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Authors

Srinivasan, Akshita

Mullertz, Laura

Carvalho, Chrissie F

et al.

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Enhancing Preschool Readiness: Evidence from a Home-based Game to Improve 5-year-old Children's Mastery of Symbolic Numbers and Concepts

Akshita Srinivasan

Harvard University, Cambridge, Massachusetts, United States

Laura Mullertz

Harvard University, Cambridge, Massachusetts, United States

Chrissie Carvalho

Universidade Federal de Santa Catarina, Florianopolis, Brazil

Elizabeth Spelke

Harvard University, Cambridge, Massachusetts, United States

Abstract

Preschool children vary in their numerical knowledge, and this variation predicts math achievement throughout elementary school. Can preschool interventions that exercise school-relevant numerical concepts support later school math learning, and if so, what numerical activities should be targeted to best foster this learning? Here we ask whether a game-based intervention targeting preschool children's understanding of the base-10 compositional system of number words and symbols improves their school-relevant numerical concepts in the short term. Five- to six-year-old children who played a numerical board game at home with their parents for two-three weeks showed improved preschool numerical concepts, compared to children who played a game with similar materials and procedures but no numerical content. This finding takes a first step toward developing and evaluating a suite of game-based interventions, leveraging research in developmental cognitive science both to enhance children's learning in school and to deepen understanding of how children learn.