

RESEARCH ARTICLE

Relationship between Peer Social Competence and Academic Readiness for Head Start Children: A Multi-Method, Multi-Source Measurement Approach

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Best practice in early childhood assessment supports a comprehensive multi-method, multi-source measurement approach, with tools validated for use with culturally, linguistically, and economically diverse populations (National Research Council, 2008). This study employed this approach to assess peer social competence in relation to gains in academic readiness for 527 preschool children. Canonical correlations revealed concordance between measures of teacher-reported and observed peer social competence. Path models suggested that these measures were uniquely and differentially associated with gains in direct assessments of academic readiness; with teacher-reported interactive peer play associated with greater gains in vocabulary and observed communication with peers associated with greater gains in listening comprehension. Additionally, observed conflict with peers was associated with significantly fewer gains in alphabet knowledge and mathematics. Findings support the need for a comprehensive measurement approach that includes multiple perspectives and methods for examining peer social competence with culturally and linguistically diverse preschool children from low-income backgrounds.

Keywords: multi-method, multi-source; peer social competence; school readiness; Head Start

Living in poverty is associated with exposure to multiple stressors (e.g., family stress, lack of desirable housing, exposure to community violence), which place children at risk for poor academic readiness for kindergarten (Duncan, Brooks-Gunn, & Klebanov, 1994). During preschool, peer social competence has been identified as an important protective factor for academic learning, helping to buffer the negative influence that living in poverty has on children's early school adjustment (Hamre & Pianta, 2007; Mashburn et al., 2008; National Association for Young Children (NAEYC), 2009). Peer social competence encompasses the ability to fit in with and develop a network of positive relationships with peers (Raver & Zigler, 1997). Research suggests that children who display social competence are more likely to engage in positive peer interactions that foster skills essential to both social and academic domains of school readiness (including problem solving, empathy, and cognitive and language

competencies; Coolahan, Fantuzzo, Mendez, and McDermott, 2000; Fantuzzo, Sekino, & Cohen, 2004; McClelland & Morrison, 2003; Zigler & Bishop-Josef, 2006).

While peer social competence is recognized as a key contributor to children's school readiness, it is complex to measure as it is embedded within social relationships, interactions and contexts. Studies typically rely on a single informant, such as a parent or teacher, to provide ratings on children's peer social competence. Current best practice in early childhood assessment recommends the use of a comprehensive, multi-method, multi-source approach that is sensitive to culturally, linguistically, and economically diverse populations (National Research Council, 2008; Standards; American Educational Research Association [AERA], American Psychological Association [APA] and the National Council on Measurement in Education [NCME], 1999). In accord with the best practice recommendation, this study extends prior research by using a comprehensive assessment of preschool peer social competence as it occurs dynamically within the classroom context. Multiple measures developed specifically for use with culturally diverse populations from low-income backgrounds were used to investigate the relationship between peer social competence and academic readiness for a sample of Head Start children.

Theoretical Framework to Guide Inquiry

The bioecological model provides a framework for studying and assessing peer social competence within context. In accord with this model, children's development occurs within the context of several nested systems. Proximal settings, such as the home and preschool environments, have the most direct influence on the child (Bronfenbrenner, 1979). Opportunities for children to practice and master developmental challenges are embedded within interactions in these proximal contexts (Kontos & Keyes, 1999). As children interact with teachers and peers in the classroom, they have direct opportunities to master social and academic skills (Downer et al., 2010; Pianta, 2006). It is through children's interactions in the classroom that school readiness skills develop over time (Bronfenbrenner & Morris, 1998; Carta & Greenwood, 1985). Children who are able to engage successfully with peers in the classroom are likely to develop cognitive, as well as social emotional skills, which are essential to school readiness. In contrast, children who are unable to successfully participate in social interactions with peers may be missing out on these early learning opportunities.

Social Competence and Learning

Social competence in preschool settings is often assessed through observations of peer interactions in the classroom. Through this observational method, early childhood researchers have identified a set of positive and negative behaviors observed within the context of peer interactions in the preschool classroom (Fantuzzo, Coolahan, Mendez, McDermott, & Sutton-Smith, 1998). A series of research studies have found that positive behaviors that promote peer interactions and negative behaviors that interfere with peer interactions are differentially associated with learning outcomes during preschool. A summary of this research conducted within early childhood programs serving children from low-income backgrounds is described below.

Positive peer interactions and learning outcomes. Behaviors that promote positive peer interactions are conceptualized as strength-based, prosocial behaviors such as initiative, problem solving, helping other children, and showing creativity during play (Fantuzzo et al., 1998). These interactions are seen as naturally occurring opportunities in the classroom that support cognitive development by allowing children to model and extend the behaviors of their peers (Mendez & Fogle, 2002; Nicolopoulou, McDowell, & Brockmeyer, 2006). Research has supported links between positive engagement with peers and mathematics, literacy and receptive vocabulary skills (Ginsburg, Pappas, & Seo, 2001; Pellegrini, 1984). Research conducted with Head Start children has also demonstrated positive associations between positive peer interactions and teacher reported literacy and mathematic skills (Cohen & Mendez, 2009; Fantuzzo, Sekino, & Cohen, 2004; Mendez & Fogle, 2002).

Difficulties in peer interactions and learning outcomes. Research suggests that difficulties interacting with peers can be characterized by two types of behavior: disruptive behaviors and disconnected behaviors (Arnold, Homrok, Ortiz, & Stowe, 1999; Fantuzzo et al., 1998; Hart et al., 2000; Winsler & Wallace, 2002). Children characterized as being disruptive with their peers show overt and relationally aggressive behaviors that include initiating fights, taking objects from peers, excluding peers from play, and tattling to the teacher (Arnold et al., 1999; Wood, Cowan, & Baker, 2002). Children characterized as being disconnected from their peers show a lack of engagement, including a preference for solitary activities, or a social anxiousness or fearfulness that inhibits engagement with peers (Hart et al., 2000). These children are often observed playing alone or anxiously hovering outside a playgroup (Coplan et al., 2009; Hart et al., 2000). Both disruptive and disconnected behaviors with peers have been linked to lower engagement in positive, cooperative peer interactions, which support learning in the preschool classroom (Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Fantuzzo et al., 1998).

Much of the research examining the associations between negative peer interactions and academic skills has focused on kindergarten and elementary school children. Findings from these studies consistently document that problems in peer interactions are associated with lower academic performance, as well as lower ratings on other related measures that support academic achievement (Ladd, Kochenderfer, & Coleman, 1996). Less is known about the association between negative peer interactions and learning during the preschool years. However, recent studies with Head Start children document negative associations between difficulties in peer interactions and academic skills. In these studies, disruptive and disconnected behaviors with peers are associated with greater emotional and behavior problems and lower academic achievement during preschool (Bulotsky-Shearer, Bell, Romero & Carter, 2014; Fantuzzo, Sekino, & Cohen, 2004; Hampton & Fantuzzo, 2003; Sekino, 2006).

Measuring Peer Social Competence in Context

In accord with the bioecological framework, there is a critical need for child-focused assessment measures that capture children's behavior and development as it is naturally occurring in transaction with complex proximal systems, such as the preschool classroom. Scholars have responded to this need in the field by developing rating scales and observation methods of children's positive and negative engagement with peers that focus on children's behavior during several social and academic contexts in preschool. Two measures in particular have contributed

to the growing body of research demonstrating the importance of this contextual approach to assessment: the *Penn Interactive Peer Play Scale* (PIPPS; Fantuzzo et al., 1998) and the *Individualized Classroom Assessment Scoring System* (inCLASS; Downer, et al., 2010).

The PIPPS, a teacher report measure of children's behavior with peers during play, was developed in close partnership with Head Start teachers and parents to inform early intervention among high-risk urban preschoolers (Fantuzzo et al., 1998). Many of the available measures for assessing social competence are deficiency oriented, or downward extensions of tools validated for use with elementary school children and lack psychometric evidence for use with preschool children. In contrast, the PIPPS employed a strengths-based, developmental approach to assessing the peer play behaviors of preschoolers from low-income backgrounds. The validity of the PIPPS was later extended to preschool children from Hispanic backgrounds (Castro, Mendez & Fantuzzo, 2002). Recent studies using the PIPPS (Fantuzzo et al., 1998) have demonstrated that displaying positive behaviors with peers during play is associated with increased academic readiness skills; whereas displaying negative behaviors within peer play is linked to lower social and academic functioning (e.g. Bulotsky-Shearer, Manz et al., 2012; Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Fantuzzo, Manz, Atkins, & Meyers, 2005; Fantuzzo, Sekino, & Cohen, 2004; Mendez, Fantuzzo, & Cicchetti, 2002).

Additionally, to compliment existing measures of children's competence in classroom interactions, the inCLASS was developed to provide a process-oriented, observational tool that captures children's interactions in real-time (Downer et al., 2010). Prior to the development of the inCLASS, limited observational methodology focused on early childhood competencies was available. The primary challenge in the development of such measures was a lack of consensus around developmentally appropriate constructs in early childhood. More recently, however, consensus in the field around the developmental salience of interactions – both positive and negative - with teachers, peers, and tasks has grown (see Pianta, 1999). The focus of this study is on interactions with peers specifically; initial studies with the inCLASS have demonstrated that observed positive engagement with peers in the classroom is associated with increased social and academic skills and decreased behavior problems (Downer et al., 2010; Williford, Wittaker, Vitiello, & Downer, 2013).

The nature of the PIPPS and inCLASS measures allows researchers to examine children's classroom engagement within the dynamic developmental demands of the peer context. Findings from initial studies using the PIPPS and inCLASS suggest that children's classroom behavior does vary across classroom contexts; in Head Start samples, this variation has been found to be uniquely and differentially associated with social and academic outcomes during preschool and elementary school (Bulotsky-Shearer et al., 2008; Bulotsky-Shearer & Fantuzzo, 2011). Specifically, children who demonstrate early difficulties engaging in structured learning situations are more likely to have social (less interactive and greater disconnected play) and academic readiness difficulties (Bulotsky-Shearer, et al., 2008). Children who evidence early problems in peer interactions demonstrate greater difficulties with peers at the end of the year (greater disruptive and disconnected play); and children who evidence early problems in teacher interactions demonstrate lower social competence with peers (interactive play; Bulotsky-Shearer et al., 2008). In order to gain a better understanding of children's peer social competence, research studies employing contextual assessments across multiple methods and sources are needed to inform a comprehensive understanding of children's behavior.

Examining information from multiple methods and sources is critical as distinct information about a child's behavior can be gleaned through various perspectives. Teachers'

have extended time and experience with the children in their classroom, in addition to having knowledge of normative behavior with reference to the many children they have taught. However, characteristics of the teacher (i.e., level of education, mental health, classroom stress) may affect both their assessment of a child's behavior and the level of agreement across raters (Kohen, Brooks-Gunn, McCormick, & Graber, 1997; Szatmari, Archer, Fisman, & Streiner, 1994; Waterman et al., 2012). Whereas, observation methods, while considered a "more objective" approach to assessment, are often criticized for only capturing a snapshot of children's behavior during a circumspect moment in time. In addition, until recently observation measures for studying this association in preschool were not available.

The present study extends prior work by combining the unique strengths of the PIPPS and inCLASS measurement approaches, to capture children's interactions with peers as they naturally occur in the preschool classroom. Additionally, the association between peer social competence and gains in academic readiness skills were examined in this study to investigate the unique predictive ability of teacher report and observation measures of peer social competence for preschool children in Head Start.

Moderation by Child Sex

Developmental research suggests that sex differences in behavior and early academic skills start to emerge in preschool (Bulotsky-Shearer, Bell, Romero & Carter, 2012; Keenan & Shaw, 1997; Mendez, Fantuzzo, & McDermott, 2002). Research suggests that preschool girls have an advantage over boys with regard to early social skills (Keenan & Shaw, 1997; Mendez, Fantuzzo, & McDermott, 2002) and exhibit an advantage in language, literacy, and mathematic skills that is maintained during the preschool year (Bell, Greenfield, & Bulotsky-Shearer, 2013; Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Ponitz et al., 2008; Qi, Kaiser, & Milan, 2006; Stowe, Arnold, & Ortiz, 2000). While these sex differences in mean levels of social and academic skills have been documented, few studies have been conducted examining whether the *associations* between peer social competence and academic outcomes differ by children's sex.

The few early childhood studies that have examined the associations between peer social competence and academic outcomes suggest that prosocial and problem behavior may play a more important role in supporting academic skills for girls than boys. For example, Zevenbergen and Ryan (2010) found a direct negative association between attention problems and academic skills for preschool girls, but not for preschool boys. Interestingly, Bierman, Torres, Domitrovich, Welsh, and Gest (2009) found that teacher-reported prosocial behavior in Head Start children was related to literacy and mathematic skills for both boys and girls; but the association was stronger for girls (Bierman et al., 2009). Given these limited findings, this study investigated whether the direct associations between peer social competence and learning outcomes differed for boys and girls.

Summary and Limitations of Prior Research

Early childhood research suggests that peer social competence is positively associated with academic readiness skills, particularly for preschoolers from low-income families (Hamre & Pianta, 2007; Mashburn et al., 2008; National Association for Young Children [NAEYC], 2009).

However, most of what is known from prior research relies on a single source of measurement. Incorporating the strengths of two perspectives, a child's teacher and an objective observer, may reveal a comprehensive picture of children's competencies with their peers in the classroom.

Second, more can be learned from early childhood studies of peer social competence for culturally and linguistically diverse children, from low-income backgrounds. While there is a wealth of research on the topic of play in early childhood (Fromberg & Bergen, 2006), few measures have been developed and validated for use with diverse populations (National Research Council, 2008) limiting rigorous studies within this population. Lastly, there has been a recent call by early childhood scholars to obtain a contextual understanding of children's behavior within the naturalistic contexts in which it emerges, such as the preschool classroom (Bulotsky-Shearer et al., 2008); however, few studies have incorporated such an approach primarily because of the lack of validated measures that are sensitive to the dynamic preschool context in which peer social interactions occur.

Study Purpose

The purpose of this study was to extend prior work by examining three research questions; first, what is the relationship between peer social competence as rated by a teacher and through a direct observation? Given prior research and theory, we expected that across sources of measurement (i.e. teacher report and observation) there would be convergent and divergent relationships among the dimensions of peer social competence. Specifically, teacher reported and observed dimensions measuring behaviors that promoted positive engagement with peers were expected to be more strongly associated with each other (convergent relationship) and inversely related to teacher reported or observed dimensions measuring behaviors that interfered with positive engagement with peers (divergent relationship). Similarly, dimensions capturing behaviors that interfered with positive engagement with peers were expected to be more closely related to each other across methods than with dimensions capturing prosocial peer engagement behaviors.

Second, what is the relationship between peer social competence measured in the fall and gains in academic readiness skills across the preschool year? It was expected that prosocial behaviors would be positively associated with gains in academic readiness skills across a preschool year. Conversely, it was expected that behaviors marked by difficulty engaging with peers would be negatively associated with gains in academic readiness skills across the year. Given the importance of the two unique perspectives of the preschool teacher and objective observer, it was thought that the two measures of peer social competence would uniquely predict gains in academic readiness, highlighting the importance of considering both perspectives in the assessment of children within the classroom context.

Lastly, we asked, does the relationship between peer social competence and academic readiness differ for boys and girls? Based on what is known about the importance of social interactions to academic learning, particularly for preschool girls (Bierman, Torres, Domitrovich, Welsh, & Gest, 2009), we hypothesized that the association between peer social competence and academic readiness would be significant for *both* boys and girls but that the relationship would be *stronger* for girls.

METHOD

Participants

As part of a larger, two-year study conducted in collaboration with a large urban Head Start program in the southeastern United States, a total of 16 centers (72 classrooms) were chosen that were culturally and linguistically representative of families served by the program. A subsample of children was randomly drawn from the larger study whose parents gave consent for their participation ($N = 527$). Six to nine children were randomly selected from each participating classroom, stratified by age and sex. At the beginning of the preschool year, the children in this subsample ranged in age from 36 to 59 months ($M = 47.83$, $SD = 6.71$ months) and sex was split evenly with 49% boys. The majority of children were either African American (41.3%) or Hispanic (54.2%). All children were from families that met the federal criteria for enrollment in the Head Start program (annual income of \$23,050 for a family of four; Federal Register, 2012).

Demographic information from the lead Head Start teachers who participated, indicated that 100% were female and 74.3% were of Hispanic or Latino background. The teachers also reported their race, indicating that 55.7% were White, 24.3% Black or African American, and 18.6% Other. Approximately 18.6% of teachers had a master's degree, 55.7% a bachelor's degree, 15.7% an associates degree, and 10% child development associate credentials. On average, teachers reported working as a preschool teacher for 12.54 years ($SD = 7.21$, range = 1-35 years).

Measures

Peer social competence. Peer social competence was assessed using the *Penn Interactive Peer Play Scale* (PIPPS-T; Fantuzzo et al., 1998) and the *Individualized Classroom Assessment Scoring System* (inCLASS; Downer, et al., 2010).

Penn interactive peer play scale. The teacher version of the Penn Interactive Peer Play Scale (PIPPS-T; Fantuzzo et al., 1998) was used by teachers to assess children's peer social competence within the classroom context at the beginning of the preschool year. The PIPPS-T is a 32-item rating scale used to measure common play behaviors that facilitate or interfere with peer interactions in the classroom. The PIPPS-T was developed specifically for use with low-income, urban Head Start children and has been validated for use with Latino samples (Castro, Mendez, & Fantuzzo, 2002). Construct validity studies of the PIPPS-T have revealed three dimensions: Play Interaction, Play Disconnection and Play Disruption, each demonstrating high internal consistency (Cronbach's alpha = .92, .91, and .89, respectively).

Items on the Play Interaction scale reflect prosocial behaviors that facilitate play with peers, such as "shares toys with other children", "encourages others to join play", "shows creativity in making up play stories and activities." Items on the Play Disconnection scale reflect withdrawn and avoidant play behaviors, such as "hovers outside play group" and "wanders aimlessly." Items on the Play Disruption scale reflect aggressive and antisocial play behaviors that interfere with peer play, such as "starts fights and arguments", "does not take turns", and "disrupts play of others." For the present study, all three dimensions were used. Convergent and divergent validity has been established by direct observations of play, peer sociometrics, and measures of learning behaviors, temperament, emotion regulation, psychological adjustment, and

social skills (Coolahan et al., 2000; Fantuzzo et al., 1998; Mendez, McDermott, & Fantuzzo, 2002).

Individualized classroom assessment scoring system. The Individualized Classroom Assessment Scoring System (inCLASS; Downer et al., 2010) was an observational measure used to assess children's peer social competence in the preschool classroom at the beginning of the year. The inCLASS is a child-focused observational assessment of individual children's classroom engagement with teachers, peers, and tasks, and is comprised of 10 dimensions (positive engagement, communication, and conflict with teachers; sociability, assertiveness, communication, and conflict with peers; engagement, self-reliance, and behavior control within tasks; Downer et al., 2010), which has been validated for use with low-income, diverse samples of preschool children (Vitiello, Booren, Downer & Williford, 2012).

For the present study the four dimensions that pertain to peer interactions (sociability, assertiveness, communication, and conflict with peers) were used. Convergent and divergent validity has been established and the peer engagement domain has demonstrated high reliability ($\alpha = 0.92$) (Downer, et al., 2010). For the Peer Sociability dimension, observers code behaviors, such as "proximity-seeking, shared positive affect, cooperation, and popularity." For the Peer Assertiveness dimension, observers code behaviors, such as "initiation and leadership." For the Peer Communication dimension, observers code behaviors, such as "initiates, sustains and uses various purposes of speech." For the Peer Conflict dimension, observers code behaviors, such as "aggression, negative affect, attention-seeking, and confrontation." Each dimension is coded on a seven-point scale, ranging from low, medium and high frequency and quality of behavior. Higher ratings are indicative of better quality and/or more frequent positive interactions, with the exception of conflict with teachers/peers where higher ratings are indicative of more negative interactions. Codes are based on detailed behavioral descriptions. More details on the observation protocol can be found in the procedures section.

English language screener. Due to the linguistic diversity of the sample, and given that children were directly assessed in English, children's English proficiency was assessed using the *Preschool Language Assessment Scale* (PreLAS; Duncan & De Avila, 1998). The PreLAS is designed for use with children four to six years of age and assesses receptive and expressive language skills, syntax, vocabulary, and command of grammatical phrases. The first two subscales of the PreLAS2000 have been widely used as part of an English language routing procedure in large-scale studies of Head Start children (Head Start Impact Study, Puma et al., 2005; Vogel et al., 2008).

In this study, the first two (out of five) subscales of the PreLAS2000 were used. The two subscales "Simon Says" and "Art Show" are comprised of 10 items each, measuring expressive and receptive English language skills. A total observed score for each child ranges from 0 to 20. "Simon Says" is structured like the familiar children's game. Children are given simple prompts that measure their listening comprehension and receptive language skills (e.g., "Simon says, touch your ear"). The "Art Show" is structured in a flip-book format where children are asked to name common household and classroom items, and for certain items they are also asked to identify their function (e.g., "What can you do with it [book]?"). This measures their expressive language skills. According to the published manual, Cronbach's alphas are .88 and .90 for "Simon Says" and the "Art Show", respectively (Duncan & De Avila, 1998).

Academic readiness. The Learning Express (LE; McDermott, et al., 2009) was used as a direct assessment of children's language, literacy and mathematics skills in the fall and spring of the preschool year. The LE has a total of 325 items, which are evenly split between two equivalent forms. The assessment is comprised of four subscales including Alphabet Knowledge, Vocabulary, Listening Comprehension, and Mathematics. The items on each subscale are in order of increasing difficulty, with the number of items administered determined by basal and ceiling rules. The LE was developed specifically for use with low-income, Head Start children. Construct validity studies with a large sample of culturally diverse Head Start children revealed high internal consistency for each of the subscales: .98 for Alphabet Knowledge, .96 for Vocabulary, .93 for Listening Comprehension, and .96 for Mathematics. Convergent and divergent validity has been established by correlations between the four subscales and teacher ratings of children's literacy, mathematics, and science skills, and direct assessments of early reading ability, receptive vocabulary, and mathematics ability (McDermott et al., 2009).

Procedure

Data collection. This study was part of a larger federally funded study. Approval for the project was obtained by the University Institutional Review Board. For the larger study, two cohorts of participants were recruited in the fall of 2011 and the fall of 2012 based on their participation in the Head Start program. Consent was first obtained from the center directors, then teachers, and finally parents of children in participating classrooms. Data collection for this project occurred during the fall and spring of the 2011-2012, and 2012-2013 academic years. Demographic information for all children was obtained through center records and verified by teachers. Due to the linguistic diversity of the sample and limited equivalent validated measures of academic skills in English and Spanish for Head Start children, children were screened for their English proficiency prior to conducting direct assessments in English using the PreLAS2000 (e.g., Espinosa, 2005). Only children determined to be proficient enough in English were assessed based on a cutoff score (ranging from 2-5) as guided by criteria used in previous national studies of children from low-income backgrounds (Head Start Impact Study, Puma et al., 2005; Vogel et al., 2008).

Early in the fall of each project year, children were assessed on their language, literacy and mathematics skills using the Learning Express. Trained research assistants administered direct assessments to children individually in a quiet space outside of the classroom. Administration time for the Learning Express was an average of thirty-minutes. Teachers of participating children completed the PIPPS-T questionnaire about children's peer play behaviors in the classroom in mid-October after having had 6-8 weeks to observe children's skills. In addition, children were individually observed in the classroom using the inCLASS.

To become certified observers, research assistants completed an intensive two-day observation training course conducted by an inCLASS certified trainer. Observers were required to reliably code five video training segments within 80% of Master codes determined by expert coders from the University of Virginia inCLASS team of researchers, educators, and designers of the measure. Upon successful completion of the training, observers completed a minimum of three 10-minute cycles ($M = 3.64$ cycles; range 3-4 cycles) followed by 5 minutes of real time coding for each participating child. Final codes for each dimension were computed by averaging each dimension code across each of the child's observation cycles. To control for observer drift

during the observation period, 20% of observations were double coded. Inter-rater agreement within one point was high, 92.4% overall. Finally, in the spring of each project year, children were again assessed on their language, literacy and mathematics skills using the Learning Express.

Data Analytic Approach

Relationship between teacher-reported and observed peer social competence. Both convergent and divergent relationships between the PIPPS and the peer engagement dimensions of the inCLASS were examined by conducting bivariate correlations and canonical correlation analyses. Canonical correlation analysis, as suggested by Weiss (1972), is a commonly used approach to examine the complex associations between multidimensional measures (Fantuzzo, Bulotsky, McDermott, Mosca, & Lutz, 2003), such that convergent and divergent relationships between two sets of variables emerge (Weiss, 1972). High loadings (greater than or equal to 0.50; Weiss, 1972) within the canonical structure are indicative of how strongly a particular variable is contributing to the multivariate relationship between the two measures. The canonical correlation coefficient (R_c) is the Pearson r relationship between the two variables on a given canonical function; this value ranges from 0 to 1 and is directly analogous to the multiple R in regression.

Relationship between peer social competence and gains in academic readiness. The unique contribution of each dimension of the PIPPS and inCLASS was examined in relation to gains in academic readiness skills on the Learning Express (alphabet knowledge, vocabulary, listening comprehension, and mathematics) across a year in Head Start, using multiple regression analysis within a structural equation modeling (SEM) framework, in MPlus Version 6.0 (Muthén & Muthén, 1998–2010). Child demographic variables (age, sex, ethnicity) and the fall academic readiness skills were included as covariates in the model.

SEM was chosen as the most appropriate data analytic strategy for the ability to account for the nested structure of the data for several reasons. First, SEM within MPlus allows the nested structure (or hierarchical nature) of the data to be accounted for through the use of a sandwich estimator (Iacobucci, Saldanha, & Deng, 2007). In this study, children were nested within classrooms and intra-class correlations (ICC's) revealed that 1.14-8.70% of the variance in the spring academic readiness skills was attributable to the classroom. In addition, SEM in MPlus addresses missing data in the models using Full Information Maximum Likelihood (FIML; Hancock & Mueller, 2006; Kline, 2005). FIML has been shown to be unbiased when data are missing completely at random (MCAR; Enders & Bandalos, 2001) and has been suggested as best practice for developmental research (McCartney, Burchinal, & Bub, 2006).

Moderation by child sex. To examine whether the association between peer social competence and gains in academic readiness differed by child sex, a multiple group analysis was conducted in SEM (Bollen & Long, 1993; Kline, 2005; Preacher, Rucker, & Hayes, 2007). The multiple group analysis tested whether the regression model examining the association between peer social competence and gains in academic readiness differed for boys and girls by comparing a model where the parameter estimates were constrained equal across groups (estimated similarly for boys and girls) and a model where the parameter estimates were allowed to freely vary

(estimated separately for boys and girls). A χ^2 difference test was conducted to determine the difference in the fit of each of the models to these data (Steiger, Shapiro, & Browne, 1985).

RESULTS

Descriptive Statistics

To ensure data were normally distributed, variables were examined for outliers, homoscedasticity, and kurtosis. No violations of assumptions were found. Descriptive statistics including means and standard deviations for all variables are displayed below in Table 1. Bivariate correlations between all variables are provided next in Table 2.

Of note, teacher-reported interactive peer play was significantly and positively associated with observed sociability, and communication with peers. Teacher-reported disruptive peer play was significantly and positively associated with observed conflict with peers. Lastly, teacher-reported disconnected peer play was significantly and negatively associated with observed sociability, and communication with peers; and significantly and positively associated with observed conflict with peers. Fall and spring academic skills subscale scores were moderately positively correlated (alphabet knowledge: $r(484) = 0.58$, $p < 0.001$, vocabulary: $r(484) = 0.67$, $p < 0.001$, listening comprehension: $r(484) = 0.44$, $p < 0.001$, and mathematics: $r(484) = 0.74$, $p < 0.001$).

TABLE 1
Descriptive Statistics for Child Measures

	<i>n</i>	<i>M</i>	<i>SD</i>
Fall			
Play Interaction (<i>PIPPS</i>)	516	53.20	9.35
Play Disruption (<i>PIPPS</i>)	517	44.48	8.34
Play Disconnection (<i>PIPPS</i>)	515	40.79	7.97
Peer Sociability (<i>inCLASS</i>)	527	3.40	1.07
Peer Assertiveness (<i>inCLASS</i>)	527	1.86	0.92
Peer Communication (<i>inCLASS</i>)	527	2.44	1.02
Peer Conflict (<i>inCLASS</i>)	527	1.36	0.51
Alphabet Knowledge (<i>Learning Express</i>)	511	191.05	48.90
Vocabulary (<i>Learning Express</i>)	511	177.09	54.96
Listening Comprehension (<i>Learning Express</i>)	511	187.02	45.63
Mathematics (<i>Learning Express</i>)	511	180.81	46.54
Spring			
Alphabet Knowledge (<i>Learning Express</i>)	486	229.01	44.95
Vocabulary (<i>Learning Express</i>)	486	213.26	45.68
Mathematics (<i>Learning Express</i>)	486	224.41	42.80
Listening Comprehension (<i>Learning Express</i>)	486	210.13	39.90

Note. Scores for the *PIPPS* represent standardized *T* scores ($M = 50$, $SD = 10$). Scores for the *inCLASS* represent raw scores (range: 1-7). Scores for the *Learning Express* represent IRT scores.

TABLE 2
Bivariate Correlations between Child Measures

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fall															
1.Interaction (PIPPS)	—	-.37**	-.54**	.18*	-.12**	.20**	-.04	.24**	.16**	.29**	.26**	.21**	.20**	.27**	.19**
2.Disruption (PIPPS)		—	.52**	.02	.07	-.03	.28**	-.10**	-.003	-.06	-.05	-.12*	-.06	-.17**	-.05
3.Disconnection (PIPPS)			—	-.13**	-.06	-.14**	.10*	-.18**	-.08	-.20**	-.13**	-.17**	-.07	-.25**	-.10*
4.Peer Sociability (inCLASS)				—	.65**	.69**	-.06	.15*	.12**	.14**	.17**	.13**	.02	.14**	.08
5.Peer Assertiveness (inCLASS)					—	.68**	.06	.11*	.16**	.18**	.18**	.10*	.07	.14**	.09
6.Peer Communication (inCLASS)						—	.01	.17**	.23**	.28**	.25**	.18**	.18**	.24**	.20**
7. Peer Conflict (inCLASS)							—	-.04	.03	-.03	.01	-.10*	-.003	-.13**	-.05
8.Alphabet Knowledge (Learning Express)								—	.42**	.63**	.38**	.58**	.31**	.57**	.30**
9.Vocabulary (Learning Express)									—	.62**	.54**	.33**	.67**	.50**	.49**
10.Mathematics (Learning Express)										—	.50**	.56**	.55**	.74**	.51**
11.Listening Comprehension (Learning Express)											—	.27**	.49**	.42**	.44**
Spring															
12.Alphabet Knowledge (Learning Express)												—	.34**	.64**	.38**
13.Vocabulary (Learning Express)													—	.51**	.57**
14.Mathematics (Learning Express)														—	.47**
15.Listening Comprehension (Learning Express)															—

Note. Child age was significantly correlated with play interaction (0.27, $p < 0.001$), play disconnection (-0.14, $p < 0.01$), peer sociability (0.18, $p < 0.001$), peer assertiveness (0.20, $p < 0.001$), peer communication (0.28, $p < 0.001$), fall and spring alphabet knowledge (0.37, $p < 0.001$; 0.38, $p < 0.001$), vocabulary (0.43, $p < 0.001$; 0.39, $p < 0.001$), mathematics (0.51, $p < 0.001$; 0.47, $p < 0.001$), and listening comprehension (0.44, $p < 0.001$; 0.36, $p < 0.001$). Child sex (dummy coded, girls = 1) was significantly correlated with play interaction (0.15, $p < 0.001$), peer conflict (-0.13, $p < 0.01$), and fall and spring listening comprehension (0.09, $p < 0.05$; 0.13, $p < 0.01$). Being of Hispanic background (dummy coded, Hispanic = 1) was significantly correlated with play interaction (0.24, $p < 0.001$), play disruption (-0.12, $p < 0.01$), play disconnection (-0.14, $p < 0.01$), peer communication (0.12, $p < 0.01$), peer conflict (-0.14, $p < 0.01$), fall and spring alphabet knowledge (0.10, $p < 0.05$; 0.21, $p < 0.001$), fall vocabulary (-0.10, $p < 0.05$), and spring mathematics (0.18, $p < 0.001$). No other correlations with demographic variables reached significance. * $p < .05$, ** $p < .01$

Relationship Between Teacher-Reported and Observed Peer Social Competence

Canonical correlation analyses indicated a significant multivariate relationship between teacher ratings of children's peer play and observations of children's engagement with peers (Wilk's Lambda = .85 criterion, $F(12, 1341.70) = 7.13, p < .001$). Two significant canonical correlations (canonical $R_c = 0.06, p < .001$, and $0.12, p < .001$, respectively) yielded canonical variates indicative of *Prosocial Engagement with Peers* and *Conflict Engagement with Peers*. The canonical variates, *Prosocial Engagement with Peers* and *Conflict Engagement with Peers*, are labeled according to the pattern of the highest loadings from each multivariate construct. Table 3 displays the loadings based on the variate pairs for the two significant canonical relationships.

TABLE 3
Canonical Structure of Fall Teacher Reported (PIPPS) and Observed (inCLASS)
Peer Social Competence

	Canonical Variate Set	
	Conflict Engagement with	Prosocial Engagement with
Play Interaction (<i>PIPPS</i>)	.05	<u>.94</u>
Play Disruption (<i>PIPPS</i>)	<u>.89</u>	-.45
Play Disconnection (<i>PIPPS</i>)	.17	<u>-.78</u>
Peer Sociability (<i>inCLASS</i>)	.36	<u>.80</u>
Peer Assertiveness (<i>inCLASS</i>)	.43	<u>.51</u>
Peer Communication (<i>inCLASS</i>)	.24	<u>.91</u>
Peer Conflict (<i>inCLASS</i>)	<u>.90</u>	-.26

Note. $N = 514$. Entries are standardized structure loadings indicating statistically significant ($p < .001$) canonical relationships.

Loadings $\geq .50$ are considered substantial contributors and are underlined.

The greatest overlap in the *Conflict Engagement with Peers* variate pair was between the PIPPS disruptive peer play dimension and the inCLASS conflict with peers dimension. Squared canonical correlations (similar to R^2 regression statistic) showed that the *Prosocial Engagement with Peers* variate pair accounted for the greatest amount of overlap (5.84%) between the two measures. The *Conflict Engagement with Peers* variate pair accounted for 5.38% of the overlap between the two measures. Redundancy analysis demonstrated that the dimensions of the PIPPS explained 4.7% of the variance in the dimensions of the inCLASS.

Relationship between Peer Social Competence and Gains in Academic Readiness

Standardized parameter estimates are presented in Table 4 for each of the multiple regression analysis models.

TABLE 4
 Fall Teacher Reported (PIPPS) and Observed (inCLASS) Peer Social Competence variables Associated with Spring Academic Readiness Skills, Controlling for Child Age, Sex, and Ethnicity, and Fall Academic Skills

	<i>Spring Academic Readiness Skills</i>							
	Alphabet Knowledge		Vocabulary		Mathematics		Listening Comprehension	
	<i>B</i>	<i>SE</i>	β	<i>SE</i>	β	<i>SE</i>	β	<i>SE</i>
<i>Child Demographics</i>								
Age	1.31***	0.28	1.03**	0.31	0.97***	0.23	1.38***	0.30
Sex	3.55	3.55	3.37	3.26	-1.96	2.25	8.28*	3.44
Ethnicity	10.33**	3.51	-7.14	3.98	7.13*	3.01	-0.20	3.78
<i>Fall Academic Skills</i>								
Alphabet Knowledge	0.39***	0.03						
Vocabulary			0.42***	0.04				
Mathematics					0.53***	0.04		
Listening Comprehension							0.22***	0.04
<i>Fall Peer Social Competence</i>								
<i>PIPPS</i>								
Play Interaction	-0.03	0.25	0.50*	0.24	0.09	0.20	0.13	0.19
Play Disruption	0.01	0.23	-0.15	0.23	-0.22	0.19	0.11	0.24
Play Disconnection	-0.30	0.32	0.36	0.32	-0.26	.26	-0.09	0.27
<i>inCLASS</i>								
Peer Assertiveness	-0.16	2.05	-5.23	2.89	-0.07	1.72	-3.88	2.62
Peer Communication	2.09	1.71	4.01	2.54	1.43	1.70	4.91*	2.12
Peer Conflict	-7.07*	3.61	-3.04	3.92	-8.64**	3.06	-4.51	3.84

Note. Child sex and ethnicity are dummy coded variables, with girls = 1; Hispanic = 1. * $p < .05$, ** $p < .01$; *** $p < .001$

Child age was positively associated with all spring academic readiness skills, with older children demonstrating greater gains in alphabet knowledge, vocabulary, mathematics and listening comprehension skills. Each of the fall academic skill subscales was positively associated with the corresponding spring academic readiness skill.

Unique association between teacher-reported peer social competence and gains in academic readiness. Teacher reported interactive peer play was positively associated with spring vocabulary skills, indicating that children who were rated by teachers with higher interactive play with their peers in the beginning of the year, displayed greater gains in vocabulary skills across the school year. No other associations were found between teacher-reported peer social competence and gains in academic readiness.

Unique association between observed peer social competence and gains in academic readiness. Sociability with peers was not significantly correlated with spring school readiness skills and was highly collinear with other inCLASS peer social competence variables. Therefore, to avoid suppression effects, the observed sociability with peers variable was trimmed from the models that included the inCLASS variables (Friedman & Wall, 2005). Communication with peers was positively associated with gains in listening comprehension across the year, controlling for child demographic variables, indicating that children who engaged in more communication with peers in the fall made greater gains in listening comprehension skills across the year. Observed conflict with peers was negatively associated with gains in alphabet knowledge and mathematics, indicating that children who displayed more conflict with peers in the fall made fewer gains in alphabet knowledge and mathematics across the school year, controlling for child demographic variables.

Moderation by Child Sex

A multiple group analysis tested whether the regression model examining associations between peer social competence and gains in academic readiness skills differed for boys and girls. The regression model was tested allowing the parameters to be estimated freely across boys and girls. A χ^2 difference test was conducted to determine if this model had a significantly better fit than the more restricted model where the parameters were constrained equal across boys and girls. The χ^2 difference test was non-significant, indicating that the two models *did not differ* significantly with respect to the overall fit of the model to these data. Based on these findings, the most parsimonious model (where the parameters were constrained to be equal across groups) was retained (Steiger, Shapiro, & Browne, 1985). Therefore, results suggested that associations between peer social competence and gains in academic readiness were similar for both boys and girls.

DISCUSSION

Current best practice in early childhood assessment supports the use of a comprehensive multi-method, multi-source measurement approach that is validated for use with culturally, linguistically, and economically diverse populations (National Research Council, 2008; Standards; AERA, APA & NCME, 1999). This approach was employed in this study to assess peer social competence in relation to academic readiness for preschool children from low-income families. Results provided support for some degree of concordance between a teacher-reported and an observed measure of peer social competence. In combination, these measures were uniquely and differentially associated with gains in academic readiness skills, with teacher-

reported interactive peer play associated with greater gains in vocabulary and observed communication with peers associated with greater gains in listening comprehension. Additionally, observed conflict with peers was associated with significantly fewer gains in alphabet knowledge and mathematics. Findings support the need to incorporate a comprehensive measurement approach that includes multiple perspectives and methods for examining peer social competence with culturally and linguistically diverse preschool children from low-income backgrounds.

Relationship between Teacher-Reported and Observed Peer Social Competence

Overall, the pattern of correlational results among teacher-reported peer play (PIPPS) and observed engagement with peers (inCLASS) provided evidence of convergence across the two methods of measurement. Consistent with prior research, behaviors that promoted positive engagement with peers, such as initiating or joining in play, were positively correlated across teacher and observer measures (Cumberland-Li, Eisenberg, & Reiser, 2004; Denham et al., 2003; Ladd & Hart, 1992; Vaughn, 2001). Teacher-reported interactive play skills were associated with observed sociability, assertiveness and communication with peers. Conversely, behaviors that interfered with positive engagement with peers during early childhood, namely, teacher-reported disruptive and disconnected play and observed conflict with peers were more highly correlated with each other across methods and sources, and inversely related to the set of prosocial peer engagement behaviors. This set of findings confirms that regardless of measurement method, peer social competence is a multidimensional construct, reflecting multiple dimensions of behaviors that promote and interfere with positive engagement with peers.

In addition, the PIPPS and inCLASS shared common variance in the measurement of the construct of peer social competence. However, the canonical correlation analyses showed that this overlap was low ($R_c = 0.06$ for *Prosocial Engagement with Peers*; $R_c = 0.12$ for *Conflict Engagement with Peers*). This finding is comparable to other early childhood studies documenting low correlations between teacher and parent report measures of children's behavior (Winsler & Wallace, 2002). One potential reason for the low overlap between these two measures is that teachers were asked to rate children's interactions with their peers during play interactions. Observers rated children's engagement with peers across all routine classroom contexts. Furthermore, while both the PIPPS and the inCLASS capture peer social competence broadly, the discrete behaviors that teachers and observers report on may not be completely aligned. This may have contributed to the low overlap between the measures. Despite these limitations, this study is unique in combining both teacher and observer perspectives' that may reveal different, yet equally important aspects of a child's behavior.

Relationship between Peer Social Competence and Gains in Academic Readiness

The unique contribution of the dimensions of the PIPPS and the inCLASS was examined in relation to gains in academic readiness skills, controlling for child demographic covariates and initial academic readiness skills. We found that children who were rated by their teacher with higher interactive play skills in the beginning of the year showed greater gains in vocabulary

skills by the spring. Observed communication with peers was associated with greater gains in listening comprehension across the year. Conversely, observed conflict with peers in the fall was related to fewer gains in alphabet knowledge and mathematics. The pattern of associations is consistent with previous research conducted with preschool children from low-income backgrounds. For example, several studies have found that prosocial engagement with peers is positively associated with gains in academic readiness skills, whereas conflict with peers is negatively associated with academic readiness skills during the preschool year (Bulotsky-Shearer, Bell, Romero & Carter, 2012; Bulotsky-Shearer, Manz et al., 2012; Cohen & Mendez, 2009; Coolahan et al., 2000; Fantuzzo et al., 2004; Ginsburg, Pappas, & Seo, 2001; Ladd, Kochenderfer, & Coleman, 1996; Mendez & Fogle, 2002; Pellegrini, 1984).

Interestingly, we found a consistent pattern of positive associations between prosocial peer engagement and children's gains in language and literacy skills across the year. This finding may be understood within the context of classroom activities provided for children in Head Start programs, where opportunities to practice language and literacy skills are often embedded within free play with peers (McCune, 1995; Vygotsky, 1978). Children in this study who were rated by their teachers and directly observed as displaying greater prosocial behaviors with peers may have had increased opportunities to practice and develop their language and literacy skills through their engagement with other children.

Conversely, children in our study who displayed difficulties engaging with peers early in the year made fewer gains in alphabet knowledge and mathematics skills across the year. Previous research suggests that opportunities to learn the alphabet and practice mathematics are more closely tied to structured instructional times in the classroom; such as whole or small group instruction (Clements, 2002; Clements, Sarama, & DiBiase, 2002; Copley & Padron, 1999; Fuson, Carroll, & Drueck, 2000). It is possible that children who demonstrated conflict behaviors with peers were having difficulty engaging in learning during those more structured, cooperative learning times. Teachers can help reduce the risk of academic difficulty for these children by promoting interactive play in the classroom through the use of evidence-based techniques, such as resilient peer treatment (RPT; Fantuzzo, McWayne & Bulotsky, 2003). Through RPT, teachers pair prosocial children with less socially skilled children. Studies of RPT with Head Start children have demonstrated increased collaborative peer play interactions among both the prosocial and less socially skilled children following the intervention (Fantuzzo, Manz, Atkins, & Meyers, 2005).

Moderation by Child Sex

Findings from the multiple group models indicated no difference in the association between peer social competence and gains in academic readiness skills for boys and girls. While developmental research suggests that sex differences in mean levels of social competence and academic skills begin to emerge in preschool (Bulotsky-Shearer, Bell, Romero & Carter, 2012; Keenan & Shaw, 1997; Mendez, Fantuzzo, & McDermott, 2002), findings are mixed as to whether the association between social competence and academic skills differs across child sex (Bierman et al., 2009; Zevenbergen & Ryan, 2010). It may be that, in preschool, the relationship between children's engagement with peers within the classroom and academic readiness is similar for boys and girls at this early age. Few studies in early childhood have examined whether this association differs for boys and girls and future research is warranted. The

consistency of associations regardless of child sex in this study may suggest however, that interventions and curriculum targeting peer social competence and academic readiness in Head Start may not have to be tailored separately to boys and girls.

Limitations and Future Directions

Despite this study's contribute, there are several limitations that must be acknowledged. Due to the high correlation across fall and spring academic skill scores, there was limited variance remaining in the academic outcomes to be predicted by the peer social competence variables. Child age and fall academic readiness skills were strongly associated with spring academic readiness skills, limiting the degree to which peer social competence variables could uniquely contribute to academic outcomes. This is consistent with prior research suggesting that child demographic variables and prior academic skills account for a high amount of variance in future academic achievement (Duncan et al., 2007; LaParo & Pianta, 2000; Meisels, 1996, 1999; Tramontana et al., 1988). Although few statistically significant direct relationships between social-emotional skills and gains in academic readiness emerged in our final regression models, the results contribute to the broader field by demonstrating consistent patterns of associations between peer social competence and gains in academic readiness, using a rigorous approach to assessment in an at-risk sample. Future studies should consider studying this association across a longer period of time, perhaps as children transition into kindergarten. Having multiple assessment points across a longer period of time, may aid in identifying social-emotional contributors to children's academic skills by allowing children more time to change and by capturing greater variability in academic growth trajectories (Singer & Willet, 2003).

Additionally, while the inCLASS was selected based on rigorous empirical support and utility with Head Start children, recent research with the inCLASS suggests that there is variability in children's engagement with peers across activity settings. For example, during free play or outdoor time, children have a greater degree of choice and opportunity to engage with peers, and this is associated with higher positive engagement with peers (Booren et al., 2012; Vitiello, Booren, Downer & Williford, 2012). In this study, observations of children's peer engagement were conducted across the preschool day while children naturally cycled through multiple activity settings such as whole group, small group, or free play. While beyond the scope of this study, future work should focus on developing analytic methods to account for activity settings and perhaps weight children's peer engagement scores according to the opportunities present for children to interact with their peers. This may provide a more accurate assessment of children's peer engagement skills that can be used to better understand and support children's unique competencies and needs within the peer context.

Lastly, given that each child has a unique pattern of competencies and needs, developmental researchers are beginning to use child-centered analytic approaches, such as latent profile or cluster analyses. These types of analyses allow for the identification of distinct subgroups of children who exhibit similar patterns of skills or behaviors in the classroom (DiStefano & Kamphaus, 2006). While variable centered approaches, like the one used in this study, are useful in identifying linear associations among variables (such as peer social competence and early academic readiness), child-centered approaches may be useful in understanding the unique pattern of peer social competence within children (such as identifying subgroups of children who share common patterns of competencies or needs within peer

interactions). It is likely that certain groups of children who display different patterns of peer social competence may vary in their level of academic and social risk. Therefore, identifying children's initial patterns of competencies and needs may tell us more about how children are able to take advantage of learning interactions within the classroom (Konold & Pianta, 2005; McWayne & Bulotsky-Shearer, 2013; McWayne, Hahs-Vaughn, Cheung & Green Wright, 2012; Sabol & Pianta, 2012). This type of approach is an important complement to a variable-centered approach, and may be useful particularly with samples of children from low-income backgrounds, to identify those subgroups of children in most need of targeted intervention efforts prior to kindergarten entry (Mendez, Fantuzzo, & Cicchetti, 2002; Ramey & Ramey, 1998).

Implications for Policy and Practice

Both researchers and practitioners have called for assessments that have practical utility and directly inform curriculum planning and intervention (Hirsh-Pasek et al., 2005). Assessment tools that rely on observations of children's behavior as they emerge within routine classroom activity settings lend themselves more easily to classroom instructional activities implemented by the teacher than direct assessments of isolated skills (Meisels, 1999). In addition, incorporating multiple perspectives on children's development from those individuals most proximal to the child is critical to inform a comprehensive understanding of their developmental competencies and needs (Fantuzzo, McWayne, & Bulotsky, 2003). Teachers are key informants when assessing children's behavior, but their individual perspectives may contain variance associated with their perspective, rather than the child's skills (Waterman et al., 2012). In contrast, observers are able to be more objective as they are free from prior knowledge of the child, but they only see a snapshot of the child's behavior during a circumspect moment in time. Therefore, combining the strengths of these two perspectives can provide a comprehensive picture of children's competencies with peers in the classroom that could be used to inform interventions with children in the Head Start classroom.

Of concern, are children with difficulties engaging with their peers in Head Start classrooms who we, and others, have found are at risk for missing out on early learning opportunities, which may set them further behind academically as they transition to kindergarten (Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Fantuzzo et al., 1998; Ladd, Kochenderfer, & Coleman, 1996). Thus, a comprehensive, multi-method approach to assessing peer social competence within the classroom can help to identify those children at greatest risk for poor academic readiness and aid in teachers' selection and implementation of interventions that build on children's strengths while targeting areas of difficulty within everyday routines in the classroom.

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