Background

• Both behavioral self-regulation and cognitive functioning are important in early academic development (Konold and Pianta, 2005).
• Executive function skills such as inhibitory control, attention, and working memory predict emergent literacy, vocabulary, and math skills (McClelland et al., 2007).
• Low income preschool children are likely to have less well developed executive functioning and poorer school readiness skills (Winslows, 2008).
• Executive functioning skills can be taught to children (Bodrova & Leong, 2007; Morrison et al., 2010; Tominey & McClelland, 2011).

Study Design

• Classroom randomized trial of the Second Step Early Learning Curriculum
• Two cohorts of n=32 classrooms each drawn from participating community child care programs and Head Start
• Children assessed by teachers and subset by individual child assessors (blind to study hypotheses) at beginning and end of school year
• Kindergarten follow-up of 4 year olds

Curriculum

• 28 weekly lessons; 5-7 minute activities/day
• Techniques for assisting children to review and think about lessons
• Brain builder games - children use working memory/attention/inhibition to follow visual or verbal instructions and cues
• Puppets, story cards, songs, small & large group activities, story books, and parent handouts

Curriculum Content

• Unit 1: Skills for Learning (listening, focusing attention, self-talk to follow directions, being assertive)
• Unit 2: Empathy (identifying feelings in self and others, perspective taking, showing care and concern)
• Unit 3: Emotion Management (identifying and understanding strong emotions, calming down strategies)
• Unit 4: Friendship Skills and Problem Solving
• Unit 5: Transitioning to Kindergarten

Measures

• Peabody Picture Vocabulary Test
• Woodcock Johnson Tests of Achievement-Understanding Directions, Letter Word Recognition, Story Recall, Story Recall Delayed, and Math
• Hot executive functioning: Less is More task
• Inhibitory control/cool executive functioning: Head-To-Toes task
• Working memory: Backward digit span
• Executive attention: Bear Dragon
• Emotion knowledge: Emotion Matching scale

Sample

• N=189, 112 boys & 77 girls
• Age M=53 months (SD=4.04)
• Income: 32 % <10,000 26 % 10,000 – 19,999, 40 % > 20,000
• Ethnicity: 11 % Black, 37 % Hispanic, 30 % White
• From 33 classrooms, 16 intervention

Analyses

• Independent samples t-test conducted
• Used composite across EF skills (individual scores not significantly different but pattern for intervention to have bigger change)
• Used Emotion Knowledge score
• Change scores calculated spring minus fall

Executive Functioning Composite

Measure: Executive Functioning (p=.038)

Emotion Knowledge

Sample

• Some evidence that curriculum improves EF compared to control curriculum
• Curriculum implemented approximately 75% with moderate fidelity based on monthly observations
• Expect higher rates of implementation and fidelity in second year to increase outcomes

Funding & References

• Based on data from Kidsteps II: Promoting school readiness through social-emotional skill building in preschool, R 053A0359; US Department of Education, Institute for Education Sciences