

The Different Improvement of Numerical Magnitude and Spatial Representation of Numbers to Symbolic Approximate Arithmetic: A Training Study of Preschooler

Authors : Yu Liang, Wei Wei

Abstract : Spatial representation of numbers and numerical magnitude are important for preschoolers' mathematical ability. Mental number line, a typical index to measure numbers spatial representation, and numerical comparison are both related to arithmetic obviously. However, they seem to rely on different mechanisms and probably influence arithmetic through different mechanisms. In line with this idea, preschool children were trained with two tasks to investigate which one is more important for approximate arithmetic. The training of numerical processing and number line estimation were proved to be effective. They both improved the ability of approximate arithmetic. When the difficulty of approximate arithmetic was taken into account, the performance in number line training group was not significantly different among three levels. However, two harder levels achieved significance in numerical comparison training group. Thus, comparing spatial representation ability, symbolic approximation arithmetic relies more on numerical magnitude. Educational implications of the study were discussed.

Keywords : approximate arithmetic, mental number line, numerical magnitude, preschooler

Conference Title : ICCDCS 2017 : International Conference on Children's Cognitive Development and Stages

Conference Location : London, United Kingdom

Conference Dates : June 28-29, 2017