Math Circles through an Equity Lens

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Introduction

- From 2016 - 2020, I explored Math Circles and enrichment programs in Philadelphia
- **Goal:** To create Math Circles that included my kids and their peers.
- **Realization:** To create equitable Math Circles, programs should be offered during the school day.
- This talk explores what obstacles and opportunities in each setting, lessons learned, and suggests open questions to explore.
Math Circle at Timothy Academy Preschool, 2016

- Context:
  Timothy Academy
  (68% African American students; 26% Hispanic students)
- Opportunities:
  Equitable!
- Obstacles:
  Limited facilitators
  Financially unsustainable
  (school now closed)
Philly Junior Math Circle, 2017 - 2020

- Context:
  Center City Philadelphia

- Opportunities:
  Collaborators = facilitators
  Financially sustainable

- Obstacles:
  Parental time/engagement
Math Circle at Hackett School, 2018-2019

- **Context:**
  - Hackett School (60.8% low-income)

- **Opportunities:**
  - Equitable!

- **Obstacles:**
  - Not scalable
  - Covid restrictions
Take-home Logic Puzzles, 2018

- **Context:**
  - Hackett School (60.8% low-income)
  - McCall School (37.2% low-income)

- **Opportunities:**
  - Scalable

- **Obstacle:**
  - Parental time/engagement
  - Not a Math Circle
Math Circle at Open Door Community Center, 2018

- **Context:** Low-income neighborhood
- **Opportunities:** Partner with Webster School (87.4 % low-income)
- **Obstacles:** Parental time/engagement
Lessons Learned

- Parental time/engagement seems to be the biggest obstacle to equitable access to Math Circles
- Strongest participation from disadvantaged students was when Math Circles were offered during the school day
- Teachers and students loved having Math Circles in the classroom.
Teachers’ Feedback

- “My whole class was always excited about math circles! Students who typically showed little interest in math, and students who struggled in math, always enjoyed math circles because they viewed it more as a game and not math practice.”

- “Making time for math circles was definitely worth it. The time was educational, challenging, and fun for the children. As a teacher I feel that giving the children time to explore, experience, and articulate their reasoning through collaboration and discussion when presented a “math problem” or situation builds their confidence and critical thinking skills.”

- “All student groups loved going to Math Circles. It was an opportunity to leave the classroom and explore math concepts in a different setting than their regular classroom. It provided students with an opportunity to use critical thinking and reasoning to solve problems.”
Future Work

- Math enrichment programs should be available when and where students are already present
- Can Math Circles be aligned with district goals? Can we do this in more schools? Does this improve the school’s outcomes?
- Can it be demonstrated that this Math Circle program helps to the equity gap?
Questions?

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