



**Enhancing Executive Function and  
Achievement in Prekindergarten  
Classrooms:  
The Effectiveness of *Tools of the Mind***

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# Self Regulation and Executive Function

- Self regulation manifested in classroom settings and related to learning has had different names
  - Learning Dispositions (Katz, 2002)
  - Work Related Skills (Cooper & Farran, 1988)
  - Approaches to Learning (ECLS-K)
  - Learning-Related Cognitive Self Regulation (Lipsey & Farran, 2009)
- The currently more common term is Executive Function

# Characteristics in Common and Importance for Education

- Executive Function (Hughes, 2011)
  - Inhibitory control
  - Working memory
  - Attentional flexibility
- Importance of EF for Education
  - Greatly increased interest in past few years
  - Evidence that EF predicts school achievement
    - Individual tests of content, notably math
    - Grades achieved, notably math again
    - Found in both early and late elementary, middle school
- A critical question – Can EF be increased?

# Early Childhood Curricula

- Public school prekindergarten classrooms serve children likely to have lower EF skills
  - Required to have curriculum, licensed teacher
- Curriculum as a possible mechanism for change in EF (see Best, Miller, & Naglieri, 2011; Diamond & Lee, 2011; Hughes, 2011)
- More experimental and process research needed to determine if curriculum can mediate changes in EF in prekindergarten classes.

# Early Childhood Classrooms

- Public school prekindergarten classrooms serve children likely to have lower self regulation skills
- Pre-K classrooms required to have a curriculum and a licensed teacher
- Recent interest in curriculum as a possible mechanism for change in self regulation
- No Pre-K curriculum has been rigorously assessed for self regulation effects

# ***Tools of the Mind Curriculum***

- Development began in the 1990s
- Consists of 40-65 Vygotskian-based activities – central focus is socio-dramatic play
- Focused on helping children develop learning dispositions while they are learning academic skills
  - Self Regulation
  - Attentiveness
  - Behavioral Control
- Dispositions will help children master new material across the school years
- In 2008, What Works Clearinghouse found no evidence of effectiveness for the curriculum.
  - Since then IES and NICHD have funded several longitudinal, large-scale randomized trials, the focus of this symposium

# Four Papers in This Symposium and One Discussant

- 1. Experimental Evaluation of the Tools of the Mind Preschool Curriculum**
  - Cluster-randomized control trial presenting data from the second year of implementation in 60 classrooms in Tennessee and North Carolina
- 2. Comparing Skills-Focused and Self-Regulation Focused Preschool Curricula: Impacts on Academic and Self-Regulatory Skills**
  - Cluster-randomized design involving 117 prekindergarten and Head Start classrooms in New Mexico and Massachusetts, children assessed in both of two years of curriculum implementation.
- 3. The Efficacy of an Intervention Synthesizing Scaffolding Designed to Promote Self-Regulation with an Early Mathematics Curriculum: Effects on Executive Function**
  - Cluster-randomized control trial in 84 classrooms in California in first year of implementation
- 4. Tools of the Mind: Promoting the School Readiness of ELLs**
  - Project in its first year of implementation in 60 classrooms in New York and Florida

***Discussant: Greg Duncan***

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