

May 2019

Dear Parents,

Thank you for having your child participate in our math study sometime between March 2018 and April 2019. We finished data collection recently and want to share some of our initial findings with you. Previous studies have shown that repeated patterning is closely connected with math. For example, the ability to recognize patterns (e.g., ♥♥□♥♥□) is a strong predictor of math achievement later in school, especially children's knowledge of numbers. The purpose of this study was to help us understand if training repeating patterning knowledge could help preschoolers better develop number skills and general math knowledge.

After gaining permission from parents, we worked with 212 preschoolers from various private and public preschools in the Nashville area. We first played games that measured patterning, numeracy, and general math skills. In the following weeks, we paired children with partners who were placed in three different groups. One group of children played patterning and numeracy games, including figuring out the part of the pattern that repeats in patterns with objects and sounds and learning about a pattern in numbers called the successor principle—the idea that the next number in the count string is one more than the number before it. Another group played literacy games, like reading books about friends, before also playing our numeracy games on the successor principle. A final group received regular classroom instruction. After five 30-minute sessions, children played games that measured their patterning, numeracy, and general math skills again.

Children in all three groups performed a bit better on patterning, general numeracy, and general math tasks at the end of the study, but they did not understand the successor principle better. Children who played patterning and numeracy games did better at patterning than children in the other groups, while general math and numeracy knowledge were similar in all three groups. This suggests that more research is needed to understand how to improve knowledge of the successor principle, and how patterning plays a role in math and numeracy instruction.

Overall, findings of this study suggest that playing patterning games improves children's patterning skills, such as copying or extending a model pattern or creating a model pattern using different materials. This is exciting because children, parents, and teachers often enjoy working with patterns. There are patterns in sounds, objects and numbers all around us! We will continue to research ways to help children learn about patterns in numbers and other ways to use patterning to support math knowledge.

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

Sincerely,



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