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Cumulative Experience of Educational Assets from Preschool through First Grade and the Social-emotional Well-being of English- and Spanish-Speaking Children

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Abstract

Children's social and emotional experiences influence brain development and are therefore central to outcomes of behavior, learning, and health. The current study examined associations between children's cumulative educational assets in the early grades and end of first grade social-emotional outcomes for children from English- and Spanish-speaking families. Data were drawn from a sample of preschool-aged children ($N = 1,132$) from low-income families in a large, culturally, and linguistically diverse sample followed annually from pre-kindergarten through first grade. A multi-method, multi-informant approach was used to assess predictor and outcome variables. Results indicate overall that cumulative experiences of educational assets (teacher-student interaction and relationships, parent-teacher communication) were associated with indicators of children's social-emotional well-being and matter in similar ways for children from English- and Spanish-speaking families. However, we did find some evidence of significant interactions of Spanish as a home language with cumulative educational assets on children's conduct problems and feelings about peers.

Keywords: *English-Language Learners, Socioemotional development, Preschool and Primary Grades, Educational Experience*

In the past few decades, researchers and policymakers have primarily focused on children's academic performance in efforts to narrow achievement gaps (Barnett, 2011; Coburn, Hill, & Spillane, 2016). However, less attention has been paid to children's social-emotional development, which has been recognized as essential for their well-being (Copple & Bredekamp 2009; Raver & Knitzer, 2002). In the early years of schooling, aspects of social functioning and well-being are important for activating educational resources in classrooms and as key outcomes in their own right (Wilson, Pianta, & Stuhlman, 2007). Children who are socially and emotionally well-adjusted perform better at school, have increased confidence, have good relationships with their teachers and peers, take on and persist at challenging tasks, and communicate well (Birch & Ladd, 1997; Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Pakarinen et al., 2011; Pianta, Steinberg, & Rollins, 1995). Given the importance of social and emotional competence, it is important to understand how to deliver and mobilize appropriate educational resources to students, particularly for those who are linguistically and culturally diverse.

The present study draws from a multi-year study of a linguistically diverse sample of children enrolled in a large pre-kindergarten (pre-K) program and followed annually through first grade. It focuses on the manner in which students' cumulative experiences of three educational assets supporting their development—interactions and relationships with teachers and teacher-parent communications—across pre-K, kindergarten, and first grade are associated with social-emotional functioning and well-being by the end of first grade. Of particular interest is the extent to which students' experiences of these assets, and their associations with social-emotional outcomes, may differ for Spanish- and English-speaking children. Hereafter, we use the term "educational assets" to describe these socially salient interaction processes that children experience.

Social-Emotional Health and Well-Being of Young Children

Advances in neuroscience and child development research in recent years have helped us understand how children's earliest experiences shape their overall development and ability to learn. Developmental systems theory suggests that children's early experiences influence their biological development—early experiences lay the foundation for lifelong behavior, cognition, learning, and physical and mental health (Bronfenbrenner & Morris, 1998; Hertzman, 2012; McEwen, 2012; Shonkoff, 2012). And research suggests that the first few years of life are especially dramatic in terms of developmental neural changes (Shonkoff & Phillips, 2000). An environment rich in social interactions with caregivers prepares children's developing brain to function in a range of everyday contexts, whereas an adverse environment in which children are deprived of social experiences can have detrimental effects on further brain development (Center on the Developing Child, 2016; Nelson & Bloom, 1997). These "serve and return" interactions between children and their caregivers have an important influence on children's brain structure and function, and therefore function as resources for their health and well-being (Center on the Developing Child, 2016; Dong et al., 2004).

Promoting children's social-emotional health and well-being is an important outcome in and of itself for nurturing children's early brain development and contributing to their success in school and in life. The development of social and emotional competencies is the process whereby children are able to acknowledge and manage their emotions, recognize the emotions of others, develop empathy, make good decisions, establish positive relationships, and handle challenges effectively (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2003). Social-emotional competence is especially important in the early years in that it supports a wide

range of later outcomes including sound mental health, motivation to learn, achievement in school and later in the workplace, behaviors that affect physical health risks, and the ability to control aggressive impulses and resolve conflicts (Bornstein, Davidson, Keyes, Moore, & the Center for Child Well-Being, 2003; Center on the Developing Child, 2016; McClelland, Cameron, Wanless, & Murray, 2007). Developing social-emotional skills is even more critical for children facing disadvantage as they are surrounded by added stressors. The evidence suggests that children from low-income families exhibit heightened physiological indicators of stress (Blair et al., 2011; Szanton, Gill, & Allen, 2005) and exaggerated responses to perceived stress that are channeled into negative emotions into disengaged or disruptive behavior (Bradley & Corwyn, 2002; Evans, 2003). In an effort to support these vulnerable young children, the social settings in which they spend time should be targeted.

Social-Emotional Health and Well-Being of DLLs

Children growing up in a dual language context are likely to have different experiences for social and emotional development compared with their monolingual peers growing up in the U.S. These experiences could lead to different developmental outcomes with respect to regulation skills, social interactions, and relationships. Understanding the social-emotional development of DLLs is important because it is taking place within the context of learning two or more languages simultaneously (Halle et al., 2014). Children's learning occurs in the context of interactions with others within specific cultural contexts, and language operates as the means for these social interactions (Vygotsky, 1978). Their communication skills with teachers and peers may have profound implications for their adaptation to the classroom environment and thus their social-emotional well-being. Prior research has shown that DLLs have comparable or better social-emotional skills relative to their monolingual English peers (Crosnoe, 2007; Halle et al., 2014). For example, Crosnoe (2007) found that kindergarten teachers rated

Spanish-speaking children more positively than their English-only peers on self-control and externalizing and internalizing behaviors. Further, research on emotional well-being has shown that Spanish-speaking children in particular exhibit high levels of mental health (National Task Force on Early Education for Hispanics, 2007). Until recently, advancement in research on the social-emotional development DLLs has been limited because of under-sampling and a focus on the development of cognitive skills (Halle et al., 2011; 2014). Thus, there is a need for more research on the social-emotional health and well-being of this important and growing population.

Classrooms as Settings for the Development of Social-Emotional Health and Well-Being

Children's social-emotional development is fostered in an ecological context, with surrounding environments such as classrooms, shaping how and what children learn and experience every day. Historically, the purpose of early childhood programs has been to enhance children's social competence (Copple & Bredekamp, 2009; Shonkoff & Phillips, 2000; Zigler & Styfco, 2010). A wide range of best practices and curricula are implemented across the primary grades in an effort to promote students' enjoyment of school as well as positive emotions associated with their relationships with teachers and peers (e.g., Anderson, Christenson, Sinclair, & Lehr, 2004; Guthrie et al., 2004). Such efforts and aims are based on the premise that social-emotional well-being is a critical component of early development and that student well-being is a fundamental element of motivation for continued engagement and success in school (Finn & Zimmer, 2012; Reschly, Huebner, & Appleton, 2008). To encourage this goal, pre-K programs focus on educating the "whole child" (Copple & Bredekamp, 2009). The "whole child" approach to school readiness aims to help children at risk in the targeted domains of cognitive development, social-emotional development, health, and family functioning in order to adequately prepare children for kindergarten (Zigler & Styfco, 2010).

Given that the majority of young children are enrolled in pre-K programs (Chaudry & Datta, 2017), these early childhood settings are crucial environments for nurturing young children's social and emotional development (Denham, 2006). Innovative ways to improve the quality of these environments are necessary to effectively use the time children spend in these settings and to promote their healthy social and emotional development. Relationships with adults and other children play a central role in the development of their social and emotional regulation. The present investigation focuses on three educational assets that are social in nature and that may be of particular importance for DLL children—teacher-student interactions and relationships, and parent-teacher communication—as they relate to social-emotional functioning and well-being in first grade. Each of these assets plays a key role in high-quality early education experience and might be of particular relevance for linguistically diverse children with regard to activating the educational and developmental resources of classrooms.

Teacher-student interactions, characterized by teacher sensitivity and responsiveness to children's cues, support for engaged and positive behavior, and stimulation of language and cognitive development, are a key element of classroom experience (Ansari & Pianta, 2018; Burchinal et al., 2014; Vitiello, Bassok, Hamre, Player, & Williford, 2018; Vernon-Feagans, Mokrova, Carr, Garrett-Peters, & Burchinal, 2018). Whereas most children on average experience increases in cortisol (the principal hormone produced in response to psychosocial stress) while in nonparental childcare settings (Groeneveld, Vermeer, Van IJzendoorn, & Linting, 2010; Watamura, Kryzer, & Robertson, 2009), teachers who engage in emotionally sensitive interactions with children promote decreases in children's cortisol over the day and year (Hatfield et al., 2013; Watamura et al., 2009). Teachers can support social-emotional skill development by responding sensitively to students' emotions, providing feedback that extend their skills, and engaging them in conversations (Burchinal et al., 2010; Pakarinen et al., 2011). Further, children who display problems in self-regulation appear to benefit even more

from exposure to effective teacher-child interactions (Hamre & Pianta, 2001; McCartney, Dearing, Taylor, & Bub, 2007; Vernon-Feagans, et al., 2018). Further, multiple-years of exposure to effective teacher-student interactions appears to be of additional benefit (Cash, Ansari, Grimm, & Pianta, 2018; Vernon-Feagans et al., 2018).

In terms of relationships with teachers, emotionally close relationships between children and teachers help promote emerging language skills by providing more opportunities for dyadic conversations and exposure to rich language use (Justice, McGinty, Zucker, Cabell & Piasta, 2013). Interventions designed to promote supportive and close relationships with teachers and children have shown that these relationships are also important for improving children's activity in the stress response system (Hatfield & Williford, 2017). Positive, low-conflict relationships with teachers may also provide increased opportunities for children to have their behavior guided by teachers, helping children organize and manage their emotions and behaviors, and feel a sense of security and emotional well-being (Liew, Chen, & Hughes, 2011). On the other hand, relationships characterized by teacher-child conflict can prevent a child from accessing educationally and socially supportive resources in the classroom, leading to a sense of isolation, frustration, and conduct problems that may persist across the grades (O'Connor, Dearing, & Collins, 2011).

Parent-teacher communication is also often identified as a particularly important factor for young DLL students attempting to bridge the home-school boundary. Communication between parents and teachers can be a context in which concerns about the child (e.g., school adjustment, adaptability, difficulty making friends) can be addressed constructively, particularly when such communication is sensitive to cultural and linguistic differences (Hughes & Kwok, 2007). On the other hand, language barriers between teachers and parents (Conus & Fahrni, 2019; Crosnoe, 2006; Moreno & Valencia, 2002) can make such communication challenging, and when related to children's conduct problems, more communication between parent and teacher may not necessarily signal positive engagement or outcomes for the child.

Current Study

Study context. The present study was conducted in a large, culturally and linguistically diverse mid-Atlantic school district known for success in providing strong early education programs for vulnerable children. The district serves over 186,000 students from pre-K through 12th grade, a size and scale consistent with many states, and includes a very substantial immigrant population, with 18% of families in which neither parent is a U.S. citizen. Elementary school students in the district are highly diverse ethnically, with 39% white, 26% Hispanic/Latino, 19% Asian, 10% African American, and 6% other or mixed race/ethnicity. In kindergarten, 53% of children have a home language other than English, and 38% are identified as DLLs. A substantial number of families are economically vulnerable. Ten percent have no full-time wage earner and one third of children qualify as low-income (a 40% increase in the ten years prior to 2013). Thirty-eight percent of families describe themselves as having too little income to cover household needs, while 25% receive public assistance.

The district operates a large and well-funded public pre-K program that blends funding from federal, state, and local sources to target low-income children. The vast majority (98%) of children enrolled in public pre-K attend one of two main full-day (6–6.5 hours) program types. The largest (school-based pre-K), serving over 1,500 children, consists of pre-K classrooms within the district's schools. The second largest program type (community-based pre-K), serving more than 400 children, consists of subsidized slots in private pre-K centers. Centers may be large or small, for profit or non-profit. Governance, policy, regulation, and funding of pre-K programs are all coordinated through a central authority, the Office for Children.

The district also serves as a starting point for many families new to the US and offers significant support at both the pre-k and elementary levels in English, Spanish, and several other languages. The Office for Children emphasizes support for children's home language during the pre-k years and provides professional

development to child care providers. The district offers helplines in multiple languages, has bilingual staff members who help families with enrollment, integrates English for Speakers of Other Languages (ESOL) specialists into teaching and administrative teams, provides professional development to teachers on supporting DLLs, and runs two-way immersion programs. Children from families where a language other than English is spoken—over 50% of families—receive a language screener in kindergarten to qualify for ESOL services.

Research questions. In the current study, we examine differences in Spanish-speaking and English-speaking children's classroom experience in pre-K, kindergarten, and first grade, and social-emotional well-being at the end of first grade. Furthermore, in a cumulative framework that focuses on the overall amounts of accumulated assets in early schooling, we examine the extent to which these assets have similar benefits for English- and Spanish-speaking children. We consider three educational assets across preschool, kindergarten, and first grade—(1) teacher-child interactions, (2) teacher-child relationships, and (3) teacher-parent communication—and how they relate to children's social-emotional well-being at the end of first grade. We address the following research questions:

1. Do children's experiences of educational assets and social-emotional outcomes from pre-K through first grade differ for children from English- and Spanish-speaking families?
2. To what extent do these educational assets from pre-K through first grade predict social-emotional outcomes at the end of first grade among children whose families speak either English or Spanish at home?
3. How do these educational assets from pre-K through first grade differ by children's home language for their social-emotional outcomes?

To address these research questions, we consider a comprehensive set of educational assets reported by teachers and classroom observers, and social-emotional well-being outcomes reported by teachers and children. This multi-method, multi-informant approach allows for different perspectives to be considered and compared in order to gain a fuller picture of children's cumulative experiences of educational assets and subsequent well-being. Taken together, understanding these experiences can inform current efforts aimed at improving the quality of children's early schooling as a mechanism for promoting healthy child development and well-being.

Method

Recruitment and Participants

Data for this study come from a larger longitudinal study of preschool children in a large, culturally and linguistically diverse school system. Teachers were recruited in the fall of 2016 from publicly funded center-based classrooms that served children from low-income families. A total of 138 classrooms were included in the larger study. Participating teachers sent home consent forms and family demographic surveys to eligible children. Children were eligible for the larger study if they turned four by September 30, and did not have an Individualized Education Program (IEP) other than for speech. Eighty percent of parents had children who were eligible to participate and consented to allow their child's participation, resulting in 1,498 participating children.

For the current study, we selected children from the larger study who were identified as either speaking only English ($N = 309$) or only Spanish ($N = 823$) at home. Thus, of the original 1,498 children in the larger study, 1,132 were eligible to participate in our study. On average, the children in our sample were 55 months old at the start of preschool, had parents with 12.26 years of education, and were racially and ethnically diverse (11% Black, 77% Hispanic, 7% Asian or multi-racial). Income-to-needs ratios indicated that on average, families were living in poverty ($M = 0.82$, $SD = 0.55$).

Across the three years, children had teachers with 17 years of education and 11 years of experience on average. Approximately 43% of children had one teacher who spoke Spanish across the three years. On average, children's classrooms were balanced in terms of the proportion of boys and girls (50% boys) and those identified as limited English proficient (45%), and included a small proportion of students with special needs (8%). See Table 1 for descriptive statistics on children, families, teachers, and classrooms for the whole sample, and stratified by home language status.

Procedures

Data were collected through a combination of parent surveys, teacher surveys, and direct child assessments. Parents completed brief demographic questionnaires in the fall of preschool. Teachers completed rating scales about each participating child in the fall and spring. Trained data collectors conducted direct assessments of children's school enjoyment and feelings about teachers and peers in the fall (September–November) and spring (April–May). Data collectors completed a one-day training to learn the measures prior to assessing children and assessed children outside of the classroom in a quiet space, when possible. All procedures were approved by the Institutional Review Board at the University of Virginia and parents and teachers received a small stipend to thank them for their time.

Measures

Below, we describe each of our key measures, including the quality of teacher-child interactions, teacher-child relationships, teacher-parent communication, and social-emotional well-being outcomes, in turn. Reliability coefficients provided for each of the measures are specific to the study sample across the three time points. Descriptive statistics of all the key predictors and outcomes are presented in Table 2, and discussed in the Results section below.

Table One
Descriptive statistics for the study sample

	Full sample (N= 1132)		English-speaking (N= 309)		Spanish-speaking (N= 823)		ANOVA F-stat or chi-square
	M/Prop.	SD	M/Prop.	SD	M/Prop.	SD	
	Child and family characteristics						
Age at preschool	55.01	3.52	55.08	3.37	54.98	3.57	0.16
Male	0.5-		0.48		0.51		0.79
Race/ethnicity							
White	0.05		0.15		0.01		78.45 ***
Black	0.11		0.41		0.00		366.84 ***
Hispanic	0.77		0.25		0.96		614.45 ***
Other	0.07		0.19		0.02		93.95 ***
Parent years of education	12.26	1.50	13.32	1.80	11.87	1.16	8.60 ***
Income-to-needs ratio	0.82	0.55	1.08	0.70	0.73	0.45	26.25 ***
Teacher and classroom characteristics							
Years of education	17.10	1.12	17.26	0.93	17.22	0.99	5.89 *
Years of teaching experience	11.01	6.68	10.89	7.18	10.92	7.05	0.06
Number of non-white teachers							
Zero	0.54		0.46		0.57		10.61 ***
One	0.38		0.43		0.37		3.98 *
Two	0.06		0.10		0.05		8.00 **

Three	0.01		0.01		0.01		0.12
Number of English-speaking teachers							
Zero	0.03		0.06		0.01		16.61 ***
One	0.22		0.26		0.21		3.32
Two	0.34		0.33		0.34		0.16
Three	0.42		0.35		0.44		6.14 *
Number of Spanish-speaking teachers							
Zero	0.43		0.53		0.39		20.00 ***
One	0.43		0.37		0.45		7.22 **
Two	0.12		0.08		0.13		4.99 *
Three	0.02		0.02		0.03		1.07
Classroom composition							
Prop. pf male	0.50		0.50		0.50		1.63
Prop. of limited English proficient	0.45		0.62		0.57		12.37 ***
Prop. of special needs	0.08		0.08		0.08		0.78

Note. All statistics were computed at the child-level. Time-varying covariates, including teacher and classroom characteristics, were averaged across the three time points. Time invariant covariates are reported at baseline. Standard deviations presented for continuous variables only. The last column represents the difference between the English only and Spanish-speaking groups from an F-test. *** $p < .001$; ** $p < .01$; * $p < .05$.

Teacher-child interactions. Teacher-child interaction quality was measured with the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). This widely-used measure assesses the average classroom quality based on 10 dimensions, each of which are rated from 1 to 7, with higher scores indicating higher-quality interactions. Dimensions are collapsed to form three domains: Emotional Support, capturing teacher sensitivity, promotion of autonomy, and climate; Classroom Organization, capturing the degree to which teachers manage behavior and use time and materials effectively to get the most out of the day; and Instructional Support, capturing teachers' promotion of higher-order thinking and language. All data collectors attended a two-day training session led by the project investigators and staff, all of whom are experts on the CLASS. Data collectors had to be deemed reliable and certified on the tool in order to conduct observations. Specifically, raters were trained to an initial level of 80% agreement (within 1-point) to be certified for data collection in the field. Observers conducted four cycles of observations (each cycle includes 15 minutes to observe, 10 minutes to score) during each classroom visit across two to three separate occasions throughout each school year. Data collector reliability was maintained with refresher training before data collection and bi-monthly calibration meetings throughout the study year. Twenty percent of all cycles were double coded to determine inter-rater reliability ($ICC = .725$). We composited these ratings across dimensions and across occasions of observation into a single overall domain of interaction quality across the three years.

Teacher-child closeness and conflict. Teacher-child relationship quality in terms of closeness and conflict was measured from the teachers' perspective in the fall and spring of the school year. Each participating child's relationship with his or her teacher was measured by the Student-Teacher Relationship Scale (STRS; Pianta, 2001). The STRS is comprised of 15 items, asking teachers to report from their perspectives their relationships with individual children in the classroom. We adapted this measure and asked teachers to

respond to nine of the 15 items. Specifically, five items are included in the conflict score ($\alpha = .82, .81, .87$, preschool, kindergarten, and first grade, respectively), where teachers are asked about the extent to which they perceive negative interactions and emotions with the child. Four items are included in the closeness score ($\alpha = .77, .71, .78$, preschool, kindergarten, and first grade, respectively), where teachers report on the degree of warmth and open communication they share with the child. For the current analyses, items were averaged across the three years within their respective subscales.

Teacher-parent communication. Teachers also responded to a set of questions from the Early Education Essentials measurement system (Ehrlich et al., 2018), a set of surveys that measure organizational supports in school-based and community-based early education settings. In our larger study, teachers were asked about instructional leadership, teaching practices, professional development experiences, and teacher-parent communication. For the current study, we created a composite for two items that asked about how often "suggest ways parents can reinforce at home what their child is learning in the classroom" and "provide parents with information about their child's progression toward learning and development goals." Teachers were given six response options for these two questions: 1 = never, 2 = once or twice this year, 3 = once or twice a quarter, 4 = once or twice a month, 5 = weekly, or 6 = daily. Cronbach's alphas for the current study sample were modest for the composite score ($\alpha = .56, .67, .67$, preschool, kindergarten, and first grade, respectively). These items were averaged together across the three years.

Social-emotional well-being. Children's social-emotional well-being outcomes were captured through two sources. For the first source, teachers rated each child on four general domains of social-behavioral skills using the Teacher-Child Rating Scale (TCRS; Hightower et al., 1986). Teachers were asked to indicate how well a given characteristic described the child (1 = not at all, 3 = moderately well, 5 = very well). The task orientation subscale

(e.g., completes work, well organized, functions well even with distractions, and works well without adult support; $\alpha = .84, .85, .90$ preschool, kindergarten, and first grade, respectively), peer social skills subscale (e.g., has many friends, is friendly toward peers, and makes friends easily; $\alpha = .81, .79, .86$, preschool, kindergarten, and first grade, respectively), and frustration tolerance subscale (e.g., accepts things not going his/her way, ignores teasing, copes with failure; $\alpha = .82, .85, .88$, preschool, kindergarten, and first grade, respectively) were comprised of five items each. The fourth and final dimension, conduct problems, was based on six items (e.g., disruptive in class, defiant, overly aggressive with their peers; $\alpha = .84, .82, .87$ preschool, kindergarten, and first grade, respectively).

For the second source, data collectors directly assessed children in an interview format in which children were asked how they felt about their teachers and peers, and how much they enjoyed school (Ruzek et al., 2020). Assessors asked children the survey items to which they indicated their level of agreement by pointing to one of three increasingly larger circles, corresponding to less or more agreement. In terms of reliability, Ruzek et al., (2020) report modest reliability in a sample of preschool-aged children.

Covariates. To reduce the possibility of spurious associations, we control for a rich set of child, family, teacher, and classroom covariates. The child- and parent-level covariates included child gender, age at assessment, race/ethnicity, parent education, and household income-to-needs ratio. Our analytic models also included the lagged dependent variables for each of the respective outcomes as well as the time lag between assessments, which is one of the strongest adjustments in the context of a non-randomized control trial (NICHD Early Child Care Research Network & Duncan, 2003). Drawing on teacher surveys, classroom observations, and administrative data, our teacher and classroom covariates included: percent of classroom children who were male, limited English proficient, and had special needs, and teacher education, experience, and race/ethnicity. All time-varying covariates were averaged across the three time points.

Analytic Approach

Using a regression-based framework, we examined the associations between cumulative educational assets across three years and children's home language on their social-emotional outcomes at the end of first grade. Our models included clustered standard errors to account for the nesting of children in classrooms. Missing data occurred most often on our covariates (mean of 8%, range = 0% to 20%). We accounted for missing data using the Full Information Maximum Likelihood (FIML) procedure in Stata 15.0 (Enders, 2001). FIML uses all available information within cases to estimate the missing parameters so that incomplete observations can be included to calculate estimates. All key variables of interest were standardized to have a mean of zero and a standard deviation of one so that coefficients can be interpreted as effect sizes in standard deviation units.

Our first set of analyses examined the main effects of all key predictors and moderators. In separate models for each of the outcomes, we regressed the outcome of interest on the cumulative classroom asset variables and our full set of covariates. We parameterized these variables by taking the mean across preschool, kindergarten, and first grade. After establishing the main effects of these variables, we examined whether children's home language moderated the association between cumulative educational assets and children's social-emotional well-being outcomes. The interactions between educational assets and home language were each examined in separate models and also included the full set of covariates.

Results

Descriptive Statistics

We begin by discussing the descriptive patterns of children's experiences of educational assets and social-emotional well-being from preschool to first grade. Table 2 presents the means and standard deviations for these key predictors and outcomes for the whole analysis sample and by home language.

Table Two
Descriptive statistics of key predictors and outcomes.

	Full sample (N= 1132)		English only (N= 309)		Spanish-speaking (N= 823)		ANOVA F-stat or chi-square
	M	SD	M.	SD	M	SD	
Preschool educational assets							
Teacher-child interactions	4.43	0.47	4.42	0.46	4.44	0.48	0.32
Teacher-child closeness	4.19	0.73	4.24	0.73	4.18	0.73	1.55
Teacher-child conflict	1.56	0.80	1.68	0.89	1.52	0.76	8.29 **
Teacher-parent communication	3.14	0.87	3.17	0.81	3.06	0.89	3.14
Kindergarten educational assets							
Teacher-child interactions	4.10	0.49	4.02	0.48	4.13	0.49	7.45 **
Teacher-child closeness	4.09	0.75	4.20	0.71	4.04	0.77	6.26 *
Teacher-child conflict	1.57	0.76	1.67	0.86	1.53	0.71	5.28 *
Teacher-parent communication	3.20	0.92	3.24	0.84	3.18	0.95	4.29 *
First grade educational assets							
Teacher-child interactions	4.13	0.50	4.05	0.47	4.15	0.50	6.83 **
Teacher-child closeness	4.05	0.71	4.09	0.65	4.04	0.73	0.57
Teacher-child conflict	1.64	0.88	1.80	0.95	1.58	0.85	9.32 **
Teacher-parent communication	3.33	0.85	3.39	0.75	3.26	0.92	0.28

Cumulative assets from preschool to first grade							
Teacher-child interactions	4.27	0.36	4.21	0.38	4.26	0.37	7.32 ***
Teacher-child closeness	4.10	0.61	4.17	0.61	4.12	0.61	3.13
Teacher-child conflict	1.57	0.70	1.75	0.84	1.61	0.75	13.80 ***
Teacher-parent communication	3.70	0.71	3.79	0.70	3.63	0.70	7.26 **
Social-emotional outcomes in spring of first grade							
Teacher-Child Rating Scale							
Conduct Problems	1.88	0.94	1.84	0.94	1.97	1.00	2.67
Social Skills	3.88	0.90	3.91	0.90	3.77	0.95	3.27
Task Orientation	3.12	1.05	3.21	1.09	3.16	1.06	0.32
Frustration Tolerance	3.21	0.98	3.30	0.98	3.08	1.04	6.60 *
Child Interview							
School enjoyment	2.51	0.56	2.59	0.54	2.43	0.62	7.18 **
Feelings about teacher	2.65	0.42	2.65	0.42	2.64	0.41	0.01
Feelings about peers	2.46	0.46	2.54	0.44	2.38	0.54	0.55 ***

Note: CLASS scores range from 1 to 7, with higher scores indicating greater quality of interactions. The STRS scores range from 1 to 5, with higher scores indicating higher levels of closeness or conflict. The 5 Essentials items range from 1 to 6, with 1 indicating “never” and 6 indicating “every day.” The Teacher Child Rating Scale subscales range from 1 to 5, with 1 indicating “not at all” and 5 indicating “very well” to describe the child’s behaviors. The Child Interview questions range from 1 to 3, with higher scores indicating greater agreement. The last column represents the difference between the English only and Spanish-speaking groups from an F-test. *** $p < .001$; ** $p < .01$; * $p < .05$.

On average, Spanish-speaking children were in classrooms rated higher in the quality of teacher-child interactions than English-speaking children across all three years. Conversely, English-speaking children had higher levels of both closeness and conflict than Spanish-speaking children, as reported by their teachers from preschool to first grade. Teacher-parent communication across preschool through first grade occurred about one to two times a month, on average, with teachers reporting slightly more communication with parents of only English-speaking children than Spanish-speaking children.

In terms of children's social-emotional well-being outcomes at the end of first grade, although there was a trend toward teachers rating English-speaking children's conduct problems lower and their social skills and task orientation higher than Spanish-speaking children, these apparent differences were not statistically significant. Additionally, teachers perceived Spanish-speaking children's frustration tolerance to be significantly lower than English-speaking children. From the child interview, English-speaking children reported enjoying school and having positive feelings about their peers significantly more than Spanish-speaking children in the spring of first grade.

Associations between Educational Assets and Social-Emotional Well-Being

Results from the main effects analyses, as presented in the top panel of Table 3, revealed that the quality of teacher-child interactions experienced from preschool through first grade was not significantly related to teachers' reports of children's conduct problems, social skills, task orientation, and frustration tolerance, or children's reports of their school enjoyment and feelings about their teachers and peers, with absolute effect sizes ranging from .01-.07. In contrast, children with whom teachers reported close relationships across the preschool, kindergarten, and first grade years were reported to demonstrate greater improvements in social skills ($ES = .30, p < .001$) and task orientation ($ES = .19, p < .01$). Additionally, when teachers

reported greater teacher-child conflict from preschool through first grade, children demonstrated more conduct problems at the end of first grade ($ES = .81, p < .001$) and less optimal social skills, task orientation, and frustration tolerance ($ES = .32-.66, p < .001$). Similarly, teacher-child conflict across these three years was related to children reporting less positive feelings about their teacher ($ES = -.33, p < .05$) and peers ($ES = -.39, p < .01$) at the end of first grade. Finally, teacher-parent communication from preschool through first grade was associated with an increase in teachers' reports of children's conduct problems at the end of first grade ($ES = .21, p < .001$).

Differences as a Function of Home Language

Having established the main effects for the key variables of interest, the next set of models tested for potential interactive effects of cumulative educational assets and home language on children's social-emotional well-being. Results for these analyses are provided in the bottom panel of Table 3. There were two significant interactions. First, teacher-parent communication was significantly less associated with conduct problems among children from Spanish-speaking families compared with children whose primary home language was English. Specifically, for every one unit increase in teacher-reported communication with parents, there is an increase of .21 teacher-reported conduct problems for children in English-speaking families, compared with a decrease of -.20 for children in Spanish-speaking families. Thus, while teacher-parent communication is associated with an increase in conduct problems for both groups, the increase is significantly stronger for children from English-speaking families. Second, teacher-reported conflict was more strongly associated with child-reported closeness with peers among children from Spanish-speaking families compared with children whose primary home language was English. For every one unit increase in teacher-reported conflict, English-speaking children's report of their feelings about their peers goes down by .39, whereas Spanish-speaking children's report of their feelings about peers goes up by .41.

Table Three

Regression coefficients from analyses predicting spring of first grade social-emotional outcomes from cumulative educational assets in pre-K, kindergarten, and first grade.

Main Effects										
Outcomes	Teacher-child interactions		Teacher-student closeness		Teacher-student conflict		Teacher-parent communication		Spanish speaker	
Teacher-Child Rating Scale										
Conduct problems	-0.07		0.11		0.81	***	0.21	***	0.04	**
	(0.06)		(0.06)		(0.07)		(0.06)		(0.06)	
Social skills	-0.01		0.30	***	-0.50	***	-0.07		0.12	
	(0.06)		(0.08)		(0.08)		(0.06)		(0.09)	
Task orientation	-0.03		0.19	**	-0.32	***	-0.08		-0.13	
	(0.06)		(0.07)		(0.06)		(0.06)		(0.08)	
Frustration tolerance	0.07		0.11		-0.66	***	-0.04		0.08	
	(0.06)		(0.06)		(0.06)		(0.06)		(0.07)	
Child Interview										
School enjoyment	-0.01		-0.06		-0.25		0.01		0.32	
	(0.12)		(0.15)		(0.14)		(0.11)		(0.17)	
Feelings about teacher	0.02		0.04		-0.33	*	-0.11		0.04	
	(0.10)		(0.10)		(0.13)		(0.10)		(0.12)	
Feelings about peers	0.04		0.04		-0.39	**	-0.02		0.44	**
	(0.13)		(0.15)		(0.13)		(0.13)		(0.15)	

Note. Interaction terms come from separate models for each respective outcome. All continuous variables have been standardized to have a mean of 0 and standard deviation of 1 and, therefore, all estimates reported above correspond to effect sizes. Clustered standard errors in parentheses. Each model includes the respective lagged dependent variable. Child and family baseline covariates include: child age,

Interaction terms										
Outcomes	Teacher-child interactions x Spanish speaker		Teacher-student closeness x Spanish speaker		Teacher-student conflict x Spanish speaker		Teacher-parent communication x Spanish speaker			
Teacher-Child Rating Scale										
Conduct problems	0.07		-0.05		0.03		0.00		0.00	**
	(0.08)		(0.07)		(0.07)		(0.07)		(0.06)	
Social skills	-0.04		0.06		0.00		0.05			
	(0.07)		(0.09)		(0.10)		(0.07)			
Task orientation	0.02		-0.01		-0.11		0.06			
	(0.07)		(0.08)		(0.07)		(0.07)			
Frustration tolerance	0.10		-0.02		0.02		0.03			
	(0.06)		(0.08)		(0.07)		(0.07)			
Child Interview										
School enjoyment	0.14		0.01		0.18		-0.02			
	(0.13)		(0.16)		(0.15)		(0.13)			
Feelings about teacher	0.02		-0.02		0.19		0.00			
	(0.11)		(0.11)		(0.14)		(0.11)			
Feelings about peers	0.02		-0.04		0.41	**	0.04			
	(0.14)		(0.16)		(0.14)		(0.114)			

gender, racial/ethnic minority status, parental education, and whether living in poverty. Teacher and classroom covariates include: percent male, percent limited English proficient, percent special needs, teacher years of education, and total class size. CLASS = Classroom Assessment Scoring System. STRS = Student-Teacher Relationship Scale. n = 1,132. *** p < .001; ** p < .01 * p < .05.

Discussion

Children's social and emotional experiences have been shown to influence brain development and are therefore central to their behavior, learning, and health (Center on the Developing Child, 2016; Shonkoff, 2012). Nurturing relationships generally support children's appropriate regulation and lead to the formation of brain pathways and neuroendocrine systems that are necessary for learning and good health. However, nonresponsive relationships can lead to social and emotional dysregulation and suboptimal brain development that has negative consequences for learning and health. Our study contributes to the growing literature on early education, home language, and children's development by studying how cumulative educational assets relate to social and emotional outcomes among a group of Spanish- and English-speaking children attending schools in a district that offers targeted supports to a linguistically diverse student population. Specifically, we examine the associations between children's cumulative experiences of educational assets in the early grades and their social-emotional well-being at the end of first grade among children whose home language was Spanish or English. We also examined the extent to which home language moderated these associations. In particular, this study is among the first to consider children's reports of their social-emotional well-being in early elementary school, providing an opportunity to understand the perspectives of children from a linguistically diverse sample, while also examining teacher-reported social-emotional outcomes. A strength of our study is that we focus on the cumulative aspect of children's early schooling, which examines the interactions that children and their families have with teachers in preschool, kindergarten, and first grade. Understanding these influences is important because children's behavior, capacity to learn, and health are shaped by their social surroundings.

Descriptively, we found that the children from Spanish- and English-speaking families had different assets from their early education experience. Children from Spanish-speaking families in our

study experienced higher quality interactions and relationships with their teachers. Specifically, unlike other research that has shown that DLLs generally have access to lower quality classroom environments in their early education (e.g., Park, O'Toole, & Katsiaficas, 2017), children from Spanish-speaking families in our study were more likely to be in classrooms with higher levels of observer rated quality of interactions, and their teachers reported lower levels of conflict with them than their peers from English-speaking families. These strong assets for Spanish-speaking children reflect the district's targeted investments to improve education quality for dual-language learners, which research suggests would support their socioemotional development in the first few years of school (e.g., Downer et al., 2012; Moiduddin, Aikens, Tarullo, West, & Xue, 2012). At the same time that children from Spanish-speaking families had higher quality experiences with their teachers in class, their families' home language may have negative consequences for teacher communication with parents, which was significantly lower than it was for children whose families spoke English at home.

In terms of predictive associations, overall our results indicate that cumulative experiences of educational assets over the first three years of school predict children's social-emotional well-being and do so in similar ways for children from English- and Spanish-speaking families. Specifically, teacher-child relationships and teacher-parent communication are related to a number of important social-emotional outcomes at the end of first grade. The quality of teacher-child relationships is significantly associated with a wide range of child- and teacher-reported social-emotional well-being outcomes. Similar to prior studies examining relationships over the course of a single school year (Howes et al., 2008; Liew et al., 2010), teacher-child closeness was associated with greater social skills and task orientation. Also, consistent with the prior literature (Hamre & Pianta, 2005; Spilt et al., 2012), teacher-child conflict predicted higher levels of children's conduct problems and less optimal social skills, task orientation, and frustration tolerance. These findings reflect research that suggest a

close- and conflict-free relationship with teachers promotes feelings of security and increases children's comfort in school, which supports the development of children's social and emotional skills during the early years of schooling (O'Connor et al., 2011).

Importantly, teacher and children's perceptions of their relationship were related. Children with teachers who reported greater conflict across the first three years of school reported more negative feelings about their teacher at the end of first grade. The cumulation of conflictual interactions with teachers from preschool through first grade is related to children's maladaptive social-emotional adjustment in school, supporting previous findings that the relationship with teachers in the early years is a key influence on later social-emotional well-being (Ladd, Birch, & Buhs, 1999; O'Connor et al., 2011). These conflicted relationships with teachers may heighten the negative aspects of school for children and interfere with their enjoyment of school and how they feel about those with whom they interact. Such feelings, on the part of the child, may have considerable consequences for their motivation and engagement in subsequent years and could be a key factor for triggering interventions to reduce conflict (Williford et al., 2013).

Our findings suggest that the mechanisms by which teacher conflict shape adjustment in school could differ for children from Spanish-speaking families. For children from English-speaking families, cumulative conflict with teachers was associated with children's perceptions of closeness with their teachers and their peers, reflecting adjustment in the broader social context of school. In contrast, for children from Spanish-speaking families, cumulative conflict with teachers was associated with *increased* closeness with their peers, suggesting that the social context of school—and their adjustment in it—may be more complex for these children.

Spanish-speaking children who experience more conflict with their teachers might lean in to their peer relationships more—perhaps relationships with other children from Spanish-speaking families, who represent the majority in our sample. Shared home

language background could be a key consideration for children as they select the peers with whom to engage. Indeed, past research has shown that young children tend to relate to peers who are similar in terms of a number of characteristics, including gender or race/ethnicity (Hanish, Martin, Fabes, Leonard, & Herzog, 2005; Rubin, Lynch, Coplan, Rose-Krasnor, & Booth, 1994). Language itself is also a selecting factor; children with greater fluency in spoken English are more likely to engage and socialize with English-speaking children in the same classroom (Strong, 1983; 1984). This could have complex effects on adjustment and motivation in school for these students, with the potential for either teacher or peer relationships to be a lever for supporting development and achievement in elementary school. Additionally, we found that teacher-parent communication from preschool through first grade was associated with greater teacher-reported conduct problems at the end of first grade. This finding may reflect a pattern in which teachers' perceptions of children's conduct problems trigger their communication with parents, perhaps in an effort to address the concerns in the classroom. In parallel, it may also be the case that parents who are concerned about their child (e.g., school adjustment, adaptability, difficulty making friends) are more likely to engage and communicate with teachers in an attempt to address these concerns (Hughes & Kwok 2007; Ritter, Mont-Reynaud, & Dornsbusch, 1993). For these reasons, it might be that an association between either higher levels of parent or teacher concerns about children's behaviors and high levels of teacher-parent communication is to be expected.

These reasons could also explain why, in our study, Spanish home language moderated the effects of communication on conduct problems such that there was a significantly less strong association for Spanish-speaking families compared to English-speaking families. Language barriers between teachers and parents could contribute to less frequent and less effective communication (Conus & Fahrni, 2019; Crosnoe, 2006; Moreno & Valencia, 2002). Indeed, our analyses reveal that whereas there is more communication overall related to

children's conduct problems, there is significantly less communication with parents of Spanish-speaking families. If teachers or parents do not adapt their level or quality of communication in relation to child behavior, then parent communication becomes, by default, less of an asset for these children to scaffold their behavior and socioemotional development in early elementary school.

It is important to note the limitations to this study. Children's social-emotional outcomes were measured by teacher reports, which may be biased by teachers' perceptions of children. Multiple steps were taken in order to handle this bias, including adding in the child interview questions as additional measures of children's social-emotional well-being. A strength of this study is the inclusion of data from a number of sources including students, teachers, and observations. We also included child, family, and classroom characteristics in the models as control variables. These covariates help isolate the relationship between the key predictors and child outcomes. It is also important to note that although the multivariate design is strong, this is a correlational study and causal relationships cannot be inferred. Overall, this study adds to the limited empirical literature on this topic and provides further evidence that the educational assets that children experience from Spanish-speaking homes are an important area for further study.

Additionally, several factors that relate to children's home language were not examined in this study. First, we used an overall measure of the overall quality of classroom interactions and did not examine the additional interactions and practices that teachers use to accommodate the needs of children from Spanish-speaking families, like the extent to which teachers used culturally relevant materials (Castro, Páez, Dickinson, & Frede, 2011), spoke to children in Spanish (Mendez et al., 2015, Raikes et al., 2019), and focus on children developing oral language skills in Spanish and English (Buysse, Peisner-Feinberg, Paez, Hammer, & Knowles, 2014). Future research could consider children's language abilities in both the classroom language of instruction and the child's home language and could

assess aspects of classroom quality specific to supporting dual-language learners (White, Fernandez, & Greenfield, 2019). Furthermore, classrooms included in this study comprised students who speak English or Spanish at home. Although the largest proportion of non-English speakers in US schools are native Spanish speakers, many classrooms are not so dichotomous, as multiple languages are likely to be represented in a classroom. Not all Spanish-speaking cultures have similar social and emotional norms and thus Spanish-speaking children may have different developmental trajectories (Halle et al., 2011). Additionally, home language prestige can impact young children's social experiences outside of the home (Fillmore, 2000; Genesee, 2008). This study should be replicated in classrooms that include children from a variety of cultures and diverse language backgrounds.

Finally, future studies might select different educational assets than those selected here. The current study used teacher-child interactions, closeness, and conflict, and teacher-parent communication, but there are other important indicators of children's educational assets. In summary, this study contributes to a growing body of work that looks specifically at preschool classrooms that serve children from linguistically diverse backgrounds and suggests some optimal paths for future research and early education programming. As the field continues to move forward in investigating the educational settings that serve DLL and Spanish-speaking children in the United States, it is important to focus on understanding how different educational assets are related to positive social-emotional development. Such information, in turn, can be used to inform interventions that promote these important outcomes and maximize children's overall well-being.

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References

- Anderson, A. R., Christenson, S. L., Sinclair, M. F., & Lehr, C. A. (2004). Check & Connect: The importance of relationships for promoting engagement with school. *Journal of School Psychology, 42*(2), 95–113.
- Ansari, A., & Pianta, R. C. (2018). The role of elementary school quality in the persistence of preschool effects. *Children and Youth Services Review, 86*, 120–127.
- Barnett, W. S. (2011). Effectiveness of early educational intervention. *Science, 333*(6045), 975–978.
- Birch, S. H., & Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology, 35*(1), 61–79.
- Blair, C., Berry, D., Mills-Koonce, R., Granger, D., & FLP Investigators. (2013). Cumulative effects of early poverty on cortisol in young children: Moderation by autonomic nervous system activity. *Psychoneuroendocrinology, 38*(11), 2666–2675.
- Bornstein, M. H., Davidson, L., Keyes, C. L., & Moore, K. A., & The Center for Child Well-Being (Eds.). (2003). Well-being: Positive development across the life course. *Adolescence, 150*, 386.

- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*(1), 371–399.
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Theoretical models of human development* (p. 993–1028). John Wiley & Sons Inc.
- Burchinal, M., Vandergrift, N., Pianta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. *Early Childhood Research Quarterly, 25*(2), 166–176.
- Buyse, V., Peisner-Feinberg, E., Páez, M., Hammer, C. S., & Knowles, M. (2014). Effects of early education programs and practices on the development and learning of dual language learners: A review of the literature. *Early Childhood Research Quarterly, 29*(4), 765–785.
- Cash, A. H., Ansari, A., Grimm, K. J., & Pianta, R. C. (2019). Power of two: The impact of 2 years of high-quality teacher child interactions. *Early Education and Development, 30*(1), 60–81.
- Castro, D. C., Páez, M. M., Dickinson, D. K., & Frede, E. (2011). Promoting language and literacy in young dual language learners: Research, practice, and policy. *Child Development Perspectives, 5*(1), 15–21.
- Chaudry, A., & Datta, A. R. (2017). The current landscape for public pre-kindergarten programs. In K. Dodge, & D. Phillips (Eds.), *The current state of scientific knowledge on pre-kindergarten effects*. Brookings Institution.
- Collaborative for Academic, Social, and Emotional Learning (CASEL). (2003). *Safe and sound: An educational leader's guide to evidence-based social and emotional learning (SEL) programs-Illinois edition*. Chicago, IL: Author.
- Center on the Developing Child at Harvard University. (2016). *From best practices to breakthrough impacts: A science-based approach to building a more promising future for young children and families*. Harvard University.
- Coburn, C. E., Hill, H. C., & Spillane, J. P. (2016). Alignment and accountability in policy design and implementation: The common core state standards and implementation research. *Educational Researcher, 45*(4), 243–251.
- Conus, X., & Fahrni, L. (2019). Routine communication between teachers and parents from minority groups: An endless misunderstanding? *Educational Review, 71*(2), 234–256.
- Copple, C., & Bredekamp, S. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. National Association for the Education of Young Children.

- Crosnoe, R. (2006). *Mexican roots, American schools: Helping Mexican immigrant children succeed*. Stanford University Press.
- Denham, S. A., Blair, K. A., DeMulder, E., Levitas, J., Sawyer, K., Auerbach-Major, S., & Queenan, P. (2003). Preschool emotional competence: Pathway to social competence? *Child Development, 74*(1), 238–256.
- Dong, M., Giles, W. H., Felitti, V. J., Dube, S. R., Williams, J. E., Chapman, D. P., & Anda, R. F. (2004). Insights into causal pathways for ischemic heart disease: Adverse childhood experiences study. *Circulation, 110*(13), 1761–1766.
- Downer, J. T., López, M. L., Grimm, K. J., Hamagami, A., Pianta, R. C., & Howes, C. (2012). Observations of teacher-child interactions in classrooms serving Latinos and dual language learners: Applicability of the Classroom Assessment Scoring System in diverse settings. *Early Childhood Research Quarterly, 27*(1), 21–32.
- Ehrlich, S. B., Pacchiano, D., Stein, A. G., Wagner, M. R., Park, S., Frank, E., ... & Young, C. (2019). Early Education Essentials: Validation of surveys measuring early education organizational conditions. *Early Education and Development, 30*(4), 540–567.
- Enders, C. K. (2001). The impact of nonnormality on full information maximum-likelihood estimation for structural equation models with missing data. *Psychological Methods, 6*(4), 352–370.
- Evans, G. W. (2003). A multimethodological analysis of cumulative risk and allostatic load among rural children. *Developmental Psychology, 39*(5), 924–933.
- Fillmore, L. W. (2000). Loss of family languages: Should educators be concerned? *Theory into Practice, 39*(4), 203–210.
- Finn, J. D., & Zimmer, K. (2012). Student engagement: What is it? Why does it matter? In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 97–131). Springer.
- Genesee, F. (2008). Early dual language learning. *Zero to Three, 29*(1), 17–23.
- Groeneveld, M. G., Vermeer, H. J., Van IJzendoorn, M. H., & Linting, M. (2011). Enhancing home-based child care quality through video-feedback intervention: A randomized controlled trial. *Journal of Family Psychology, 25*(1), 86–96.
- Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., ... & Tonks, S. (2004). Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology, 96*(3), 403–423.
- Halle, T., Castro, D., Franco, X., McSwiggan, M., Hair, E., & Wandner, L. (2011). The role of early care and education in the development of young Latino dual language learners. *Latina and Latino Children and Mental Health, 1*, 63–90.

- Halle, T. G., Whittaker, J. V., Zepeda, M., Rothenberg, L., Anderson, R., Daneri, P., ... & Buysse, V. (2014). The social-emotional development of dual language learners: Looking back at existing research and moving forward with purpose. *Early Childhood Research Quarterly, 29*(4), 734–749.
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*(2), 625–638. doi:10.1111/1467-8624.00301
- Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76*(5), 949–967.
- Hanish, L. D., Martin, C. L., Fabes, R. A., Leonard, S., & Herzog, M. (2005). Exposure to externalizing peers in early childhood: Homophily and peer contagion processes. *Journal of Abnormal Child Psychology, 33*(3), 267–281.
- Hatfield, B. E., Hestenes, L. L., Kintner-Duffy, V. L., & O'Brien, M. (2013). Classroom emotional support predicts differences in preschool children's cortisol and alpha-amylase levels. *Early Childhood Research Quarterly, 28*, 347–356.
- Hatfield, B. E., & Williford, A. P. (2017). Cortisol patterns for young children displaying disruptive behavior: Links to a teacher-child, relationship-focused intervention. *Prevention Science, 18*(1), 40–49.
- Hertzman, C. (2012). Putting the concept of biological embedding in historical perspective. *Proceedings of the National Academy of Sciences, 109*(Supplement 2), 17160–17167.
- Hightower, A. D., Work, W. C., Cowen, E. L., Lotyczewski, B. S., Spinell, A. P., Guare, J. C., & Rohrbeck, C. A. (1986). The Teacher-Child Rating Scale: A brief objective measure of elementary children's school problem behaviors and competencies. *School Psychology Review, 15*(3), 393–409.
- Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly, 23*(1), 27–50.
- Hughes, J., & Kwok, O. M. (2007). Influence of student-teacher and parent-teacher relationships on lower achieving readers' engagement and achievement in the primary grades. *Journal of Educational Psychology, 99*(1), 39–51.
- Justice, L. M., McGinty, A. S., Zucker, T., Cabell, S. Q., & Piasta, S. B. (2013). Bi-directional dynamics underlie the complexity of talk in teacher-child play-based conversations in classrooms serving at-risk pupils. *Early Childhood Research Quarterly, 28*(3), 496–508.
- Ladd, G. W., Birch, S. H., & Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development, 70*(6), 1373–1400.

- Liew, J., Chen, Q., & Hughes, J. N. (2010). Child effortful control, teacher–student relationships, and achievement in academically at-risk children: Additive and interactive effects. *Early Childhood Research Quarterly, 25*(1), 51–64.
- McCartney, K., Dearing, E., Taylor, B. A., & Bub, K. L. (2007). Quality child care supports the achievement of low-income children: Direct and indirect pathways through caregiving and the home environment. *Journal of Applied Developmental Psychology, 28*, 411–426.
- McClelland, M. M., Cameron, C. E., Wanless, S. B., & Murray, A., Saracho, O., & Spodek, B., (2007). Executive function, behavioral self-regulation, and social-emotional competence. *Contemporary Perspectives on Social Learning in Early Childhood Education, 1*, 113–137.
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *The New England Journal of Medicine, 338*(3), 171–179.
- Mendez, L. L., Crais, E. R., Castro, D. C., & Kainz, K. (2015). A culturally and linguistically responsive vocabulary approach for young Latino dual language learners. *Journal of Speech, Language and Hearing Research, 58*(1), 93–106.
- Moiduddin, E., Aikens, N., Tarullo, L., West, J., & Xue, Y. (2012). *Child outcomes and classroom quality in FACES 2009* (Report No. b259d300a7764b6496a0c86eab455781). Mathematica Policy Research
- Moreno, R. P., & Valencia, R. R. (2002). Chicano families and schools: Myths, knowledge, and future directions for understanding. *Chicano school failure and success: Past, present, and future, 2*, 227–250.
- National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network & Duncan, G. J. (2003). Modeling the impacts of child care quality on children’s preschool cognitive development. *Child Development, 74*(5), 1454–1475.
- National Task Force on Early Childhood Education for Hispanics (2007). *National Task Force on Early Childhood Education for Hispanics/La Comisión Nacional para la Educación de la Niñez Hispana Executive Report: Para Nuestros Niños: Expanding and Improving Early Education for Hispanics*. National Task Force on Early Childhood Education for Hispanics. <https://www.fcd-us.org/assets/2016/04/PNNExecReport.pdf>
- Nelson, C. A., & Bloom, F. E. (1997). Child development and neuroscience. *Child Development, 68*(5), 970–987.
- O’Connor, E. E., Dearing, E., & Collins, B. A. (2011). Teacher-child relationship and behavior problem trajectories in elementary school. *American Educational Research Journal, 48*(1), 120–162.

- Pakarinen, E., Kiuru, N., Lerkkanen, M. K., Poikkeus, A. M., Ahonen, T., & Nurmi, J. E. (2011). Instructional support predicts children’s task avoidance in kindergarten. *Early Childhood Research Quarterly, 26*(3), 376–386.
- Park, M., O’Toole, A., & Katsiaficas, C. (2017). *Dual Language Learners: A National Demographic and Policy Profile. Fact Sheet*. Migration Policy Institute.
- Pianta, R. C. (2001). *STRS: Student-Teacher Relationship Scale*.
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom Assessment Scoring System (CLASS): Manual K–3*. Paul H Brookes Publishing.
- Pianta, R. C., Steinberg, M. S., & Rollins, K. B. (1995). The first two years of school: Teacher-child relationships and deflections in children’s classroom adjustment. *Development and Psychopathology, 7*(2), 295–312. doi:10.1017/s0954579400006519
- Raikes, H. H., White, L., Green, S., Burchinal, M., Kainz, K., Horm, D., ... Estraich, J. (2019). Use of the home language in preschool classrooms and first-and second-language development among dual-language learners. *Early Childhood Research Quarterly, 47*, 145–158.
- Raver, C. C., & Knitzer, J. (2002). *Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-old children*.
- Reschly, A. L., Huebner, E. S., Appleton, J. J., & Antaramian, S. (2008). Engagement as flourishing: The contribution of positive emotions and coping to adolescents’ engagement at school and with learning. *Psychology in the Schools, 45*(5), 419–431.
- Ritter, P. L., Mont-Reynaud, R., & Dombusch, S. M. (1993). Minority parents and their youth: Concern, encouragement, and support for school achievement. *Families and schools in a pluralistic society, 107–119*.
- Rubin, K. H., Lynch, D., Coplan, R., Rose-Krasnor, L., & Booth, C. L. (1994). “Birds of a feather...”: Behavioral concordances and preferential personal attraction in children. *Child Development, 65*(6), 1778–1785.
- Ruzek, E., Jirout, J., Schenke, K., Vitiello, V., Whittaker, J. V., & Pianta, R. (2020). Using self-report surveys to measure PreK children’s academic orientations: A psychometric evaluation. *Early Childhood Research Quarterly, 50*, 55–66.
- Shonkoff, J. P. (2012). Leveraging the biology of adversity to address the roots of disparities in health and development. *Proceedings of the National Academy of Sciences, 109*(Supplement 2), 17302–17307.
- Shonkoff, J., & Phillips, D., National Academy of Sciences – National Research Council, W. D. B. on C. and F., & Institute of Medicine, N. W. D. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*.

- Spilt, J. L., Hughes, J. N., Wu, J. Y., & Kwok, O. M. (2012). Dynamics of teacher–student relationships: Stability and change across elementary school and the influence on children’s academic success. *Child Development, 83*(4), 1180–1195.
- Strong, M. (1983). Social styles and the second language acquisition of Spanish-speaking kindergarteners. *TESOL Quarterly, 17*(2), 241–58.
- Strong, M. (1984). Integrative motivation: Cause or result of successful second language acquisition? *Language Learning, 34*(3), 1–13.
- Szanton, S. L., Gill, J. M., & Allen, J. K. (2005). Allostatic load: a mechanism of socio-economic health disparities? *Biological Research for Nursing, 7*(1), 7–15.
- Vernon-Feagans, L., Mokrova, I. L., Carr, R. C., Garrett-Peters, P. T., Burchinal, M. R., & Family Life Project Key Investigators. (2019). Cumulative years of classroom quality from kindergarten to third grade: Prediction to children’s third grade literacy skills. *Early Childhood Research Quarterly, 47*, 531–540.
- Vitiello, V. E., Bassok, D., Hamre, B. K., Player, D., & Williford, A. P. (2018). Measuring the quality of teacher–child interactions at scale: Comparing research-based and state observation approaches. *Early Childhood Research Quarterly, 44*, 161–169.
- Vygotsky, L. S. (1978). Interaction between learning and development. (M. Lopez-Morillas, Trans.). In M. Cole, V. John-Steiner, S. Scribner, & E. Soubberman (Eds.), *Mind in society: The development of higher psychological processes* (pp. 79–91). Harvard University Press.
- Watanura, S. E., Kryzer, E. M., & Robertson, S. S. (2009). Cortisol patterns at home and child care: Afternoon differences and evening recovery in children attending very high quality full-day center-based child care. *Journal of Applied Developmental Psychology, 30*(4), 475–485.
- White, L. J., Fernandez, V. A., & Greenfield, D. B. (2019). Assessing Classroom Quality for Latino Dual Language Learners in Head Start: DLL-Specific and General Teacher-Child Interaction Perspectives. *Early Education and Development, 31*(2), 1–29.
- Williford, A. P., Maier, M. F., Downer, J. T., Pianta, R. C., & Howes, C. (2013). Understanding how children’s engagement and teachers’ interactions combine to predict school readiness. *Journal of Applied Developmental Psychology, 34*(6), 299–309.
- Wilson, H. K., Pianta, R. C., & Stuhlman, M. (2007). Typical classroom experiences in first grade: The role of classroom climate and functional risk in the development of social competencies. *The Elementary School Journal, 108*(2), 81–96.
- Zigler, E., & Styfco, S. J. (2010). *Development at risk series: The hidden history of Head Start*. Oxford University Press.