The Preschool Classroom Library: Is There a Place for Mathematics?

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Research Questions

RQ1: Does increased exposure to math books in the preschool library (intervention condition) increase the number of such books looked at compared to business as usual (control) condition?

RQ2: Do teachers do anything to affect children's selection of books in the classroom library?

Background

- A young child's classroom provides an opportunity to engage in mathematical learning experiences and build foundational mathematics skills (NCTM, 2013).
- Preschool children spend on average only 24 minutes a day with access to mathematics activities in class (Piasta et al., 2014). And these are not using classroom libraries.
- Preschool classroom libraries in the U.S., China, Japan, and Turkey (Stites et al., 2021, 2022) have relatively few mathematics books in their libraries and teachers do not view the function of the library to facilitate children's mathematics knowledge.
- Ginsburg et al. (2008) emphasize the importance of children's exposure to mathematics throughout their day. Therefore, increasing children's exposure to mathematics through the classroom library seems like a good opportunity to facilitate their growth in math.

Method

Participants

Intervention: 2 Head Start classrooms.
Control: 2 Head Start classrooms

Preschool Classroom Libraries:

Intervention: Same number of math and traditional literacy books
Control: No more than 10-15% math books

Teacher Interview Questions:

Teachers were individually interviewed about demographic information, practices and beliefs.

- All teachers were female
- All teachers had ECE Certificates.
- Teachers in the intervention group had been teaching for 8.5 years, and teachers in the control group had been teaching for 20 years.

Sample Interview Questions

How important do you think it is to teach math to preschool children?
How confident are you in your ability to support your students' math learning?
Do you have circle time or morning meeting? If yes, do you incorporate any math activities during circle time? (e.g., counting the number of people here today, talking about the calendar or temperature)?
When you read traditional storybooks aloud to children, do you ever incorporate math themes? (E.g. in a book about dogs, counting the dogs)

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Results

***RQ1*:**

	Intervention group Mean (SD)	Control group (Mean SD)	p	Cohen's d
Math books	2.06 (.08)	1.60 (.32)	<.10	.24
Traditional books	4.56 (.79)	6.12 (1.94)	ns	

RQ2:

- Teachers rated the importance of math instruction from 3-5 (out of 5).
- They rated themselves confident to teach children math from 3-5 (out of 5).
- They discussed opportunities for math learning occurring in circle and center times. Much of what teachers said they did was counting
- There were few instances of teachers guiding children's reading choices in the library

Conclusions

Increasing children's exposure to math books in the preschool libraries increased the number of math books children looked at.

- However, we still need to look for ways to increase this more.
- One such way is to involve teachers more in the choice of books children select in the library (e.g., point out what may be interesting math books) without interfering with children's agency.
- Future research also should investigate whether increased exposure affects increased math skills.