What Works Clearinghouse

ies INSTITUTE OF EDUCATION SCIENCES

August 2008

WWC Quick Review of the Article "Promoting Broad and Stable Improvements in Low-Income Children's Numerical Knowledge Through Playing Number Board Games"†

What is this study about?

This study examined whether playing number board games improved numeracy skills of low-income preschoolers.

It included 136 preschool children from 10 urban Head Start centers. The children ranged in age from four to five-and-a-half years old.

Seventy-two children were randomly selected to play a number board game with a trained experimenter. The other 64 children played a different version of the game using colors instead of numbers.

Numeracy skills were assessed at the end of a two-week period and again nine weeks later.

How Board Games Were Used to Teach Numeracy Skills

Game included a board with numbered squares, two game pieces, and a spinner.

Players took turns spinning and moving game pieces around the board.

They read numbers from the board aloud as they moved game pieces.

Children completed four game sessions over a two-week period lasting 15 to 20 minutes each.

WWC Rating

The research described in this article is consistent with WWC evidence standards

Strengths: The study is a well implemented randomized controlled trial.

Cautions: Twelve children from the initial sample of 136 were dropped from the analysis, including four who were assigned to play the number game and eight who were assigned to play the color game. In addition, children who played the number game had higher baseline scores on most outcome measures. Although these differences were not statistically significant, they may contribute to the higher scores reported in the follow-up period for children who played the number game.

What did the study authors report?

Children who played the number game had better counting and number identification skills than children who played the color game. Children who played the number game were also better at picking the highest number from a pair of numbers and identifying positions on a number line.

The effects persisted nine weeks after the game sessions ended. Estimated effect sizes at that point ranged from 0.55 to 0.80. These effects did not differ by the age of the preschoolers.

†"Promoting Broad and Stable Improvements in Low-Income Children's Numerical Knowledge Through Playing Number Board Games." *Child Development, 79*(2), 375-394. Geetha B. Ramani and Robert S. Siegler.