Vanderbilt University

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Dear Parents,

We are writing to thank your school for participating in our study. We recently finished our data collection and wanted to share some of our initial findings with you.

The purpose of this study was to help us understand how two different early skills, pattern and spatial skills, are linked to math skills in preschool. This knowledge can be used to make decisions about preschool activities that will provide a good foundation for math achievement.

For children with parental permission, we played games that measured pattern skills, several types of spatial skills, and math knowledge. As with previous studies, we found that children were pretty good at tasks involving copying and extending patterns (e.g., ♦♦♥♦♦♥. "Can you finish the pattern just like I would?"). These are the tasks that children are most likely to encounter in preschool. As expected, children had a harder time completing more difficult patterning tasks, such as replicating a pattern using different materials or identifying the core unit that repeats within a pattern. For example, the child might see the pattern "red heart, red heart, blue star" and be asked to make the same kind of pattern using green and yellow cubes, and some children were able to do this. Our spatial tasks measured children's skills in visualizing how objects would look when turned in different ways, matching pictures that are the same, and remembering locations. As expected, these were challenging for preschoolers. Our math assessment assessed children's counting, number comparison, number symbol knowledge (1,2,3,4,5), simple calculations with objects and shape recognition. As expected, children were skilled with basic number tasks.

Overall, we found that children's patterning and spatial skills were highly related. Additionally, we found that both pattern skills and spatial skills were related to math knowledge. Children's pattern skills in particular were highly related to their mathematics knowledge. Our pattern assessment that we developed based off of pre-existing patterning worksheets found on websites with resources for early-childhood educators was the strongest predictor of math knowledge at both time points. This is exciting, because children, parents and teachers often enjoy working with patterns. Helping children do increasingly challenging pattern tasks may be one fun way to help provide a good foundation for math achievement. We plan to continue to study this next year.

Again, we appreciate your school's participation in our study. Please feel free to contact us with any further questions.

Sincerely,

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