

Executive Function and Student-Teacher Relationships in Low-Income Preschool Children

Courtney E. Boise, Susan M. Sheridan, Amanda L. Moen, & Lisa L. Knoche

Introduction

- A positive student-teacher relationship is predictive of increased school readiness and socio-emotional development (Torres, Dimitrovich, & Bierman, 2015; Williford, Maier, Downer, Pianta, & Howes, 2013).
- Child behaviors, such as externalizing problems, contribute to diminished closeness and increased conflict between students and teachers (Zhang & Sun, 2011). Increased social competence in children is related to positive student-teacher relationships (Garner & Mahatmya, 2015).
- As executive function (EF) is associated with decreased problem behaviors (Utendale & Hastings, 2011) and greater social competence (Alduncin, Huffman, Feldman & Loe, 2014), executive function may be related to the development of student-teacher relationships.
- Understanding how dimensions of executive function contribute to the student-teacher relationship can help in the identification of children who may be at risk for negative student-teacher relationships, and could benefit from additional relational supports.

Study Purpose

- To examine the relationship between domains of executive function (including inhibitory self-control, flexibility, and emergent metacognition) and the student-teacher relationship (including closeness, conflict, and dependency) in low-income preschool-aged children.

Method

Participants

- The families in this study are part of a longitudinal examination of the Getting Ready Project. Data for this study are from the first cohort and was collected during fall of the children's first year of publically-funded preschool. Both treatment and control families are included in these analyses.

Teacher Demographics (n=95)	
Gender	98% Female 2% Male
Child Demographics (n=220)	
Age	3.5 years (range=3-4 years)
Ethnicity/ Race	43% White/Non-Hispanic 34 % Hispanic/Latino 23% Other
Home Language	85% English 15% Spanish
Gender	54% Male 46% Female

Measures

- Student-Teacher Relationship Scale (Pianta, 2001)**
-28 questions that assess the student-teacher relationship
-Overall Relationship score and three subscales:
-**Conflict**-the degree to which a teacher perceives the teacher-student relationship as negative and conflictual
-**Closeness**-the degree to which a teacher feels the teacher-student relationship is characterized by warmth, affection, and open communication
-**Dependency**-the degree to which the teacher feels the student is overly dependent
- Brief Rating Inventory for Executive Function-Preschool (Giois, Espy & Isquith, 2003)**
-61 questions that assess teacher's concerns about the child's executive function (EF), with higher scores indicating more concerns.
-Global Executive Composite score and three subscales:
-**Inhibitory Self-Control (ISI)**-the ability to control impulses and emotional responses
-**Flexibility (FI)**-the ability to move freely from one situation or aspect of a problem to another and modulate emotional responses appropriately
-**Emergent Metacognition (EMI)**-the ability to use working memory and plan or organize future goals and actions

Results

	Mean (SD)	Children Below Average
Global Executive Composite	57.84 (14.16)	65.0%
Inhibitory Self-Control	54.63 (13.46)	51.0%
Flexibility	51.54 (11.85)	41.0%
Emergent Metacognition	60.52 (13.91)	71.4%
Overall Relationship	111.45 (13.80)	49.8%
Conflict	21.94 (9.18)	68.4%
Closeness	41.95 (6.45)	43.8%
Dependency	10.63 (3.18)	51.3%

Notes. For executive function, a score of 50 denotes the average, which has been standardized by age. For the student-teacher relationship, scores were compared to a normative sample. The range for the scales are as follows: Overall=28-140; Conflict=12-60; Closeness=11-55; Dependency=5-25.

- The majority of children were below average on EF, with emergent metacognition as the greatest area of concern.
- However, for flexibility, teachers report that the majority of children are slightly above average.
- In general, student-teacher relationships were about average, though the sample exhibited less conflict overall.

Dimensions of Executive Function Predicting the Student-Teacher Relationship

The Overall Student-Teacher Relationship

- Fewer reported concerns about inhibitory self-control and flexibility predicted a more positive student-teacher relationship ($F=81.45, p<.001; \beta_{ISI}=-.38, p<.001; \beta_{FI}=-.43, p<.001$).

Student-Teacher Conflict

- More reported concerns regarding inhibitory self-control and flexibility predicted greater conflict in the student-teacher relationship ($F=119.42, p<.001; \beta_{ISI}=.68, p<.001; \beta_{FI}=.31, p<.001$).

Student-Teacher Closeness

- Fewer reported concerns about flexibility and emergent metacognition predicted higher levels of closeness between the teacher and child ($F=12.93, p<.001; \beta_{FI}=-.35, p<.01; \beta_{EMI}=.31, p<.05$).

Student Dependency on the Teacher

- More reported concerns about flexibility predicted greater dependency in the student-teacher relationship ($F=13.27, p<.001; \beta_{FI}=.35, p<.01$).

Discussion

- This study has practical implications for preschool teachers, given the importance of the student-teacher relationship in young children's development (Torres, et al., 2015; Williford, et al., 2013).
- This study highlights the importance of executive function screening as children enter preschool so that teachers can be aware of children whom may benefit from a greater level of relational supports to ameliorate the negative impact of executive function concerns.
- Teachers can place special emphasis on aiding students in developing cognitive strategies for self-inhibitory control, flexibility, and emergent metacognition to promote closeness and reduce dependency and conflict in student-teacher relationships.
- Future research should examine the student-teacher relationship as a potential mediator between executive function and externalizing problems, as well as explore the possibility of a bidirectional relationship between executive function and the teacher-student relationship.

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