Parents’ Approaches to Early Numeracy Support Do Not Match the Approach They Think Is Most Important
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Background

+ Parents’ beliefs influence the early numeracy support they provide their children (Douglas, et al., 2021; Mutaf-Yildiz et al., 2020)
+ One understudied belief is parents’ beliefs about pedagogical approach for supporting their child’s math development
+ Pedagogical approach: Approach and context for supporting their child’s math learning (e.g., during daily routines; direct teaching)
+ Three previous studies:

Participants

+ Survey data collected via Amazon MTurk
+ 89 parents of 3- and 4-year-olds (52% girls). Most were mothers (69%) and White (72%) and completed some college (79% of mothers, 96% of fathers). 70% of parents reported a household income of greater than $45,000 (middle to high income)

Socioeconomic Status (SES)

+ Parent Highest Education Level as proxy for SES
+ From (1) Elementary to (7) Master’s, Professional, or doctoral degree
+ Median split for analyses to become two groups: (1) Less than Bachelor’s degree vs. (2) Bachelor’s degree or more

Method

Pedagogical Approach (4 approaches)

List of provided approaches:
+ I give my child math-related tasks or ask math-related questions during ongoing daily living experiences or routines (for example, we use measuring cups or spoons while preparing food) – (During Daily Routine)
+ I set aside time to focus on teaching my child math skills (for example, we look at a math workbook or use math flashcards) – (Direct Teaching)
+ I enrich my child’s playtime by providing math-related toys and materials that they use alone or with other children (for example, my child spontaneously plays with cards or shape puzzles alone) – (Give Math-related toys)
+ I play math games with my child or incorporate math during activities that I think my child will enjoy to engage my child’s math interest (for example, we talk about math while playing board games or watching Sesame Street together) – (During Activities Their Child Enjoys)

Questions asked about Approaches:
+ Which of the following approaches do you use at home on a regular basis to help your child develop mathematical knowledge and skills? If select more than one approach: Which approach do you use most often?
+ Rank the following approaches from least important (1) to most important (4) in your home (Subset of participants, N = 45)

Home Numeracy Activities (15 items)

+ How often do you do the following activities with your child? (10 Formal, 5 Informal)
+ Add simple sums or talk about number facts (for example, 2+2=4)
+ Practice subtracting items (for example, when playing with 2 toy cars, asking "How many cars will you have if I take away one of your cars?")

Use and Importance

+ Overall, observed differences between percentage of parents choosing each approach as most often vs. most important

Results

Percentage of Parents

<table>
<thead>
<tr>
<th>General Pedagogical Approach</th>
<th>Most often (N = 89)</th>
<th>Most Important (N = 45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>During Daily Routines</td>
<td>40%</td>
<td>9%</td>
</tr>
<tr>
<td>Direct Teaching</td>
<td>10%</td>
<td>60%</td>
</tr>
<tr>
<td>Give Math-related Toys</td>
<td>20%</td>
<td>22%</td>
</tr>
<tr>
<td>During Activities Their Child Enjoys</td>
<td>29%</td>
<td>9%</td>
</tr>
</tbody>
</table>

+ At the individual level, most parents (89%) did not match in the approach they used most often and what they believed is most important

Individual Most Often & Most Important Approach Match/Mismatch

Frequency of Numeracy Activities (Mean (SD))

<table>
<thead>
<tr>
<th>Parents' Approaches</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>During Daily Routines</td>
<td>3.89 (.95)</td>
</tr>
<tr>
<td>Direct Teaching</td>
<td>3.98 (.94)</td>
</tr>
<tr>
<td>Give Math-related Toys</td>
<td>3.97 (.90)</td>
</tr>
<tr>
<td>During Activities Their Child Enjoys</td>
<td>4.12 (.74)</td>
</tr>
</tbody>
</table>

No difference by education and not enough variability in income for analyses although DeFlorio & Beliakoff (2015) found difference by SES (using an income proxy).

Discussion

+ Large difference between most often vs. most important pedagogical approach
+ Parents believed direct teaching to be the most important pedagogical approach, but reported using the during daily routine approach most often
+ We found no relation between frequency of home numeracy activities and pedagogical approach (use or belief)
+ Limitation: Small sample; specifically, variability in pedagogical approach categories (use and belief) was small when looking at demographic characteristics.
+ No difference by education and not enough variability in income for analyses although DeFlorio & Beliakoff (2015) found difference by SES (using an income proxy).
+ Future research is needed on why and how parents use and believe in different approaches to home math support.

Selected References


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