

Associations Between Child- and Classroom-Level Interactions in Early Childhood Settings: Observations with the inCLASS and CLASS



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Background

For children between the ages of 3 and 5, "readiness" to function competently in school is evident in the nature and quality of their behavioral, social and language-based interactions in preschool classrooms. Classroom interactions provide a valid indicator of how children make use of learning and social opportunities (Rimm-Kaufman & Pianta, 2000).

Increasingly, direct observation is being used to assess individual children's interaction competence (Neisworth & Bagnato, 2004), as well as the quality of interactions afforded by a classroom environment (Pianta & Hamre, 2009). To increase our understanding of interactions within early childhood classrooms, there is a need for more research that focuses on both child- and classroom-level interactions.

Research Questions

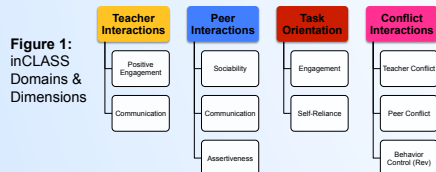
Using observations, the current study allows for a descriptive examination of two compelling questions:

RQ1: Are child- and classroom-level interactions associated (i.e., children's individual classroom experiences aligned with the average quality of interactions in the classroom as a whole)?

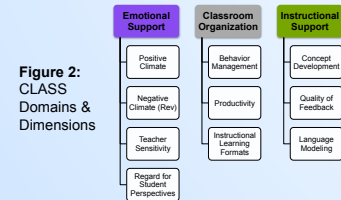
RQ2: Do these child- and classroom-level associations differ based on child gender?

Child- & Classroom-level Observations

The *Individualized Classroom Assessment Scoring System* (inCLASS) is a child-focused observational tool that examines 4 domains and 10 dimensions of competent child interactions (Downer et al., 2010; see Figure 1). Inter-rater reliability was calculated across 20% classrooms (cycle and dimension agreement within-1 ranged from 89-100%).



The *Classroom Assessment Scoring System* (CLASS) measures teacher-child interaction quality for an entire classroom using 3 domains and 10 dimensions (Pianta et al., 2008; see Figure 2). Inter-rater reliability was calculated across 15% of classrooms (cycle and dimension agreement within-1 ranged from 83-97%).



Methods

Participants: 140 children (75 girls & 65 boys) that were 4- and 6-years old ($M = 61.10$ months) in 98 early childhood classrooms (12 Head Start, 21 non-Head Start, & 65 Kindergarten).

Procedure: Data were collected during Fall 2008 as part of a follow-up year in a larger longitudinal study.
• Alternated cycles across the morning (average 4 inCLASS cycles per child & 2 CLASS per classroom).
• Each observation cycle was at most 20 minutes (10 minutes observing, 5-10 minutes coding).

Measures: All observations were rated on 7-pt scale (1=low, 7=high) using behavioral markers in two standardized manuals. For each measure, domain scores across all cycles were calculated; see Figures 1 and 2 for details.

Results

RQ1: Pearson correlations were calculated using inCLASS and CLASS domain scores (see Table 1). Associations were small, but the inCLASS correlated with the CLASS in expected ways.

Table 1: Bivariate Pearson Correlations by CLASS and inCLASS Domain

| | Emotional Support | Classroom Organization | Instructional Support |
|-----------------------|-------------------|------------------------|-----------------------|
| Teacher Interactions | 0.12 | 0.07 | 0.14 |
| Peer Interactions | 0.10 | -0.03 | 0.17* |
| Task Orientation | 0.01 | 0.16* | 0.12 |
| Conflict Interactions | 0.01 | -0.08 | 0.04 |

Note: * $p \leq .05$

RQ2: To investigate the extent to which inCLASS and CLASS associations may differ by child gender, Pearson correlations were first conducted and then followed up by Fisher's r to z transformations to test differences in the correlations (see Table 2).

Table 2: Bivariate Pearson Correlations and Follow-up Fisher's R to Z Transformation of CLASS and inCLASS Domains by Gender

| | Gender | Emotional Support | | Classroom Organization | | Instructional Support | |
|-----------------------|--------|-------------------|----------------|------------------------|---------------|-----------------------|---------------|
| | | r | z | r | z | r | z |
| Teacher Interactions | Boys | -0.04 | | -0.02 | | 0.36** | |
| | Girls | 0.24* | -1.64* | 0.16 | -1.05 | -0.06 | 2.52** |
| Peer Interactions | Boys | -0.00 | | -0.23* | | 0.17 | |
| | Girls | 0.16 | -0.93 | 0.11 | -1.99* | 0.16 | 0.06 |
| Task Orientation | Boys | 0.11 | | 0.12 | | 0.22* | |
| | Girls | -0.05 | 0.93 | 0.19 | -0.41 | 0.05 | 1.00 |
| Conflict Interactions | Boys | -0.30* | | -0.23* | | 0.03 | |
| | Girls | 0.19 | -2.90** | 0.01 | -1.41 | 0.04 | -0.06 |

Note: * $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$

Summary & Discussion

For **Research Question 1**, child- and classroom-level correlations suggest that:

Task Orientation • Children tend to be more oriented to assigned tasks in classrooms with higher *organizational quality* (i.e., when classroom processes were clearly organized and managed). This finding suggests that well-managed classrooms typically have children with better task-orientated behaviors.

Peer Interactions • Children tend to be engaged in more frequent and sustained peer interactions in classrooms with higher *instructional quality* (i.e., when there were more classroom opportunities to use higher-order thinking skills, receive feedback, and develop language skills). It might be that in classrooms that encourage in-depth thinking and communication, children interact better with their peers.

Findings for **Research Question 2** suggest that there are some gender differences in the relationship between child- and classroom-level interactions:

Teacher Interactions • Boys tended to interact more positively with teachers compared to girls in classrooms with higher *instructional quality*.
• Girls tended to interact more positively with teachers compared to boys in classrooms with higher *emotional quality* (i.e., more positive affect, teacher awareness, and flexibility).
• These findings suggest that different types of classroom support may be associated with better teacher interactions for boys and girls.

Peer Interactions • Boys tended to interact more positively with peers compared to girls in classrooms with lower *organizational quality*.

Conflict Interactions • Boys tended to have more conflictual interactions compared to girls in classrooms with lower *emotional quality*. It could be that in more emotional supportive environments boys would have more controlled positive behavior.

Implications & Future Directions

Implications:

- Important for teachers, and individuals who support teachers' work, to recognize that opportunities for children to engage in high quality interactions may be associated with the observed classroom quality.
- Future research should continue to pay attention to interactions from both perspectives - interactions afforded by the teacher and classroom environment, and interactions as initiated by children themselves.

Limitations and Future Directions:

- The analyses used in this study examine basic associations, but future research should utilize a more rigorous analytical design that accounts for child- and classroom-level covariates and investigate the directionality of these trends.
- Effects tended to be small, yet significant, for both RQ1 and RQ2.
- The current sample is small therefore more classrooms and children within those classrooms may be needed to further investigate these associations.
- It may be that more observations (e.g., cycles and days) are needed to establish stronger, more stable estimate of child- and classroom-level interactions.
- The current sample included both kindergarten and preschool children and their classrooms.
- Future research should consider examining these populations separately because there may be developmental differences and standards within these contexts.
- Future research should examine how these associations are related to children's achievement and long-term outcomes.

Acknowledgements

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