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Numerical Board Game for Low-Income Preschoolers

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Abstract : There is growing evidence that socioeconomic (SES)-related differences in mathematical knowledge primarily start in early childhood period. Preschoolers from low-income families are likely to perform substantially worse in mathematical knowledge than their counterparts from middle and higher income families. The differences are seen on a wide range of recognizing written numerals, counting, adding and subtracting, and comparing numerical magnitudes. Early differences in numerical knowledge have a permanent effect childrens' mathematical knowledge in other grades. In this respect, analyzing the effect of number board game on the number knowledge of 48-60 month-old children from disadvantaged low-income families constitutes the main objective of the study. Participants were the 71 preschoolers from a childcare center which served low-income urban families. Children were randomly assigned to the number board condition or to the color board condition. The number board condition included 35 children and the color board game condition included 36 children. Both board games were 50 cm long and 30 cm high; had 'The Great Race' written across the top; and included 11 horizontally arranged, different colored squares of equal sizes with the leftmost square labeled 'Start'. The numerical board had the numbers 1–10 in the rightmost 10 squares; the color board had different colors in those squares. A rabbit or a bear token were presented to children for selecting, and on each trial spun a spinner to determine whether the token would move one or two spaces. The number condition spinner had a '1' half and a '2' half; the color condition spinner had colors that matched the colors of the squares on the board. Children met one-on-one with an experimenter for four 15- to 20-min sessions within a 2-week period. In the first and fourth sessions, children were administered identical pretest and posttest measures of numerical knowledge. All children were presented three numerical tasks and one subtest presented in the following order: counting, numerical magnitude comparison, numerical identification and Count Objects – Circle Number Probe subtest of Early Numeracy Assessment. In addition, same numerical tasks and subtest were given as a follow-up test four weeks after the post-test administration. Findings obtained from the study; showed that there was a meaningful difference between scores of children who played a color board game in favor of children who played number board game.

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