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Playing numerical board games boosts number skills of low-income preschoolers

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Playing numerical board games can improve low-income preschoolers' number skills, offering a promising way to reduce the discrepancies in numerical knowledge between children from poor families and those from middle-income families.

That's the main finding of a study that appears in the March/April 2008 issue of the journal *Child Development*. The study was carried out by researchers at Carnegie Mellon University.

Children vary greatly in the math knowledge they bring to school, with children from poor families tending to have far less math knowledge than their peers from middle-class families. These differences appear to have large and long-term consequences, with proficiency in math at the start of kindergarten strongly predictive of math achievement test scores years later. The gap in math knowledge likely reflects differences in exposure at home to informal numerical activities, including numerical board games. Board games with consecutively numbered, linearly arranged spaces—think Chutes and Ladders—provide children with good opportunities to learn about the relation between numerals and their sizes.

Would providing low-income preschoolers with experience playing numerical board games improve their understanding of numbers"

In the study, preschool students from low-income backgrounds who attended Head Start centers played a numerical board game for four

15-minute sessions. The researchers found that this activity increased the children's proficiency at counting, identifying printed numerals, comparing the relative sizes of numbers, and estimating the position of numbers on number lines. All of the gains remained nine weeks after the experience, and were comparable for African American and White children. Children who played an identical board game, except that the squares varied in color rather than number, did not improve any of the four skills.

"Playing numerical board games appears to be a promising (and inexpensive) way to improve preschoolers' numerical knowledge and to reduce discrepancies in the numerical knowledge that children from low-income and middle-income families bring to school," report Geetha B. Ramani, who is now assistant professor of human development at the University of Maryland, and Robert Siegler, Teresa Heinz Professor of Cognitive Psychology at Carnegie Mellon University, the study's authors.

Source: Society for Research in Child Development