- The 2 students representing North America each received 14 cookies, while the 4 students representing Africa shared the crumbs of 1 cookie amongst them

RESOURCES:

Bachman & Elliot. (2018). SES disparities in early math abilities: The contributions of parents’ T math cognitions, practices to support math, and math talk. Retrieved from: https://doi.org/10.1016/j.dr.2018.08.001

Bachman, Votruba-Drzal, Nokali, & Heatly. (2015), University of PittsburghOpportunities for Learning Math in Elementary School: Implications for SES Disparities in Procedural and Conceptual Math Skills. Retrieved from: DOI: 10.3102/0002831215594877

Edgerton, Peter, & Roberts. (2008). Back to the Basics: Socio-Economic, Gender, and Regional Disparities in Canada’s Educational System. Canadian Journal of Education.

Rittle-Johnson, Fyfe, Hofer, & Farran. (2017). Early math trajectories: Low-income children's mathematics knowledge from ages 4-11. Child Development, 88, 5. 1727-1742.