

An Active Counting and Set Labeling Approach to Early Number Learning

Gage Crum, Mary Dunleavy, Afiah Mohd Fozi, Katie Frakes, Tito Plaza, and Sara Gable

Preschoolers' quantitative competencies are predictors of math achievement up to age 15 years and are linked with economic outcomes after high school. This research presents findings from a counting and set-labelling intervention that aimed to move at-risk children more quickly toward cardinal principle knowledge. Cardinal principle knowledge (CPK) is the first conceptual milestone in early mathematical development and acts as a "gatekeeper" to acquisition of later number concepts. Further, attaining cardinal principle knowledge earlier is associated with better future math outcomes. For this project, 58 children in the first year of preschool (average 46 months) were recruited from the CPS Title I Preschool to participate. Children were assessed on their enumeration, verbal counting, cardinal knowledge, numeral recognition, and magnitude comparison abilities. Thirty-six children who scored poorly on the measure of CPK were then randomized, by score, into one of three groups: 1) a sedentary counting and set-labeling intervention; 2) an active counting and set-labeling intervention; or, 3) a no-intervention control group. Children in the first two groups met with an experimenter up to six times over a three- to four-week period. During the first session, children repeated the numeracy assessments and were introduced to the intervention. For sessions two through up to five, children practiced counting and set-labeling. The final session began with a brief intervention session and was followed by post-testing. Children in the no-intervention control group were pre- and post-tested using the same time frame. Data collection is still underway at CPS; analyses will compare children's quantitative competencies across groups and time. Based on past research, we hypothesize that children in the active intervention group will show the largest gains in cardinal principle knowledge when compared to the non-active intervention group and the no-intervention control group.