

# Classroom Interactions, Teacher-Child Relationships, and Children's Early Learning in Preschool

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CURRY SCHOOL *of* EDUCATION  
*and* HUMAN DEVELOPMENT

# Motivation

- **High-quality teacher-child interactions can be beneficial and protective for children** (Hamre & Pianta, 2005; Mashburn et al., 2008; NICHD ECCRN, 2003)
- **Children's early relationships with teachers also has long-term developmental implications** (Baker, 2006; Hamre & Pianta, 2001; O'Connor & McCartney, 2007)

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## Contribution

- Examine how interactional quality and relationships in preschool matter both **independently** and **synergistically** for children's early learning and development

# Data

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  - Looks at classroom processes and practices in public preschool programs
- **1,498 children from a large economically, ethnically, racially, linguistically diverse county in 2016-2017**
  - 90% minority
  - 79% non-English home language
  - Income-to-needs ratio: 0.86

# Data

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- 1,498 children from a large economically, ethnically, racially, linguistically diverse county in 2016-2017
  - 90% minority
  - 79% non-English home language
  - Income-to-needs ratio: 0.86
- **Experienced preschool teaching staff ( $n=126$ )**
  - 16.86 years of education
  - 15.68 years of experience
  - 42% of teaching staff non-white
  - 39% have a major in early childhood

# Key measures

- **Classroom Assessment Scoring System (CLASS)**  
(Pianta, La Paro, & Hamre, 2008)
- **Student-Teacher Relationship Scale (STRS)** (Pianta, 2001)

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- Classroom Assessment Scoring System (CLASS)  
(Pianta, La Paro, & Hamre, 2008)
- Student-Teacher Relationship Scale (STRS) (Pianta, 2001)
- School readiness outcomes

Academic achievement	Woodcock-Johnson III: Letter-Word, Picture Vocabulary, Applied Problems, Quantitative Concepts
Socio-emotional skills	Teacher-Child Rating Scale: Task orientation, peer social skills, frustration tolerance, conduct problems
Executive functioning	Backwards Digit Span, Head-Toes-Knee-Shoulders, Pencil Tap



# Analysis

- OLS regression models for teacher-child relationships, classroom-level interactions, and child school readiness outcomes

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- OLS regression models for teacher-child relationships, classroom-level interactions, and child school readiness outcomes
  - Models control for child, family, teacher characteristics, and lagged dependent variables
  - Cluster adjustments to account for nesting
  - FIML for missing data

# Results

1. Main effects of key predictors and moderators
  - Teacher-child interactions
  - Teacher-child closeness
  - Teacher-child conflict

# Results: Main effects

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	Teacher-child interaction quality
<b><i>Academic outcomes</i></b>	
Letter-Word	0.01 (0.03)
Applied Problems	0.01 (0.02)
Picture Vocabulary	0.01 (0.02)
Quant. Concepts	0.04 (0.03)
<b><i>Socio-emotional skills</i></b>	
Behavior Problems	-0.03 (0.03)
Social Competence	0.01 (0.04)
Task Orientation	0.02 (0.03)
Frustration Tolerance	0.01 (0.04)
<b><i>Executive functioning</i></b>	
Backwards Digit Span	0.04 (0.03)
Pencil Tap	-0.05 (0.03)
HTKS	0.02 (0.03)

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\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

# Results: Main effects

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	Teacher-child interaction quality	ICCs at the classroom level (spring)
<b><i>Academic outcomes</i></b>		
Letter-Word	0.01 (0.03)	.05
Applied Problems	0.01 (0.02)	.05
Picture Vocabulary	0.01 (0.02)	.12
Quant. Concepts	0.04 (0.03)	.06
<b><i>Socio-emotional skills</i></b>		
Behavior Problems	-0.03 (0.03)	.14
Social Competence	0.01 (0.04)	.26
Task Orientation	0.02 (0.03)	.17
Frustration Tolerance	0.01 (0.04)	.30
<b><i>Executive functioning</i></b>		
Backwards Digit Span	0.04 (0.03)	.00
Pencil Tap	-0.05 (0.03)	.02
HTKS	0.02 (0.03)	.03

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# Results: Main effects

	Teacher-child interaction quality	Teacher-child closeness
<b><i>Academic outcomes</i></b>		
Letter-Word	0.01 (0.03)	0.08 (0.02) ***
Applied Problems	0.01 (0.02)	0.09 (0.03) **
Picture Vocabulary	0.01 (0.02)	0.05 (0.02) *
Quant. Concepts	0.04 (0.03)	0.03 (0.02)
<b><i>Socio-emotional skills</i></b>		
Behavior Problems	-0.03 (0.03)	0.01 (0.02)
Social Competence	0.01 (0.04)	0.11 (0.03) ***
Task Orientation	0.02 (0.03)	0.08 (0.02) ***
Frustration Tolerance	0.01 (0.04)	0.04 (0.03) *
<b><i>Executive functioning</i></b>		
Backwards Digit Span	0.04 (0.03)	0.08 (0.02) **
Pencil Tap	-0.05 (0.03)	0.10 (0.03) **
HTKS	0.02 (0.03)	-0.08 (0.03) **

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# Results: Main effects

	Teacher-child interaction quality	Teacher-child closeness	Teacher-child conflict
<b><i>Academic outcomes</i></b>			
Letter-Word	0.01 (0.03)	0.08 (0.02) ***	-0.02 (0.03)
Applied Problems	0.01 (0.02)	0.09 (0.03) **	-0.01 (0.02)
Picture Vocabulary	0.01 (0.02)	0.05 (0.02) *	-0.04 (0.02)
Quant. Concepts	0.04 (0.03)	0.03 (0.02)	-0.03 (0.02)
<b><i>Socio-emotional skills</i></b>			
Behavior Problems	-0.03 (0.03)	0.01 (0.02)	0.49 (0.05) ***
Social Competence	0.01 (0.04)	0.11 (0.03) ***	-0.29 (0.03) ***
Task Orientation	0.02 (0.03)	0.08 (0.02) ***	-0.14 (0.02) ***
Frustration Tolerance	0.01 (0.04)	0.04 (0.03) *	-0.36 (0.03) ***
<b><i>Executive functioning</i></b>			
Backwards Digit Span	0.04 (0.03)	0.08 (0.02) **	-0.05 (0.02) *
Pencil Tap	-0.05 (0.03)	0.10 (0.03) **	-0.06 (0.03) *
HTKS	0.02 (0.03)	-0.08 (0.03) **	-0.07 (0.03) **

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

# Results: Main effects

	Teacher-child interaction quality	Teacher-child closeness	Teacher-child conflict
<b><i>Academic outcomes</i></b>			
Letter-Word	0.01 (0.03)	0.08 (0.02) ***	-0.02 (0.03)
Applied Problems	0.01 (0.02)	0.09 (0.03) **	-0.01 (0.02)
Picture Vocabulary	0.01 (0.02)	0.05 (0.02) *	-0.04 (0.02)
Quant. Concepts	0.04 (0.03)	0.03 (0.02)	-0.03 (0.02)
<b><i>Socio-emotional skills</i></b>			
Behavior Problems	-0.03 (0.03)	0.01 (0.02)	0.49 (0.05) ***
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Frustration Tolerance	0.01 (0.04)	0.04 (0.03) *	-0.36 (0.03) ***
<b><i>Executive functioning</i></b>			
Backwards Digit Span	0.04 (0.03)	0.08 (0.02) **	-0.05 (0.02) *
Pencil Tap	-0.05 (0.03)	0.10 (0.03) **	-0.06 (0.03) *
HTKS	0.02 (0.03)	-0.08 (0.03) **	-0.07 (0.03) **

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$



# Results

1. Main effects of key predictors and moderators
  - Teacher-child interactions
  - Teacher-child closeness
  - Teacher-child conflict
2. Closeness and conflict as moderators of the association between quality of teacher-child interactions and child school readiness outcomes

# Results: Multiplicative effects

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	Teacher-child interactions X closeness
<b><i>Academic outcomes</i></b>	
Letter-Word	0.04 (0.02) *
Applied Problems	0.05 (0.02) +
Picture Vocabulary	0.01 (0.02)
Quant. Concepts	0.04 (0.02) *
<b><i>Socio-emotional skills</i></b>	
Behavior Problems	-0.04 (0.01) **
Social Competence	0.00 (0.02)
Task Orientation	-0.01 (0.02)
Frustration Tolerance	0.01 (0.02)
<b><i>Executive functioning</i></b>	
Backwards Digit Span	0.00 (0.02)
Pencil Tap	0.01 (0.03)
HTKS	0.01 (0.02)

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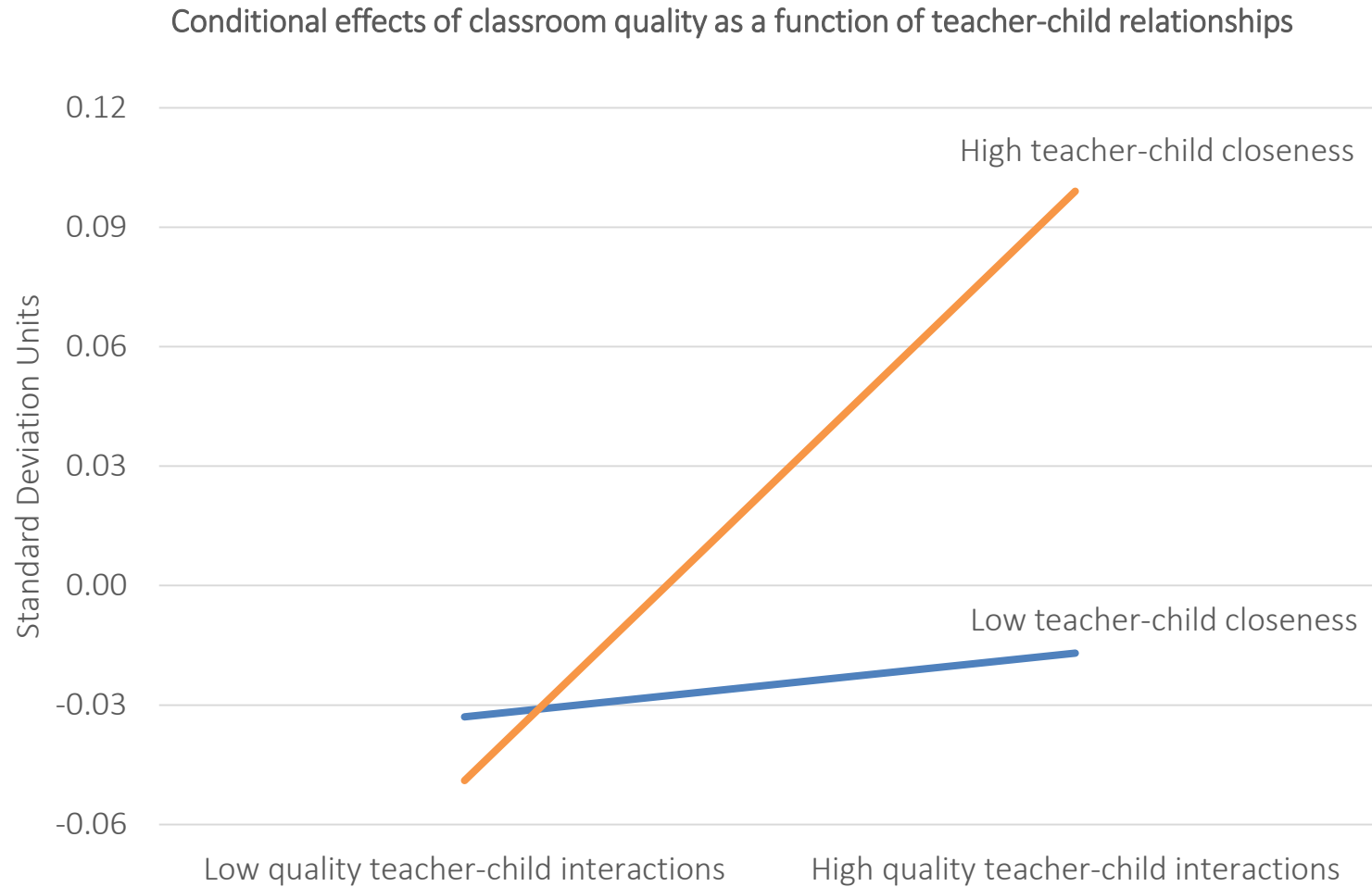
\*\* $p < .01$ ; \* $p < .05$ ; + $p < .10$

# Results: Multiplicative effects

	Teacher-child interactions X closeness	Teacher-child interactions X conflict
<b><i>Academic outcomes</i></b>		
Letter-Word	0.04 (0.02) *	-0.02 (0.02)
Applied Problems	0.05 (0.02) +	-0.00 (0.02)
Picture Vocabulary	0.01 (0.02)	-0.06 (0.02) **
Quant. Concepts	0.04 (0.02) *	-0.04 (0.03) +
<b><i>Socio-emotional skills</i></b>		
Behavior Problems	-0.04 (0.01) **	0.03 (0.03)
Social Competence	0.00 (0.02)	0.01 (0.02)
Task Orientation	-0.01 (0.02)	0.03 (0.02)
Frustration Tolerance	0.01 (0.02)	-0.02 (0.03)
<b><i>Executive functioning</i></b>		
Backwards Digit Span	0.00 (0.02)	-0.03 (0.02)
Pencil Tap	0.01 (0.03)	-0.02 (0.03)
HTKS	0.01 (0.02)	0.00 (0.03)

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# Illustration of results



# Discussion

- Study sheds light on importance of **individual child experiences**

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- **Benefits of high-quality teacher-child interactions are conditional on teacher-child relationships**
  - Interactional quality not consistently associated with child outcomes
  - Closeness and conflict *are* linked with child outcomes

# Discussion

- Study sheds light on importance of **individual child experiences**
- Benefits of high-quality teacher-child interactions are conditional on teacher-child relationships
  - Interactional quality not consistently associated with child outcomes
  - Closeness and conflict *are* linked with child outcomes
- **Some methodological limitations to the study**
- **Future directions**
  - How do these teacher-child relationships form?
  - What contributes to closeness and conflict?
  - What is it about individual children and their experiences?

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