

Typologies of Children's Interactions within Preschool Classrooms and their Associations with School Readiness

Jason Downer^a, Virginia Vitiello^b, Michelle Maier^a, & Amanda Williford^a
University of Virginia^a & Teachstone Training, LLC^b

Background

- Longitudinal studies indicate the importance for early school success of social relationships, self-regulation, and language development (e.g., Duncan et al., 2007).
- These early childhood skills and abilities develop within child-context interactions (Pianta & Walsh, 1996), specifically those with adults, peers, and learning activities.
- Myriad studies examine the contribution of a child's interactions to early adjustment within a single contextual domain (e.g., teacher-child), but rarely examine children's interactions in all three domains – with teachers, peers, and tasks – simultaneously in relation to children's social and academic functioning during early childhood.

Research Aims

The aims of this study were twofold:

- To apply a person-centered approach to identifying typologies of children's interactions with teachers, peers, and tasks
- To link these distinct interaction patterns with school readiness skills at preschool entry and changes in these skills during preschool

Observing Child-level Interactions

The *Individualized Classroom Assessment Scoring System* (inCLASS) measures an individual child's interactions in the classroom using 4 domains and 10 dimensions (Downer et al., 2010; see Figure 1)

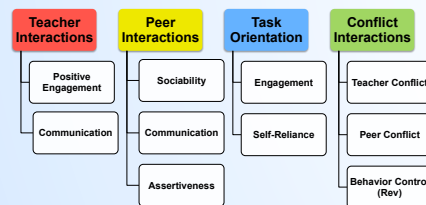


Figure 1: inCLASS Domains & Dimensions

Participants

- 381 preschool children (M age = 3.9 years) in 103 early childhood classrooms in a large urban region of southwestern US
- Child characteristics:
 - 70% Hispanic; 15% White non-Hispanic
 - Income-to-needs: 48% below poverty line
 - Home language: 37% Spanish; 28% Spanish-English
- Classroom characteristics:
 - Mix of Head Start, state-funded, and privately funded programs
 - Class size: M = 19 children
 - Teachers were 64% Hispanic, 19% White-non Hispanic; and averaged 10 years of experience teaching in early childhood

Procedures and Measures

Procedure: Child covariates were collected in the fall. Data were collected during the 2007-08 academic year. inCLASS observations were conducted in the fall months. Outcome data were collected in the fall and spring.

inCLASS Observation:

- Ten dimensions are coded on a 7-pt scale (1=low, 7=high; Downer et al., 2010), using behavioral markers in a standardized manual.
- Dimension scores are aggregated across cycles (3-8/child) to form the 4 domains.
- Inter-rater reliability was calculated across 22% of all cycles; rater agreement within 1 ranged from 87%-99%.

Outcome Measures:

Language	Self-regulation	Social-behavioral
Receptive Vocabulary – PPVT-III	Compliance/Executive Control – Pencil Tap	Competence – Teacher-Child Rating Scale
Expressive Vocabulary – Picture Vocabulary, WJ-III	Impulse Control – Backward Digit Span	Problem Behaviors – Teacher-Child Rating Scale

Data Analysis

- Multilevel latent class analysis using Mplus Version 6.0 (Muthén & Muthén, 1998-2010)
- Identify classes of children based on the 4 inCLASS domains
- Take into account the nested structure of the data

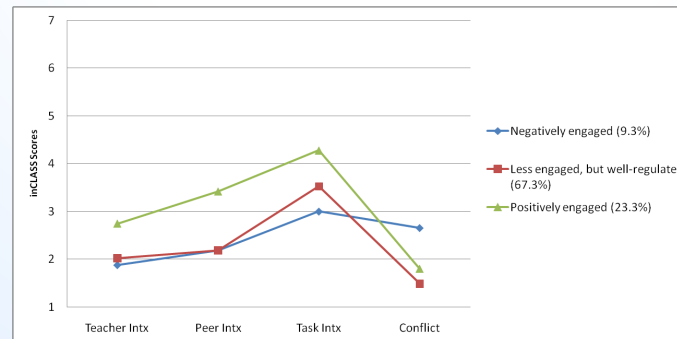
•Covariates: children's age, sex, ethnicity, mother's education, and Fall score for each outcome

•Different class solutions were compared by examining relative fit indices (e.g., AIC, BIC, and adjusted BIC) and classification quality (i.e., entropy)

•Wald tests used to test differences in Spring mean scores for each outcome (controlling for Fall, and all other covariates)

Results: Identification of Typologies

- Three-class solution indicated best fit to the data
- Entropy = .824



Results: Associations with School Readiness

- In the fall, differences between profiles exist on language, self-regulation, and social-behavioral skills.
- The general pattern involved children in the **Positively Engaged** and **Less Engaged, but Well-Regulated** profiles performing better at school entry in comparison to children in the **Negatively Engaged** profile.
- In the spring, profile membership was related to gains in language, self-regulation, and social-behavioral skills, controlling for fall scores and child covariates.

	Negatively Engaged		Less Engaged, but Well-Regulated		Positively Engaged	
	M	SD	M	SD	M	SD
Receptive Vocab	38.62 ^a	5.17	43.87 ^a	2.30	51.93 ^b	3.20
Express. Vocab	450.26 ^a	4.88	450.72 ^a	1.93	454.96 ^a	2.58
Impulse Control	-1.24 ^b	0.41	0.10 ^a	0.06	0.17 ^a	0.08
Compliance	-0.61 ^a	0.19	-0.06 ^b	0.08	0.35 ^c	0.12
Problem Beh.	57.64 ^a	3.28	48.67 ^b	0.81	51.66 ^a	1.43
Competence	46.67 ^a	2.07	49.90 ^a	0.83	50.20 ^b	0.97

Note: In each row, significant pairwise differences are denoted by different superscript letters ($p \leq 0.05$). If settings have corresponding superscript letters, then the pairwise difference is non-significant.

Discussion

Summary:

- Children who **negatively engage** with teachers, peers, and tasks in a preschool classroom are at a significant disadvantage when it comes to developing school readiness skills.
- Many of these disadvantages are evident at school entry and become more exaggerated by the end of the year.
- The majority of children fell in the **Less Engaged, but Well-Regulated** profile; they may need more support to increase positive interactions with teachers and peers so that they might benefit from the same gains in school readiness skills as children in the **Positively Engaged** profile.

Limitations:

- This examination is observational in nature and so causal claims cannot be made.
- inCLASS scores were based on only one morning of observation and may not be completely representative of a child's day-to-day experience of interactions.

Next Steps:

- To replicate these profiles in larger, more diverse samples of preschoolers
- To examine the stability of the profiles over time
- To test the extent to which profiles covary with child demographic characteristics

Acknowledgments

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A060021 to the University of Virginia. The opinions expressed are those of the authors and do not represent views of the U.S. Department of Education.

For more information, contact Jason Downer at jdowner@virginia.edu. Poster presented at Society for Research in Child Development (SRCD) biennial research conference in Montreal, Quebec Canada during April 2011.