



The Impact of Cognitive Executive Function on Self-Correction and Verbal Fluency in Preschoolers

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Abstract

Few studies explore language self-corrections as a form of self-regulation in children. The current study expands on existing research by examining the relationship between executive functioning and self-corrective behaviors in narrative storytelling. Children were cued by picture stimuli to retell a previously heard story. Children's narratives were transcribed and coded for self-corrective behaviors. Executive function was assessed using the Behavior Rating Inventory of Executive Function-Preschool Version and verbal tasks were measured on the Fluharty Verbal Fluency Scale. The results found that children with higher executive functioning skills self-correct more frequently than children with lower executive function.

Introduction

- Goal oriented self-regulation is an important skill that impacts learning, development, and academic success for young children (Garner, 2009).
- Executive function (EF) is comprised of cognitive abilities and processes that are necessary for planning and carrying out specific behaviors and is a crucial element of self-regulation (Diamond, 2014).
- Early childhood is an important period of development during which EF and language skills grow rapidly (Shaul & Schwartz, 2013).
- Self-corrective language (repairing initial erroneous speech) is recognized as an important sign of progression in language development (Forbes, Poparad, & McBride, 2004).
- There are few studies that explore language self-correction as a form of EF self-regulation (Hooper, Swartz, Wakely, Kruif, & Montgomery, 2002).

Hypotheses

1. Children with higher executive function skills (lower scores of executive dysfunction) will engage in fewer misses (overlooking mistakes while reciting their stories) and more correct self-corrections.
2. Repetitive language and executive functioning would not be related.
3. Self-corrections would be related to increased language fluency.

Methods

Participants

- 35 preschoolers from 3 classrooms serving lower-income children in the capital region of New York State
- Age Range: 48-61 months, M (age) = 55.41 months
- Sex: 43% Males, 57% Females

Measures

- Preschoolers completed a retelling of the illustration-only book, *Frog, Where are You?* (Mayer, 1969).
- Narratives were audiotaped, double transcribed, and coded for self-corrections, mistakes, and repetitive language.
- Executive Function: Behavior Rating Inventory of Executive Function-Preschool Version (Gioia, Espy, & Isquith, 2001).
- Verbal Fluency: Fluharty Preschool Speech and Language Screening Test (Fluharty, 1978).

Results

	Mean	Std Dev
Corrections	0.05	0.06
Misses	0.37	0.14
Wrongs	0.01	0.02
Repeats	0.15	0.14
BRIEF Inhibitory Self-Control	52.94	12.21
BRIEF Flexibility	49.68	9.62
BRIEF Emergent Metacognition	53.56	12.05
BRIEF Composite	53.06	12.83
Fluharty General Language Quotient	96.56	8.74

Results (cont.)

- The data was analyzed using SPSS
- Increased self-corrective behavior when controlling for phrase count was correlated with lower levels of executive dysfunction, specifically Emergent Metacognition ($r = -.33, p < .05$).
- There were no significant correlations between repetitive language behaviors and any of the executive function subcategories.
- Children who engaged in more self-corrective behavior scored higher on the general language fluency scale ($r = .34, p < .05$).

Conclusions

- The results support the hypothesis that children with higher executive function skills self-correct more frequently than children with lower executive function skills (higher scores of executive dysfunction,) but only for the Emergent Metacognition category.
- As hypothesized, repetitive language was not related to executive function.
- Furthermore, engaging in increased accurate self-corrections is related to increased language fluency.

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