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PREDICTORS OF PRESCHOOL CHILDREN'S PEER INTERACTIONS:
TEMPERAMENT AND PROSOCIAL BEHAVIOR

by

Ibrahim H. Acar

A THESIS

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PREDICTORS OF PRESCHOOL CHILDREN'S PEER INTERACTIONS:
TEMPERAMENT AND PROSOCIAL BEHAVIOR

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University of Nebraska, 2013

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The current study was a correlational study that examined children's temperament (inhibitory control and shyness) and prosocial behavior as predictors of preschool-aged children's peer interactions. The current study also examined the moderating effects of inhibitory control and shyness on relation between children's prosocial behavior and peer interactions. Participants were 40 children (19 boys) aged from three to five enrolled in eight different preschools in a Midwestern city. It was hypothesized that children's prosocial behavior and temperament (inhibitory control and shyness) would be correlated with preschool children's peer interactions, operationalized as sociability, communication, assertiveness, conflict, and a composite peer interactions domain. Results revealed that there was not a significant association between prosocial behavior and peer interactions. However, there was a significant difference between boys and girls on prosocial behavior, with girls scoring higher than boys on average. Prosocial behavior did not significantly differ by age. Inhibitory control was inversely correlated with conflict. Children's shyness was significantly and negatively correlated with conflict. Results also revealed that there was no moderating effect of inhibitory control and shyness on the relation between prosocial behavior and peer interactions. Limitations of the current study and future directions are also discussed.

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CHAPTER 1

INTRODUCTION

Young children's peer interactions in preschool years are important for nourishing their social, cognitive, academic, emotion regulation, and reciprocal communicative skills (Buhs & Ladd, 2001; Guralnick, Neville, Hammond, & Connor, 2007; Klein & Mannuzza, 1991; Ladd & Birch, 1999; Lynn Martin, Fabes, Hanish, & Hollenstein, 2005; Malecki & Elliot, 2002; Wentzel, 1999). Peer interactions in preschool-aged children refer to behavioral processes that happen verbally or physically among friends or peer groups (Ladd, 2005). Peer interactions established in preschool years influence children's future development (Buhs & Ladd, 2001). Preschool-aged children's peer interactions are influenced by several factors including social competence, prosocial actions of peers and their own, environmental settings, and temperamental characteristics (Coplan & Arbeau, 2009; Eivers, Brendgen, Vitaro, & Borge, 2012; Fabes, et al., 1999; Pianta, La Paro, & Hamre, 2008; Raskauskas, Gregory, Harvey, Rifshana, & Evans, 2010). Several studies have shown associations between temperamental characteristics and children's prosocial behavior; however, it is not known how specific temperamental characteristics affect preschool-aged children's peer interactions, and also how the combination of prosocial behaviors and temperamental characteristics affect preschool-aged children's peer interactions. To address this gap in the research, the present study had three main aims. The first aim was to examine the role of prosocial behavior of preschool children in predicting preschool-aged children's peer interactions. The second aim was to examine specific temperamental characteristics, inhibitory control and shyness, as predictors of preschool-aged children's peer interactions. The third aim of the present study was to

examine preschool-aged children's prosocial behavior and temperamental characteristics as predictors of their peer interactions.

Review of Literature

The literature review begins by exploring the importance of peer interactions in early ages. Following that, temperament and prosocial behavior as predictors of peer in interaction in preschool years is reviewed. Age and gender associations with temperament and prosocial behavior are also summarized.

The Importance of Peer Interactions in Preschool Years

Peer interaction refers to the social exchange between two or more children (Rubin, Bukowski, & Parker, 2006); in this vein, peer interactions refer to the interactive and reciprocal interactions that happen among preschool-aged children who share the same social context and relatively similar developmental stage (Ladd, 2005). Peer interactions play a predictive role for school readiness and social adjustment (Ladd, Kochenderfer, & Coleman, 1997). In their longitudinal study, Ladd and Price (1987) found that children who were more cooperative during play activities with peers in preschool were seen as more sociable in kindergarten by teachers, and children who had positive interactions with peers in preschool were liked more by their peers in kindergarten.

Young children begin to experience peer influences in the preschool years through structured and unstructured play, which in turn helps them to develop social behaviors, peer-related preferences, relationships, and either positive or negative dispositions and demeanors in peer interactions (Bierman, 2004; Lynn Martin et al., 2005).

Peer interactions in the preschool years are also important for children's social development and moral growth (Damon, 1999; Howes & Tonyan, 1999; Szewczyk-Sokolowski, Bost, & Wainwright, 2005). Preschool children learn prosocial behaviors such as taking turns, helping, and cooperation during structured and unstructured activities through peer interactions (Eisenberg, Fabes, & Spinrad, 2006). In addition to prosocial behavior, peers interactions help children to regulate their emotions and behaviors (Denham, 2007; Doll, Murphy, & Song, 2003). For example, preschool children empathize with one another when their peers are in need (Ito, 2006).

Early friendships are also established through peer interactions in the preschool years. Children can be affected by early peer interactions and/or friendships either negatively or positively (see Bierman, 2004; Hartup, 1996, for review). Some friendships provide camaraderie that supports children, whereas others can result in conflict or damage the bond of friendship (Sebanc, 2003). For example, negative peer relations have been associated with aggressiveness, shyness, negative self-perception, and compliance problems for children (Asher, 1990; Ladd et al., 1997). Peer interactions in early childhood have short term and long term consequences depending on whether they are negative or positive (Boivin, Hymel, & Bukowski, 1995; Eivers et al., 2012; Estell et al., 2008; Ladd & Kochenderfer, 1996). Positive peer interactions in preschool years catalyze children's school readiness, academic learning abilities in elementary school, social competence, emotional regulation, and cognitive abilities (Deater-Deckard et al., 2001; Ladd & Birch, 1999; Ladd et al., 1997; Spangler Avant, Gazelle, & Faldowski, 2011). For example, children who had positive interactions with peers in childcare had better social and communicative skills with peers in third grade, were less aggressive, and

showed more cooperative skills with peers (National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 2008). Similarly, Howes (2000) reported that children who had more complex-rated peer interactions in preschool displayed more prosocial behaviors with peers in second grade.

On the other hand, negative peer interactions in early childhood have detrimental behavioral outcomes such as limited classroom engagement, peer rejection, and problems for the future development of teacher-child interactions (Deater-Deckard et al., 2001; Estell et al., 2008; Ladd & Burgess, 1999; Ladd et al., 1997). For example, Ladd and Burgess (1999) found that aggressiveness in children was fairly stable from kindergarten to grade two, and children who were aggressive in kindergarten experienced peer rejection, victimization, friendlessness, and interaction problems with teachers and peers in early school grades. In addition, children who experienced peer rejection at an early age tended to have depression, display aggressive behaviors, experience loneliness, and drop out of school in later ages (Estell et al., 2008; Ladd & Kochenderfer, 1996; Szewczyk-Sokolowski et al., 2005).

Given the importance of early peer interactions, parents and teachers encourage preschool-aged children to have positive peer interactions and establish positive friendships. For example, parents often take their children to group activities in neighborhoods or at church. Additionally, teachers reinforce and support young children's peer interactions through play activities in preschool. Overall, positive peer interactions established and maintained in the preschool years are vital to the foundation of children's later development throughout the lifespan (Guralnick, 1993; Ladd, 2005).

Preschool-aged children's peer interactions occur within indoor and outdoor classroom environments. Therefore, school environments may increase or decrease learning capacity of children and affect both children's and teachers behaviors (i.e., concentration, engagement) and attitudes (i.e., motivation and self-esteem) (Horne-Martin, 2006), as well as interactions with peers and teachers (Howes & Ritchie, 2002). Sameroff and Mackenzie (2003) pointed out in their Transactional Model of Development that children develop through bidirectional interactions between children and the experiences through his or her family and social context.

Predictors of Peer Interactions in Preschool-aged Children

The main predictors of peer interactions in early childhood include personal characteristics, likability, popularity, prosociality, aggressive/disruptive behaviors with peers, and temperament (Coplan & Arbeau, 2009; Eivers et al., 2012; Fabes et al., 1999). Prosocial behavior and temperament are considered as predictors of peer interactions in this study.

Prosocial Behavior and Preschool-aged Children's Peer Interactions

Prosocial behaviors have been found to relate to preschool children's peer interactions (Ito, 2006; Nelson, Robinson, & Hart, 2005; Eivers et al., 2012). Prosocial behavior is defined as "actions that are intended to aid or benefit another person or group of people without the actor's anticipation of external rewards" (Mussen & Eisenberg-Berg, 1977, p.3). Peer interactions and prosocial behavior work reciprocally in early childhood; prosocial behaviors play a role in the establishment of positive peer interactions, friendships, playmates, and regulation of emotion in peer interactions (Cohen, 2001; Eisenberg et al., 2006; Eivers et al., 2012; Nelson et al., 2005). In turn,

children who have positive peer interactions in preschool years frequently demonstrate prosocial behaviors towards peers (e.g., sharing, cooperating, and comforting) (Eisenberg, et al, 2006; Sebanc, 2003). Demonstrating positive relationships with peers, joining play, behaving prosocially, being cooperative, and taking turns are critical social skills for young children (Rubin et al., 2006). In this vein, self-reported prosocial behavior of 5 year-olds was positively correlated with the frequency of observed associative play where children play together (Ito, 2006). Children who are willing to share materials, prompt other children to start play, and take turns properly are good at interpersonal relations, so they are considered as a good friends by peers (Bierman, 2004). Additionally, Persson (2005a) found that preschool-aged children's prosocial behavior is concurrently and longitudinally associated with being the recipient of prosocial behaviors from peers.

The development of prosocial behaviors in early childhood is also tied to the development of social-emotional competence, perspective taking, and self-motivation (Eisenberg et al., 2006; Eisenberg et al., 1996; Sebanc, 2003). Social-emotional competence, defined as a “sustaining positive engagement with peers” and “effectiveness in interaction” (Rose-Krasnor & Denham, 2009; p.163), is associated with prosocial behavior (Ladd, 2005). Development of social competence includes the capabilities of social-cognitive and emotional regulation skills (Eisenberg et al., 2006). These capabilities give children skills to adapt to and behave prosocially in situations that require sensitive responding (Eisenberg et al., 2006; Sebanc, 2003). Additionally, regularly exhibiting prosocial behaviors (positive peer relations, peer acceptance) plays a predictive role for social competence (Ladd, 2005). For example, socially competent

children who are more willing to share voluntarily and help with no expectation of reward can easily enter play groups because they are likely to be friends with children within the play group (Eisenberg et al., 1981; Howes & Tonyan, 1999).

Empathy is also one of the important factors that influence development of prosocial behaviors of children (Hinnant & O'Brien, 2007). Empathy refers to the effective response to the emotional situation of another that is similar to other's emotional state (Eisenberg et al., 2006). Research has shown that children with empathic competence tend to exhibit prosocial behaviors such as helping and cooperating with peers. In addition, they are accepted and liked by peers (Eisenberg et al., 1987; Hinnant & O'Brien, 2007). In summary, prosocial behaviors promote positive peer interactions in preschool years, and in turn, positive peer interactions contribute to prosocial behavior development.

Some research has investigated the stability of prosocial behaviors across time. Eisenberg et al. (1987) conducted a longitudinal study examining changes in prosocial moral judgment from age of 5 to age of 12, and found that empathy and moral reasoning increased over time, and empathy was related to prosocial reasoning. Consistent with that, in a longitudinal study on children from ages 4 -5 to early adulthood, Eisenberg et al. (1999) found that sympathy had played a partially moderating role on the relation of early spontaneous sharing and later prosocial dispositions in adolescents. Meaning that, children who had showed sympathy in early ages were prone to share spontaneously in adolescents. In addition, Eisenberg et al. (1995) found correlations between prosocial moral judgment and self-reported prosocial behavior over 4 years. Based on the research, it appears that there is stability of prosocial behaviors over time, however, most of the

research was based on correlations and self-reports. Consistent with previous findings, Caprara, Barbaranelli, Pastorelli, Bandura, and Zimbardo (2000) through a longitudinal study found that early prosocial behavior of children predicted social preference (impact coefficient= .62) and academic achievement (impact coefficient=.52) 5 years later. In addition to empathy and other prosocial behavior predicting later behavioral outcomes, Hastings, Zahn-Waxler, Robinson, Usher, and Bridges (2000) through their longitudinal study, found that higher concern at age of 4-5 predicted declines in the stability of externalizing behavioral problems by age of 6-7, and this predictive role of concerning continued to age 9-10.

Age, Gender, and Prosocial Behavior

Eisenberg and Mussen (1989) predicted that sex, age, some personality traits, sociability, self-esteem, and emotional regulation are also predictors of prosocial behavior. Several studies have shown that associations between age, gender, and prosocial behavior development or expression towards peers (Persson, 2005a; Persson, 2005b; Zahn-Waxler, Cole, Welsh, & Fox, 1995). Prosocial behavior tends to increase with age across the preschool years (Benenson, Markovits, Roy, & Denko, 2003; Eisenberg et al., 2006). Therefore, demonstration of prosocial behaviors of children has been found to increasingly develop by age (Farver & Branstetter, 1994; Persson, 2005b; Zahn-Waxler et al., 1995). For example, children display prosocial behaviors sporadically during the first 2 years of life (Hay & Cook, 2007), and more frequently in preschool years (Eisenberg et al., 2006). In one longitudinal study, children who exhibited prosocial behaviors at 17 months of age continued exhibiting prosocial behaviors at 29 and 41 months of age. In addition, children who had not started exhibiting prosocial behaviors at

29 months of age exhibited prosocial behaviors the following year (Baillargeon, et al., 2011).

Gender-based differences have been found in the exhibition of prosocial behaviors in early ages (see Baillargeon, et al., 2011; Eisenberg et al., 2006; Farver & Branstetter, 1994; Persson 2005b, for review). Persson (2005b) found through a longitudinal study that altruistic behaviors of girls exceeded that of boys at the end of preschool. Additionally, girls between 29 -41 months of age were more likely to start exhibiting prosocial behaviors, and in the meantime, boys were more likely to stop prosocial behavior than girls were (Baillargeon et al., 2011). Several research studies have suggested that girls were more open to maternal influences than boys in terms of exhibiting prosocial behaviors (Hastings et al., 2000; Hastings, Rubin, & DeRose, 2005). Therefore, girls in early ages demonstrated more prosocial behaviors than boys did (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Hastings, et al., 2005).

Temperament and Preschool-aged Children's Peer Interactions

Temperament in childhood is considered as a central characteristic that influences personality, emotionality, and social behaviors (see Berdan, Keane, & Calkins, 2008; David, 2007; Rothbart, Ahadi, & Evans, 2000; Sterry, et al., 2010, for relevant review). Temperament is defined as relatively stable, *constitutionally* based individual differences in reactivity and self-regulation (Rothbart, 2011; Rothbart & Bates, 2006; Rothbart & Derryberry, 1981). *Constitutionally* refers to biological foundations of temperament that are structured by heredity and experiences (Rothbart & Bates, 2006). One dimension of temperament, *reactivity*, refers to the intensity of arousability or responsivity of the individual to the environment or situations (Rothbart, Derryberry, & Hershey, 2000).

Self-regulation refers to processes within an individual that regulate reactivity including attention, avoidance, behavioral inhibition, and effortful control (Rothbart, 1991).

Although temperament has been defined differently by different researchers, most of them have agreed that temperament is biologically based, developed through interacting with the environment at an early age, and relatively stable across time (e.g., Buss & Plomin, 1986; Kagan, 2003; Keogh, 2003; Rothbart & Derryberry, 1981; Thomas & Chess, 1986).

The interactions between temperamental factors, socialization factors, and setting condition factors (i.e., environmental circumstances; poverty, crowding and socio-ecological conditions which affect familial relations) that affect peer relations may influence social isolation of children (Rubin, LeMare, & Lollis, 1990). More specifically, temperament is an internal characteristic that has been identified as a predictor of peer interactions and behaviors toward peers. In this vein, temperamental characteristics have been found to associate with children's prosocial skills such as negotiating, conflict resolution, sharing, helping, acting prosocially with peers and teachers, peer acceptance and school adjustment in early childhood (Gleason, Gower, Hohmann, & Gleason, 2005; Rudasill, 2011; Rudasill & Konald, 2008; Sanson, Hemphill, & Smart, 2004; Sterry et al., 2010). Specifically, children's temperamental characteristics indicating better regulation and less reactivity predict positive peer relations and friendship nominations (Gleason et al., 2005; Sanson et al., 2004; Sterry et al., 2010; Valiente et al., 2003). Some researchers examined temperament as a whole concept (Szewczyk-Sokolowski et al., 2005), whereas others have examined specific dimensions of temperament (Gleason et al., 2005; Parker-Cohen & Bell, 1988; Valiente et al., 2003) as predictors of peer interactions of preschool

children. Szewczyk-Sokolowski et al. (2005) investigated relations among temperament, attachment, and peer acceptance of preschool children and found that a difficult temperament reported by mothers was not related to peer acceptance but was related peer rejection, meaning negative peer nominations.

A difficult temperament refers to consolidation of different temperamental characteristics that are bold or more reactive and less well-regulated (Pleuss & Belsky, 2009; Thomas & Chess, 1986). On the other hand, easy temperament refers to easy adaptability, quick to calm down, and making smooth transitions from one situation to another (Thomas, Chess, Birch, Hertzog, & Korn, 1963). For example, children with easy temperament were more likely to interact positively with peers and therefore they were desirable and popular to play with in preschool years (Farver & Branstetter, 1994). In addition to relations between peer acceptance and temperament, Parker-Cohen and Bell (1988) conducted a longitudinal study investigating initial and later influences of temperament individually and in constellational groups on social behavior. Their findings suggested that in children with high activity approach would be more responsive to peers when they come to a new preschool setting; for later social behavior, they only found that high activity/approach was related to later social behavior. As they expected, they reported that easy children were more socially responsive to peers. Although Parker-Cohen and Bell's study provided insight into temperament and peer sociability, it was limited in that it was based on only teacher-reported temperament. In the same perspective, Gleason et al. (2005) found that soothability for girls and impulsivity for boys in preschool-aged children are predictors of friendship nomination, and Sterry et al. (2010) found that general activity, flexibility-rigidity, and attentional focus were

temperamental predictor of the peer acceptance; “peer like ratings were associated with lower general activity, greater flexibility, and greater attentional focus. Additionally, higher popular/leadership and prosocial scores were associated with lower general activity and greater attentional focus” (p. 199-200).

As is evidenced, temperament is related to social behaviors of children. Meaning that, temperament influences social interaction, behaviors, and emotional regulation in early childhood (Eisenberg et al., 2000; Fabes et al., 2002). Given the importance of temperament as a predictor of preschool children’s peer interactions, inhibitory control that is sub-dimension of effortful control (Rothbart, 2011) and shyness was used as temperamental characteristics that predict preschool children’s peer interactions.

Effortful control is conceptualized as the capability to regulate/control one’s emotions, and is more generally considered as self-regulation (Rothbart, 2011). Effortful control develops rapidly between ages of 2 to 7 years (Rothbart et al., 2003). Valiente et al. (2003), through their longitudinal study, found that effortful control was negatively related to externalizing behaviors and predicted peer relations over time during the preschool years. Children with high effortful control are likely to be prosocial, high in social competence, and relatively low in problematic behaviors (Eisenberg et al, 2000; Garstein et al., 2012; Rothbart & Bates, 1998; Valiente et al., 2003). Regulating emotions and inhibiting disruptive/aggressive behaviors in peer interactions helps children to have more positive peer relationships and friendly interactions (Fabes et al., 1999); in turn, children who are exposed to intense levels of negative emotions frequently tend to behave more impulsively, negatively, and are less well-regulated than children with less negative emotional arousal (Rothbart et al., 1994). Additionally, Fabes et al.

(2002) found that children who are high in negative emotional intensity and have difficulty in regulating this negative emotional arousal are at risk for social withdrawal and/or poor peer relations.

Inhibitory control is a sub-concept of effortful control based on inhibiting inappropriate behavior and replacing it with appropriate behaviors (Rothbart & Bates, 2006). Inhibitory control has been documented as a predictor of positive peer interactions in preschool-aged children (see Sanson et al., 2004), and it is also associated with prosocial behaviors with peers (Eisenberg et al., 2000; Rothbart & Bates, 1998; Valiente et al., 2003). Children who are able to inhibit their inappropriate behaviors towards peers were more likely to be nominated as a playmate (Valiente et al., 2003). Sanson et al. (2004) stated that controlling inappropriate behaviors is a predictor of positive behavior outcomes with peers (Sanson et al., 2004), meaning that children who are able to inhibit inappropriate behaviors are more likely to have positive peer interactions. For example, observations and parent-reported inhibitory control of children were related to internalized adaptation, rule-orientation, and low egocentric and antisocial behaviors in response to an imaginary crisis (Kochanska, Murrey, & Coy, 1997; Kochanska, Murrey, Jacques, Koenig, & Vandegeest, 1996).

Shyness is another temperamental domain that affects peer interactions in early childhood (Coplan, Prakash, O'Neil, & Armer, 2004; Rubin et al., 2009). Behavioral inhibition and shyness are conceptually and empirically related, so they have been used interchangeably in some studies (e.g., Eisenberg et al., 2009; Fox, Henderson, Rubin, Calkins, & Schmidt, 2001). Kagan (2003) stated that infants are born with temperamental dispositions to be inhibited or uninhibited. The child with *inhibited* temperament is

constantly shy, not willing to speak, cautious, emotionally withdrawn (not willing to show emotions), and apprehensive when encountering unfamiliar events, people, or situations (Kagan, 1992; 1997; Kagan, Reznick, & Snidman, 1987). On the other hand, the child with an uninhibited temperament is consistently sociable, talkative, affectively spontaneous, and displays minimum fearfulness when encountering unfamiliar events, objects, people, or situations (Kagan, 1992; Kagan, Reznick, & Gibbons, 1989; Reznick, et al., 1986).

Shyness or behavioral inhibition has been considered as a stable temperamental characteristic in early childhood (Calkins & Fox, 1992; Moehler et al., 2008). The findings from Calkins and Fox's (1992) study suggest that negative reactivity in infancy predicts early irritability, insecure attachment, and inhibited behaviors in toddlerhood. Early reactivity in infancy and toddlerhood may predispose later types of social problems in childhood (Fox & Calkins, 1993). For example, infants with high reactivity, exuberant motor behavior, and crying response to unfamiliar action demonstrated higher rates of inhibited behavior at 14 months of age than children low in both crying and motor reactivity (Moehler et al., 2008). Consistent with that, Bohlin, Hagekul, and Anderson (2005) found that behavioral inhibition was significantly stable from infancy to age of 4. Shy, inhibited children are more likely to be unpopular among peers and more likely to be rejected by peers due to their fear of approaching to new situations and people (Kagan, 1997; Rubin et al., 2009). For example, Dunn and Cutting (1999) found that shy preschool-aged children (4 years-old) were limited in responding to peers, meaning that shy children kept themselves from answering back to peers verbally, likely due to fear of approaching and understanding emotions of peers. Additionally, Asendorpf (1991, 1993)

found that temperamentally shy children who responded to strangers with social fear in kindergarten were inclined to not participate in group activities at the beginning of the first grade. Similarly, Rothbart (2011) suggested that if a child had several bad experiences, such as disapproval in group activities, frequent rejection by peers, or lack of interaction and approach to/from peers, the child may develop a shy disposition. Shy children are less likely to join peer interactions, so they may not have opportunities to practice prosocial actions (e.g., sharing, helping, comforting, and cooperating) with peers. In summary, behavioral inhibition, social withdrawn behavior, and shyness (which all are interrelated) are predictors of peer rejection and victimization in the preschool years (Coplan, Arbeau, & Armer, 2008; Gazelle et al., 2005).

The Present Study

The main goal of this study was to examine predictors of preschool-aged children's peer interactions. Although several empirical studies have examined internal characteristics such as temperament and social characteristics such as prosociality as correlates of peer interactions in childhood, no integrated correlates-based hypothesis has been investigated to my knowledge. Given evidence of prosocial behavior and temperament as correlates of peer interactions of preschool-aged children, it is essential that these correlates be integrated and analyzed individually and in concert to examine the role of temperament, prosocial behaviors, and temperament and prosocial behavior together as predictors of peer interactions in preschool-aged children. Identifying such an integrative model may provide an alternative to existing conceptualizations of prosocial behavior as a predictor of peer interactions, temperament as a predictor of peer interactions with peers, and temperament and prosocial behavior together as a predictor

of the peer interactions in preschool-aged children. Peer interactions were operationalized as the peer interaction-domain which consisted of the dimensions peer interaction-sociability (PI-Sociability), peer-interaction-communication (PI-Communication), peer interaction-assertiveness (PI-Assertiveness), and peer interaction-conflict (PI-Conflict). Peer sociability refers to children's positive interactions in terms of emotions and behaviors such as social awareness, positive responsiveness, and being liked by peers; peer communication refers to children's initiations and maintaining of conversation with peers; peer assertiveness refers to children's leadership and initiative experiences in peer groups such as using positive strategies to start off a free play, and peer conflict refers to children's negative interactions with peers including tension, rejection, and complaining (Downer, Booren, Lima, Luckner, & Pianta, 2010).

The purpose of the present study is to examine temperament (inhibitory control and shyness) as predictors of peer interactions in preschool-aged children. In addition, potential moderating associations were examined. Specifically, inhibitory control was examined as a moderator of the association between prosocial behavior and children's peer relationships, and shyness was examined as a moderator of the association between prosocial behavior and children's peer relationships.

The following hypotheses were tested:

Research Question 1: Is there an association between prosocial behavior and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Hypothesis 1: Children's prosocial behavior will be associated with children's positive peer interactions as a whole domain and positively associated with the component

dimensions of PI-Sociability, PI-Communication, and PI-Assertiveness, and inversely associated with PI-Conflict.

Research Question 2: Is there an association between inhibitory control and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Hypothesis 2: Children's inhibitory control will be associated with children's positive peer interactions as a whole domain and positively associated with PI-Sociability, PI-Communication, and PI-Assertiveness and negatively associated with PI-conflict.

Research Question 3: Is there an association between shyness and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI-Conflict)?

Hypothesis 3: Children's shyness will be negatively associated with children's peer interactions as whole domain and negatively associated with the components of PI-Sociability, PI-Communication, PI-Assertiveness, and PI-conflict.

Research Question 4: Does inhibitory control moderate the association between prosocial behavior and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Hypothesis 4: The interaction term of inhibitory control and prosocial behavior will be positively associated with PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and negatively associated with PI-Conflict.

Research Question 5: Does shyness moderate the association between prosocial behavior and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Hypothesis 5: The interaction term of shyness and prosocial behavior will be significantly associated with PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and negatively associated with PI-Conflict. Children who are high on shyness and low on prosocial behavior are expected to score lower on the PI-Domain, PI-Sociability, PI-Communication, and PI-Conflict.

CHAPTER 2

METHODS

Overview

This research was designed as a correlational study of preschool-aged children's peer interactions. Children's temperamental characteristics (shyness and inhibitory control) and prosocial behavior were examined as predictors of peer interactions.

Participants

Participants were recruited from an ongoing study "Child Characteristics and Classroom Processes: Promoting Learning in Preschool," conducted by Drs. Kathy Rudasill and Tori Molfese at University of Nebraska-Lincoln. Participants were 40 children (19 boys, 21 girls) enrolled in eight different preschools in a Midwestern city. The majority (85%) of participating children were white, 5% Latino, and 7.5% multi-race. Children's ages ranged from 31 months to 57 months ($M = 45.67$ months, $SD = 5.19$ months) at Time 1 (Fall 2011) and ranged from 52 months to 69 months ($M = 57.43$ months, $SD = 3.88$ months) at Time 2 (Fall 2012). One-third (33%) of parents finished a four-year college degree and 85% of the parents finished at least one year of college. All parents finished at least 8th grade and 97.1 % of the parents finished high school. A majority (78.9%) of parents was married, 5.3% of the parents were divorced, and 15.8% of parents were single. A majority (94.9%) of parents was from English-speaking households and 5.1% of the parents were from dual-language speaking households. Annual family income ranged from 5-15K to 95K and higher. Parents were generally high income, with 7.9% reporting an annual household income of between \$5,000 and

15,000 and 44.7% reporting as \$95,000 and higher as the highest household income. The demographic information of this sample is provided in Table 1.

Measures

Demographic information: Parents completed a questionnaire with demographic information such as child's gender, age, race, and language that is spoken at home, as well as respondent's age, marital status, level of education, and family income. For the complete Demographic Questionnaire, see Appendix A.

Prosocial Behavior: A subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was used to assess each target child's prosocial behavior. For the complete SDQ, see Appendix B. The SDQ is a brief screening instrument to assess 3-16 year old children's positive and negative behavioral attributes. Either parents or teachers can complete the SDQ, and teacher report was used in the present study because teachers may have more opportunities to observe peer interactions in social contexts in preschools than parents do. The SDQ has been used with preschool-aged children (Hughes, White, Sharpen, & Dunn, 2000; Leeuwen, Thierry Bosmans, & Leen Braet, 2006). Eivers et al. (2012) used the Prosocial subscale to measure preschool-aged children's prosocial behavior with teacher's report. Some researchers (e.g., Marzocchi et al., 2004; Leeuwen, Thierry Bosmans, & Leen Braet, 2006) have validated the SDQ cross-culturally. The SDQ includes 25 items and measures five domains: emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relation problems (5 items), and prosocial behavior (5 items). Some of the prosocial items of the SDQ are "considerate of other's feeling," "shares with other children," and "often offers help to others." Each SDQ subscale is measured on a three-point scale: "not true", "somewhat

true,” and “certainly true.” Goodman (2001) found satisfactory reliability of the SDQ (mean Cronbach $\alpha = .73$). For the present study the internal consistency of 5 items was good ($\alpha = .77$).

Peer Interactions: The Individualized Classroom Assessment Scoring System (inCLASS; Downer et al., 2010; Vitiello, Booren, Downer, & Williford, 2012) was used to measure children’s peer interactions and behaviors. For the complete inCLASS, see Appendix C. The inCLASS is an observational instrument to measure children’s competencies in preschool classrooms regarding interactions with teachers (adults), peers, and tasks. The inCLASS measures three domains: Teacher Interactions, Peer Interactions, and Task Orientation. Each domain has its own dimensions, with a total of 10 dimensions: Teacher Interactions includes positive engagement, teacher communication, and teacher conflict. Peer interactions include peer sociability, peer communication, peer assertiveness, and peer conflict. Task orientation includes engagement within tasks, self-reliance, and behavior control.

In the present study, the Peer Interactions scores were used to measure peer interactions. Each dimension has indicators such as proximity-seeking, leadership, and physical awareness, and is scored on a 7-point scale. To measure children’s competency in these domains, each child was observed by a trained observer for four 15-minute cycles comprised of 10 minutes of observation and 5 minutes of scoring. Each child was observed 4 times in the same day in different settings. Inter-rater reliability was conducted on 7.5 % of the observations, which were simultaneously conducted by two observers. An inter-rater reliability analysis using the Kappa statistic was performed to determine consistency among raters (mean kappa = .48). Downer et al. (2010) reported

internal consistency of the Peer Interactions as .92. For the present study the internal consistency of the Peer Interaction domain was good ($\alpha=.79$ without reversed scores of Conflict dimension and $\alpha=.75$ with reversed scores of Conflict dimension).

Children's Temperament: Children's temperament was measured via teacher and parent report on the Children's Behavior Questionnaire (CBQ: Putnam & Rothbart, 2006; Rothbart, Ahadi, & Hershey, 1994) in fall and spring semester. For the complete CBQ, see Appendix D. The CBQ is a 195-item questionnaire with 15 scales to measure temperament of children ages 3 to 8 years. Parents' rating on temperament was used for the current study. Parents completed a shortened version of the CBQ reflecting seven temperament dimensions. In fall 2012 (Time 1), parents rated their children's temperament on 7-point scale ranging from 1=extremely untrue of your child to 7=extremely true of your child.

For the purpose of the present study, only the Shyness and Inhibitory Control subscale scores were used. Shyness was measured with items such as *"Sometimes seems nervous when talking to adults s/he has just met"* and *"Acts shy around new people."* Inhibitory control was measured with items such as *"Can easily stop an activity when s/he is told 'no.'"* A child with a high score in each subscale was considered as a high in this temperamental characteristic. Rothbart et al. (2001) found internal consistency ($\alpha=.92$) for Shyness and ($\alpha=.76$) for Inhibitory Control CBQ (4-5 year-olds). For the present study the internal consistency of shyness was $\alpha=.92$ and inhibitory control was $\alpha=.75$.

Data Collection Procedures

Parents were contacted through preschool teachers who were identified because they were in centers that agreed to participate in the study. After getting consent from parents, the CBQ was given to preschool teachers and parents. Parents completed the demographic questionnaire and the CBQ at home, and then returned them to the teachers, who gave them to researchers. Teachers were asked to have their consent to conduct the observational data collection process in their classrooms in eight preschools in a Midwestern city. After granting consent, teachers were given the SDQ to complete about all participating children in their classrooms. Instructions were provided on the first page of the SDQ for teachers.

Three investigators who have been trained to reliability (80% or greater agreement with a master coder from Teachstone) conducted observations of classrooms using the inCLASS. Observations were conducted according to the inCLASS Manual (Downer et al., 2010). Investigators went to the schools at the beginning of the classes to conduct 4 observation cycles for each child per day. Observations were done in fall 2012 from October to December (October 22nd-December 07th). Observation times were selected by discussing with classroom teachers what would be optimal times to observe during typical classroom activities, for example avoiding special events such as parties and field trips as well as nap times. Observers were as unobtrusive as possible during the observations. Observations were done in either indoor or outdoor settings. Total observation for each child took 15 minutes, 10 minutes observation and 5 minutes coding for each cycle of each child. Investigators used the inCLASS manual for coding and scoring.

CHAPTER 3

RESULTS

Data Analysis

Data were entered by using double entry software to ensure accuracy. Data were then entered to SPSS V.21 software to analyze. Prosocial behavior data were sum-scored; the peer interaction domain was computed by calculating a sum of the mean scores of each of the component dimensions. Peer interaction-conflict scores were reverse scored as it was recommended by the inCLASS manual. For interaction variables, z scores were used to center the data and then interaction terms were created by multiplying the two variables. For example, to create an interaction term for inhibitory control and prosocial behavior, z scores of inhibitory control and prosocial behavior were calculated and then they were multiplied to create the interaction term (inhibitory control x prosocial behavior).

Preliminary Analyses

Bivariate correlations (Pearson's Correlation) among variables were calculated (see Table 3). Children's prosocial behavior was not significantly correlated with children's peer interaction domain (PI-Domain) level or the dimensions (PI-Sociability, PI-Communication, PI-Assertiveness, PI-Conflict) level. Children's inhibitory control was not significantly correlated with children's PI-Domain; however, children's inhibitory control and PI-conflict were significantly correlated ($r = -.31, p < .05$). There was a nonsignificant correlation of $-.16$ ($p = n.s$) between shyness and PI-Domain; however, shyness was significantly and negatively correlated with PI-conflict ($r = -.37, p < .01$). Prosocial behavior and gender were also significantly correlated ($r = .38, p < .01$).

There was no significant correlation between age or gender, and the dependent variables (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, PI-Conflict).

An independent sample t-test was conducted to test for prosocial behavior differences between girl and boys, and results suggested that prosocial behavior scores for girls ($M = 8.33$, $SD = 1.39$) were significantly higher than those for boys ($M = 6.83$, $SD = 2.30$), $t(37) = -2.41$, $p < .05$, $d = -.79$. Children's ages were clustered as younger and older by using median-split. Younger children ($M = 7.95$, $SD = 1.93$) and older children ($M = 7.31$, $SD = 2.06$) did not differ significantly on prosocial behavior $t(37) = .99$, $p = \text{n.s.}$ (see Table 4).

None of the variables were included as control variables in the regression analysis due to the absence of significant correlations between control variables (gender, age) and dependent variables (PI-Domain, Sociability, Communication, Assertiveness, Conflict) (see Table 3).

Research Question 1: Is there an association between prosocial behavior and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Bivariate Pearson correlations were used to test this question. Children's peer-interactions were taken as whole domain including dimension as sociability, communication, assertiveness, and conflict; in addition to that, correlations between prosocial behavior and peer interaction dimensions were tested. There was a nonsignificant correlation of .15 ($p = \text{n.s.}$) between prosocial behavior and peer interaction-domain. Bivariate Pearson's Correlation was also used to analyze association between PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict

individually. Results indicated that there was no significant correlation between prosocial behavior and PI-Sociability ($r=.14, p= ns$), PI-Communication ($r=.08, p= ns$), PI-Assertiveness ($r=.16, p= ns$), and PI Conflict ($r=.11, p= ns$) (see Table 3). Hypothesis 1 was not supported.

Research Question 2: Is there an association between inhibitory control and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Bivariate Pearson Correlations were used to test the associations between inhibitory control and children's peer interactions, including both the overall domain and the dimensions (PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict). Children's inhibitory control was not significantly associated with PI-Domain ($r=.23, p = n.s$). Children's inhibitory control and PI-Conflict were significantly and negatively correlated, ($r = -.31, p < .05$). Results are presented in Table 3. Hypothesis 2 was partially supported; inhibitory control was negatively associated with PI-conflict.

Research Question 3: Is there an association between shyness and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Associations between shyness and peer interactions, including the whole PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict were tested by using bivariate Pearson Correlations. Shyness was not significantly correlated with PI-Domain ($r= -.16, p= n.s.$); however, it was significantly and negatively correlated with PI-Conflict ($r= -.37, p< .01$). Results are presented in Table 3. Hypothesis 3 was partially supported; shyness was negatively associated with PI-Conflict.

Research Question 4: Does inhibitory control moderate the association between prosocial behavior and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

A hierarchical multiple regression was used to test the association of inhibitory control, prosocial behavior and inhibitory control x prosocial behavior (IC and PB, IC x PB) (independent variable) in predicting children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict). Children's inhibitory control and prosocial behavior scores were entered in Step 1(Model 1), explaining 6% of the variance (R^2) in children's PI-Domain. After entering centered IC x PB at Step 2 (Model 2) the total variance explained by the model as a whole was 7%; however, the R^2 change (.01) was not significant (see Table 5). All these models were repeated for all peer interaction dimensions PI-Sociability, PI-Communication, PI-Assertiveness, and PI-Conflict as dependent variables. Hypothesis 4 was not supported. Results are presented in Table 5.

Research Question 5: Does shyness moderate the association between prosocial behavior and children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict)?

Hierarchical multiple regression was used to examine shyness and prosocial behavior as predictors of children's peer interactions (PI-Domain, PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict) (dependent variable). Children's shyness and prosocial scores were entered at Step 1(Model 1), explaining 5% of the variance (R^2) in children's PI-Domain. After entering centered Shyness x Prosocial Behavior interaction term at Step 2 (Model 2) the total variance explained by the model

as a whole was 5%; however, the R^2 change (.01) was not significant (see Table 6). All these models were repeated for all peer interaction dimensions PI-Sociability, PI-Communication, PI-Assertiveness, and PI- Conflict as dependent variables. Hypothesis 5 was not supported. Results are presented in Table 6.

Follow-up Interaction Analyses

Despite the fact that the interaction terms did not significantly predict children's peer interactions, the data were further examined in an exploratory way. Bar graphs were constructed to visually represent interactions, even though not significant, among independent and dependent variables. Independent variables (prosocial behavior, inhibitory control, and shyness) were categorized as high or low by using a median split for each variable. Children who were scored higher than the median score were considered as high on variables, whereas children who scored lower than median score were considered as low on variables. Following that, the mean levels of peer interactions were compared for children who were low-high on inhibitory control and low-high on prosocial behavior; low-high on shyness and low-high prosocial behavior. Results are presented in Figures 1– 10.

Figure 1 showed that there was no interaction between prosocial behavior and inhibitory control on PI-Domain. Children who were high on prosocial behavior scored higher, on average, on the composite peer interactions domain than children who were low on prosocial behavior, regardless of their reported level of inhibitory control (Figure 1). Children high on inhibitory control and low on prosocial behavior were rated higher on peer sociability than children low on inhibitory control and low on prosocial behavior; however, the groups were indistinguishable when both were high on prosocial behavior

(Figure 2). Children who were high on prosocial behavior were rated high on communication regardless of their level of rated inhibitory control, whereas children who were low on prosocial behavior were rated low on communication when they were low on inhibitory control, but were indistinguishable from children who were high on prosocial behavior in terms of mean level of communication when they were rated high on inhibitory control (Figure 3).

Inhibitory control moderated the association between prosocial behavior and assertiveness (Figure 4). Children low on prosocial behavior demonstrated higher levels of assertiveness when they were low on inhibitory control, but children high on prosocial behavior demonstrated higher levels of assertiveness when both groups were high inhibitory control. Children high and low on prosocial behavior demonstrated high levels of conflict when they were rated low on inhibitory control (Figure 5).

Children who were low on prosocial behavior scored higher, on average, on the composite peer interactions domain regardless of their reported level of shyness; however children high in prosocial behavior demonstrated high level of composite peer interactions domain when they were rated low in shyness (Figure 6). Children low in prosocial behavior were rated lower on sociability at low levels of shyness than children who were high in prosocial behavior, but children low in shyness were rated higher on sociability at high levels of prosocial behavior than children rated higher in shyness (Figure 7). Children rated low on prosocial behavior demonstrated low levels of communication in peer interactions when they were rated high in shyness; however, children rated high in prosocial behavior demonstrated higher levels of communication at low levels of shyness (Figure 8). At low level of prosocial behavior regardless of at high

and low shyness level demonstrated similar levels of assertiveness; however, at high levels of prosocial behavior children demonstrated greater assertiveness when they were low in shyness than children who were high in shyness (Figure 9). Children at low-level prosocial behavior demonstrated higher levels of conflict when they were low in shyness than were high in shyness; however, children who were high in prosocial behavior demonstrated lower levels of conflict when they were high in shyness than were low in shyness (Figure 10).

CHAPTER 4

DISCUSSION

The study examined the relationship between preschool children's temperament, prosocial behavior, and peer interactions. Specifically, it examined associations between the temperamental characteristics of inhibitory control and shyness and peer interactions, which for this study were operationalized as Sociability, Communication, Assertiveness, Conflict, and a composite score of these dimensions. Although research has investigated temperament and peer interactions (Gleason et al., 2005; Szewczyk-Sokolowski et al., 2005), the moderating effect of temperament on prosocial behavior in the prediction of preschool children's peer interaction is less known. Investigating this interactional model was important to understand how inhibitory control and shyness along with prosocial behavior predict preschool children's peer interaction. Additionally, investigating peer interaction-dimensions was important because although a great deal of research has documented characteristics of peer interactions such as rejection, popularity, and acceptance (Gleason et al., 2005; Ladd & Kochenderfer, 1996; Szewczyk-Sokolowski et al., 2005), much less is known about the dimensions of sociability, communication, assertiveness, or conflict. Overall, few of the hypotheses were supported.

Associations between Prosocial Behavior, Temperament, and Peer Interactions

Firstly, it was hypothesized that children's prosocial behavior would be associated with children's peer interactions (Domain, Sociability, Communication, Assertiveness, and Conflict). Results revealed that there were no significant associations between prosocial behavior and peer interactions. This result is inconsistent with previous research that found prosociality was related to preschool children's positive peer interactions

(Eivers et al., 2012). This result suggests that teacher-rated prosocial behavior of children may not associate with observer-rated peer interaction of preschool children.

In the current study, girls were rated higher on prosocial behavior than boys were. This finding is consistent with previous research (Hastings, et al., 2005; Persson, 2005b). There was no age difference on prosocial behavior scores. This finding is inconsistent with previous research (Baillargeon et al., 2011; Benenson et al., 2003) which found that prosocial behavior increased by age.

Secondly, it was hypothesized that children's inhibitory control would be associated with children's peer interactions. Results showed that inhibitory control was not related to the overall Domain, Sociability, Communication, or Assertiveness. However, it was negatively associated with Conflict. This finding is similar to previous research reporting that preschool-aged children who are capable of inhibiting inappropriate behaviors were involved in more positive peer interaction and less in antisocial behaviors with peers (Fabes et al., 1999; Valiente et al., 2003). Results suggested that children with high inhibitory control were less likely to be involved peer conflict, whereas children with low inhibitory control would be more likely to be involved in peer conflict.

Thirdly, it was hypothesized that children's temperamental shyness would be associated with children's peer interactions. Results revealed that there were no significant associations between shyness and the peer Sociability, Communication, Assertiveness, or the composite peer interaction domain. However, shyness was inversely associated with Conflict; children who were shyer were less likely to be involved in peer conflict. These results are similar to previous research indicating that children with shy

temperament had problems entering peer interactions (Asendorpf 1993; Coplan et al., 2008). Results are consistent with Coplan et al.'s (2004) findings that shy children are less likely to be involved in peer conflict because of fear of approaching peers and lack of motivation, whereas children who are less shy are more likely to be involved in peer conflict because they are less fearful of approaching peers and situations (Kagan et al., 1989).

Inhibitory Control and Shyness with Prosocial Behavior as Moderators

The current study also examined whether inhibitory control and shyness moderated the relations between prosocial behavior and peer interactions. It was hypothesized that the relations between prosocial behavior and peer interactions would be different depending on inhibitory control or shyness. However, results revealed that inhibitory control and shyness were not significant moderators of prosocial behavior or peer interactions. Although there were no moderating interactions of inhibitory control or shyness on relations between prosocial behavior and peer interactions, exploratory analyses of data provided some visual figures that suggest a possibility of moderating interactions (see figure 1-10, for review).

Children's high inhibitory control scores were associated with higher scores of prosocial behavior on children's communication and assertiveness, whereas lower scores of inhibitory control was associated with lower scores of prosocial behavior on children's communication and assertiveness. That is children with higher inhibitory control may display higher prosocial behavior during peer interactions in terms of leadership and initiation of activity and conversation with peers; on the other hand, children with lower inhibitory control may display less prosocial behavior during peer interactions in

preschool years. These exploratory results are similar to previous research (Fabes, et al., 1999; Garstein et al., 2012; Sebanc, 2003; Sterry et al., 2010; Valiente et al., 2003), which found that children's inhibitory control was either directly associated with social peer interactions or moderator of social competence, social functioning on peer interactions.

Exploratory analysis also demonstrated that low shyness was associated with higher prosocial behavior on Domain, Sociability, and Assertiveness, whereas high shyness was associated lower prosocial behavior on Domain, Sociability, and Assertiveness. Children with high shyness may not have opportunities to exhibit prosocial behavior towards peers due to fear of approaching others, whereas children with lower shyness are more likely to be motivated to approach others and therefore more likely to exhibit prosocial behavior toward peers. These exploratory findings are similar to previous research (Asendorpf, 1991; Coplan et al., 2004; Dunn & Cutting, 1999; Kagan et al., 1989), which found shy children held themselves back from peer interactions because of being less self-motivated regarding peer approach, having fear of approach unfamiliarity.

Limitations and Future Directions

There were several limitations in the current study that must be considered in future research on this topic. First, the sample size within this study was substantially small and not diverse in terms of ethnicity and family socio-economic conditions. Future studies with a larger and diverse sample size may more effectively investigate relationships among variables and increase the power of study by decreasing probability of type II error. Second, although previous research showed that preschool children's

prosocial behavior is associated with children's peer interactions (Eivers et al., 2012), teacher-rated prosocial behavior did not correlate with any of the variables. Therefore, future research may use both teacher-rated and parent-rated prosocial behavior of children to see whether it is correlated with other peer interactions and its different expression in different contexts. Children's length of experiences with peers and teachers, family income, and parenting styles may influence their prosocial behavior. Additionally, multiple measures of prosocial behavior may be used to assess children's prosocial behavior more broadly.

Third, although in different settings and times peer interactions were observed in a same day, children may behave differently from day to day; therefore peer interactions should be observed on different days and at different times to obtain a more comprehensive picture of their peer interactions in future research.

Fourth, only parent-rated temperament was used in the current study. Research has shown that parents and teachers rate child's temperamental characteristics differently (Goldsmith, Rieser-Danner & Briggs, 1991; Jewsuwan, Luster & Kostelnik, 1993) in part due to children demonstrating different behavior in different contexts (Peters-Martin & Wachs, 1984). Therefore, a future study with both parent and teacher ratings of temperament and prosocial behavior as predictors of peer interactions may provide clearer results, because children's behavioral exhibition related to temperament would be different in home context and school context in terms of peer interactions. Investigating children's temperamental characteristics regarding their peer interactions in different contexts by different informants may help to understand how temperament affects their peer interactions.

Contributions

Despite these limitations, this research makes a unique contribution to the literature by providing additional literature to preschool children's temperament and peer interactions. It also contributes that using different informants of each variable helps researchers to have clear picture on how children's temperament and prosocial behavior is associated with their peer interactions.

This study brings attention to using the inCLASS (Downer et al., 2010) to observe children's peer interaction indifferent settings. Research in peer interactions has used either sociometric status or teacher-rated measures to obtain information on peer interactions (e.g., Estell et al., 2008; Gleason et al., 2005). Children's perceptions about friendship and peers may be different from how they actually behave in peer interactions. Therefore, observing children's peer interactions by using this structured tool may help researchers to investigate children's peer interactions objectively by seeing actual interaction in different settings of preschools. Usage of the inCLASS would be expected to provide better understanding of peer interactions in terms of expressing behaviors in dimensions of sociability, communication, assertiveness, and conflict.

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Table 1

Participant's Demographic Information

Child Characteristics	n (%)	Missing	M	SD	Range
Gender	40				
Boy	19(47.5)				
Girl	21(52.5)				
Age (months)	40				
Time 1	40		45.30	4.59	31-52
Time 2	40		57.43	3.88	52-69
Ethnicity	39	1			
White	34(87.2)				
Latino	2(5.1)				
Multi Race	3(7.7)				
Family Characteristics					
Parents Age	39	1	34.64	5.66	22-45
Parent's Education	37	3			
One or more years of college	34	6	4.76	2.23	1-9
Marital Status	38	2			
Married	30(78.9)				
Divorced	2(5.3)				
Single	6(15.8)				
Spoken Language	39	1			

English	37(94.9)	
Dual Language	2(5.1)	
Family Income	38	2
5-15K	3(7.9)	
15-25K	4(10.5)	
25-35K	1(2.6)	
35-45K	1(2.6)	
55-65K	2(5.3)	
65-75K	3(7.9)	
75-85K	4(10.5)	
85-95K	3(7.9)	
>95K	17(44.7)	

Table 2

Descriptive Statistics of Variables

Variable	Mean	SD	Range	α
Temperament- CBQ				
Inhibitory Control	4.94	0.77	2.58-6.33	0.75
Shyness	3.66	1.29	1.00-6.00	0.92
Peer Interactions-inCLASS				
Sociability	3.97	0.99	1.75-6.25	0.75
Communication	3.80	1.26	1.25-6.25	
Assertiveness	2.84	1.09	1.25-5.75	
Conflict	1.35	0.39	1.00-2.25	
Prosocial Behavior-SDQ	7.64	1.99	4-10	0.77

Note. CBQ= Children's Behavior Questionnaire; inCLASS= The Individualized Classroom Assessment Scoring System; SDQ= Strengths and Difficulties Questionnaire.

Table 3

Correlations among Inhibitory Control, Shyness, PI Domain, PI-Sociability, PI-Communication, PI-Assertiveness, PI-Conflict, and Prosocial Behavior, Age, and Gender

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Inhibitory Control	—										
2. Shyness	-.01	-									
3. Peer Interaction(PI) Domain	.23	-.16	-								
4. PI-Sociability	.18	-.12	.94**	-							
5. PI-Communication	.20	-.23	.87**	.73**	-						
6. PI-Assertiveness	.13	-.19	.88**	.85**	.61**	-					
7. PI-Conflict [□]	-.31*	-.37**	.01	-.07	-.12	-.15	-				
8. Prosocial Behavior	.22	.03	.15	.14	.08	.16	.11	-			
9. Age- Time 1	.26	.23							-		
10. Age- Time 2			.17	.11	.23	.04	.20	-.17		-	
11. Gender	.08	-.08	-.05	-.08	-.13	.05	.07	.38**			-

Note. *p< .05, one-tailed. **p< .01,one tailed. [□] Non-reversed peer interaction-conflict score was used for correlation.

Table 4

Gender Differences on Prosocial Behavior

Variable	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>P</i>	<i>d</i>
Boys	18	6.83	2.30	-2.41	.02	-.79
Girls	21	8.33	1.39			
Age						
Younger	20	7.95	1.93	.99	.33	.31
Older	19	7.31	2.06			

Table 5

Summary of Hierarchical Regression Analyses for Variables (IC and PB) Predicting Peer Interactions(PI) (N=38)

	PI - Domain			PI-Sociability			PI-Communication			PI-Assertiveness			PI-Conflict*		
Variable	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Model 1															
IC	.20	.16	.21	.19	.22	.15	.30	.27	.18	.15	.24	.10	.15	.08	.30
PB	.04	.06	.10	.05	.08	.09	.02	.10	.03	.07	.09	.13	.01	.03	.05
R^2			.06			.04			.03			.03			.09
F			1.15			.71			.70			.59			1.91
Model 2															
IC x PB	-.07	.17	-.07	-.04	.22	-.03	-.12	.29	-.07	-.11	.25	.08	1.26	.09	.00
R^2			.07			.04			.04			.04			.09
F			.81			.47			.51			.46			1.24

Note. PI= Peer Interactions; IC= Inhibitory Control; PB= Prosocial Behavior; H.IC= High Inhibitory Control; H. PB= High Prosocial Behavior.

*Reversed score of PI-Conflict was used.

Table 6

Summary of Hierarchical Regression Analyses for Variables (S and PB) Predicting Peer Interactions(PI) (N=38)

Variable	PI - Domain			PI-Sociability			PI-Communication			PI-Assertiveness			PI-Conflict*		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Model 1															
S	-.10	.09	-.17	-.11	.13	-.14	-.24	.16	-.25	-.16	.14	-.19	.11	.05	.37
PB	.06	.06	.15	.07	.08	.13	.05	.10	.08	.08	.08	.15	.02	.03	.11
R^2			.05			.04			.07			.06			.15
<i>F</i>			.94			.67			1.27			1.12			3.07
Model 2															
S x PB	-.04	.14	-.05	.03	.19	.03	-.10	.23	-.07	-.13	.20	-.10	.04	.07	.08
R^2			.05			.04			.07			.07			.16
<i>F</i>			.64			.44			1.63			.86			2.16

Note. PI= Peer Interactions; S= Shyness; PB= Prosocial Behavior; H.S= High Shyness; L. PB= Low Prosocial Behavior. *Reversed score of PI-Conflict was used.

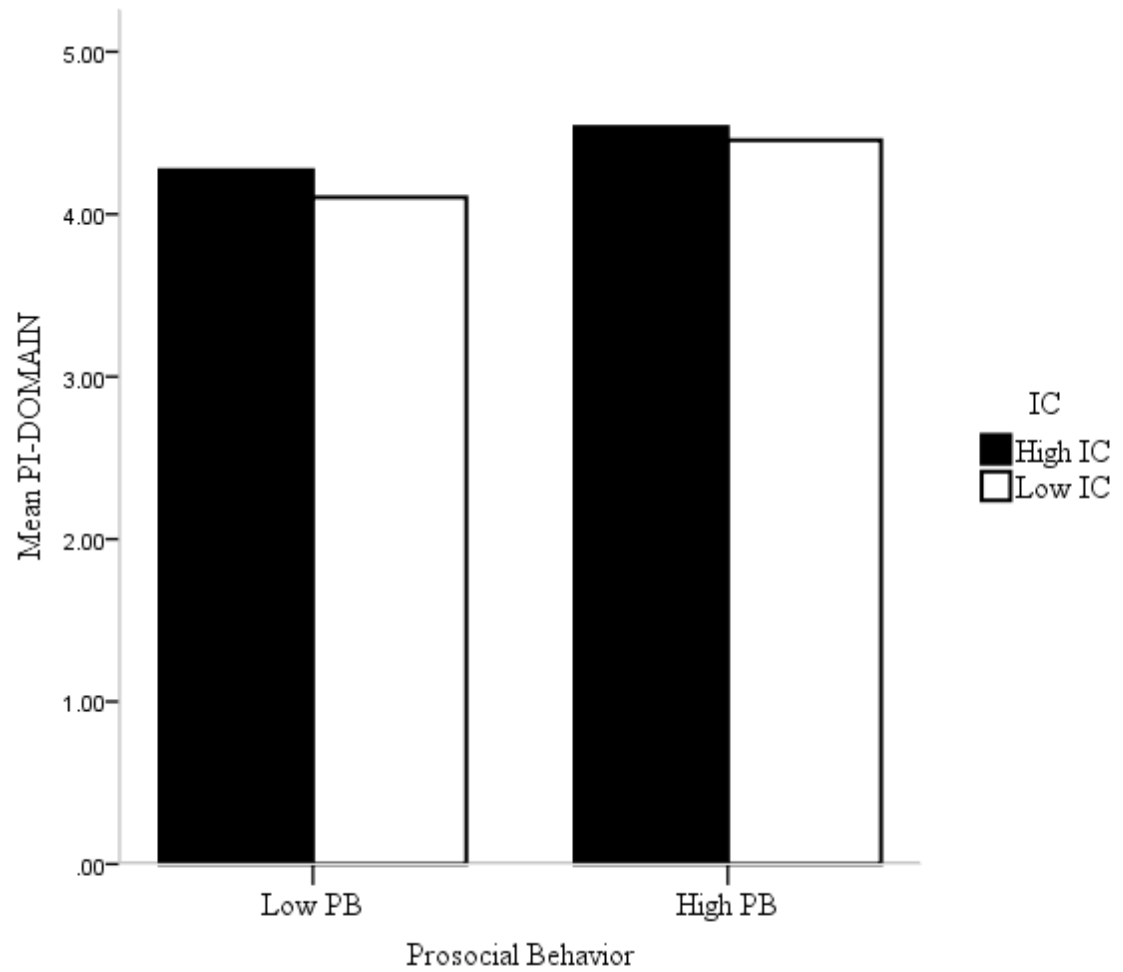


Figure 1. Testing Inhibitory Control as a Moderator of the Association between Prosocial Behavior and PI-Domain. IC = Inhibitory control; PB = Prosocial behavior; PI = Peer interactions.

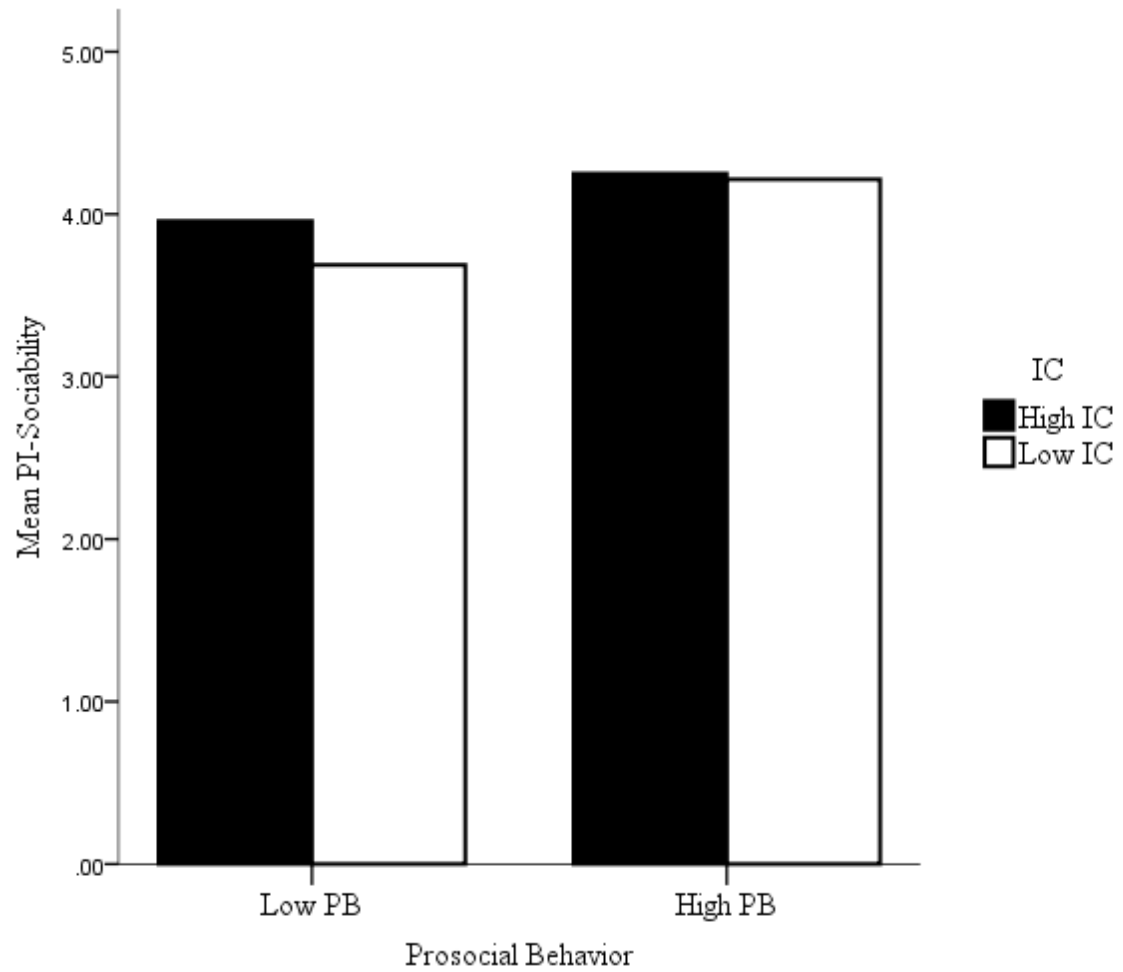


Figure 2. Testing Inhibitory Control as a Moderator of the Association between Prosocial Behavior and PI-Sociability. IC = Inhibitory control; PB = Prosocial behavior; PI = Peer interactions.

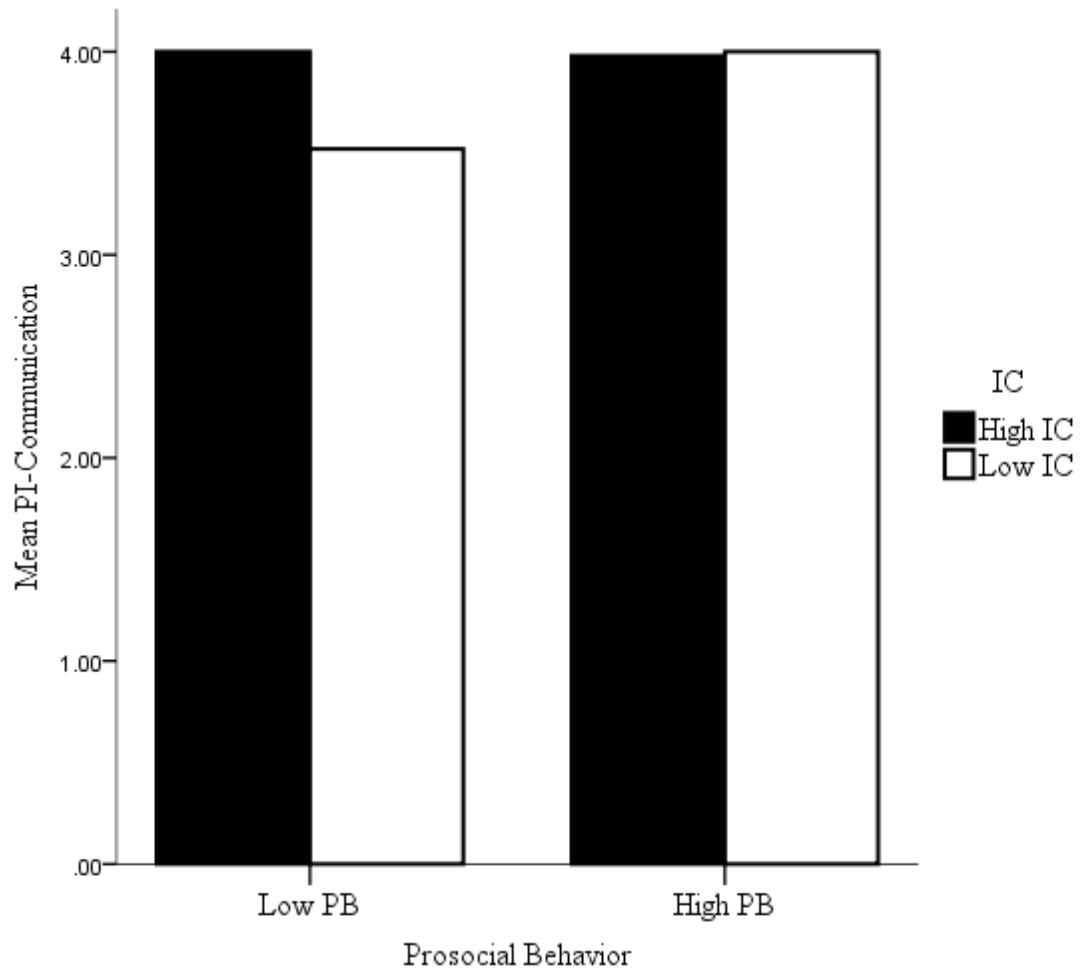


Figure 3. Testing Inhibitory Control as a Moderator of the Association between Prosocial Behavior and PI-Communication. IC = Inhibitory control; PB = Prosocial behavior; PI = Peer interactions.

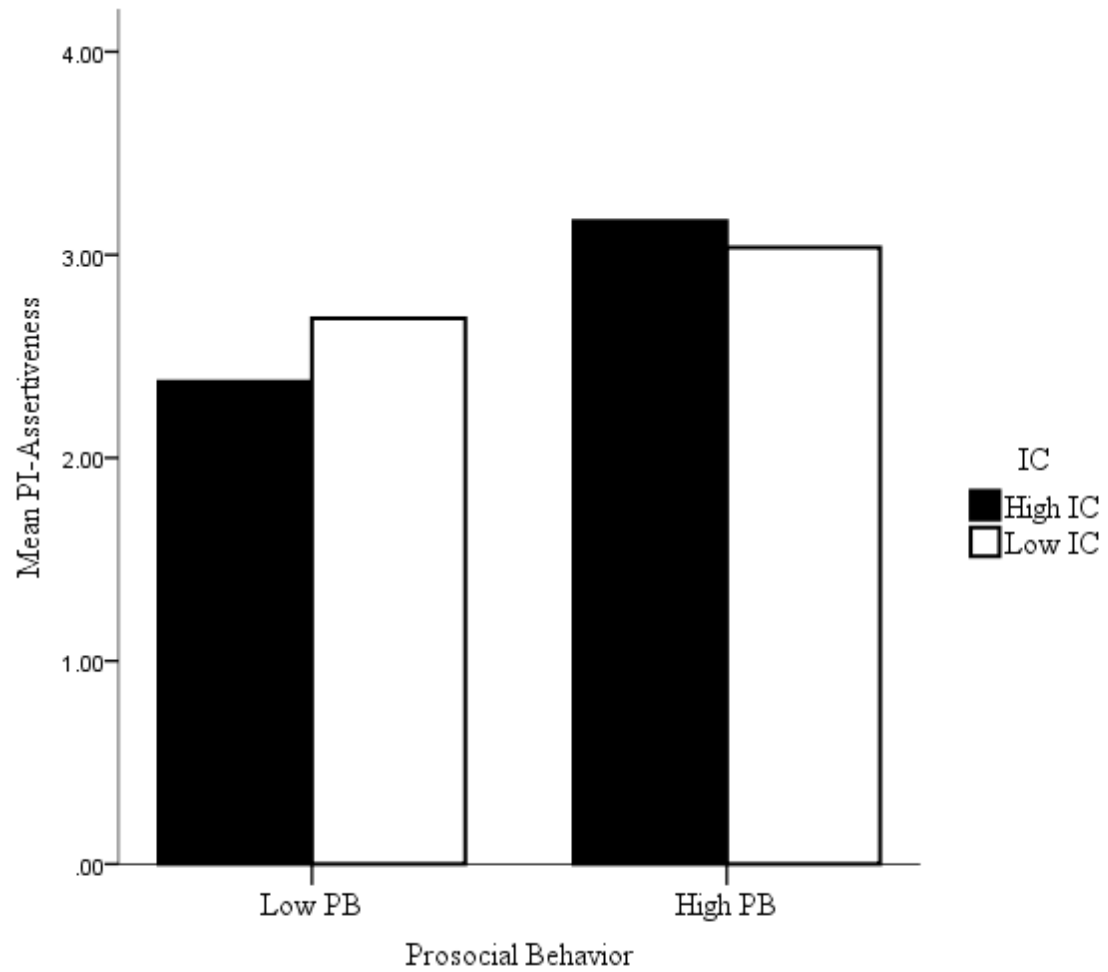


Figure 4. Testing Inhibitory Control as a Moderator of the Association between Prosocial Behavior and PI-Assertiveness. IC = Inhibitory control; PB = Prosocial behavior; PI = Peer interactions.

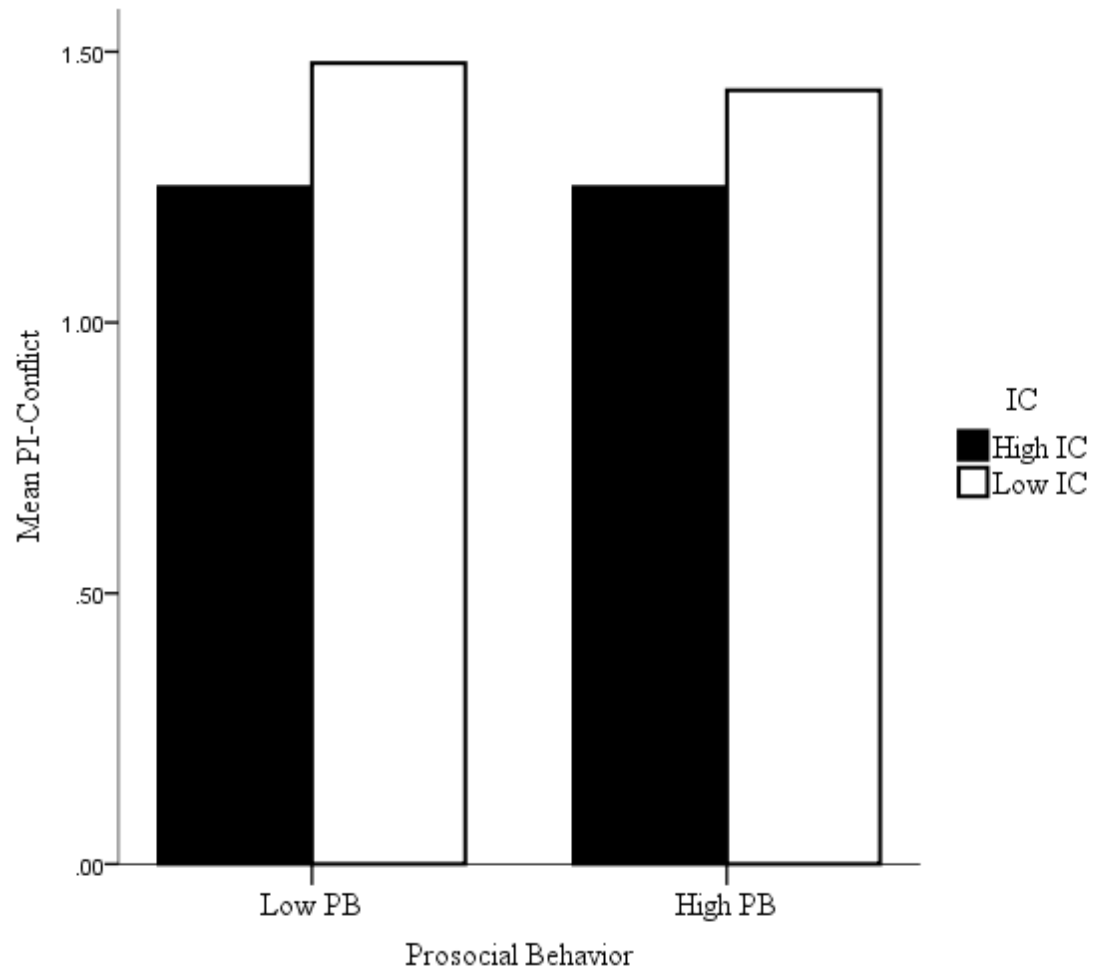


Figure 5. Testing Inhibitory Control as a Moderator of the Association between Prosocial Behavior and PI-Conflict. IC = Inhibitory control; PB = Prosocial behavior; PI = Peer interactions.

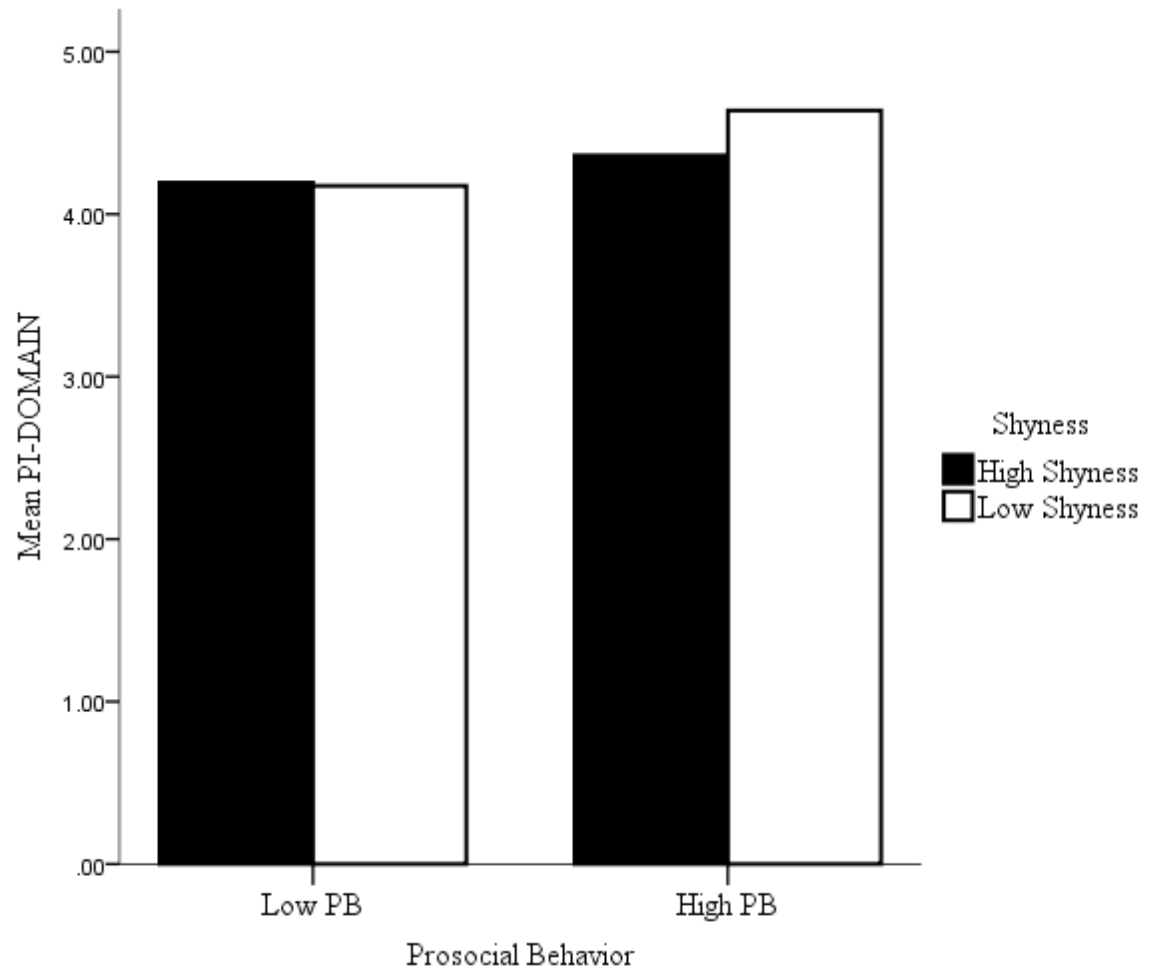


Figure 6. Testing Shyness as a Moderator of the Association between Prosocial Behavior and PI Domain. PB = Prosocial behavior; PI = Peer interactions.

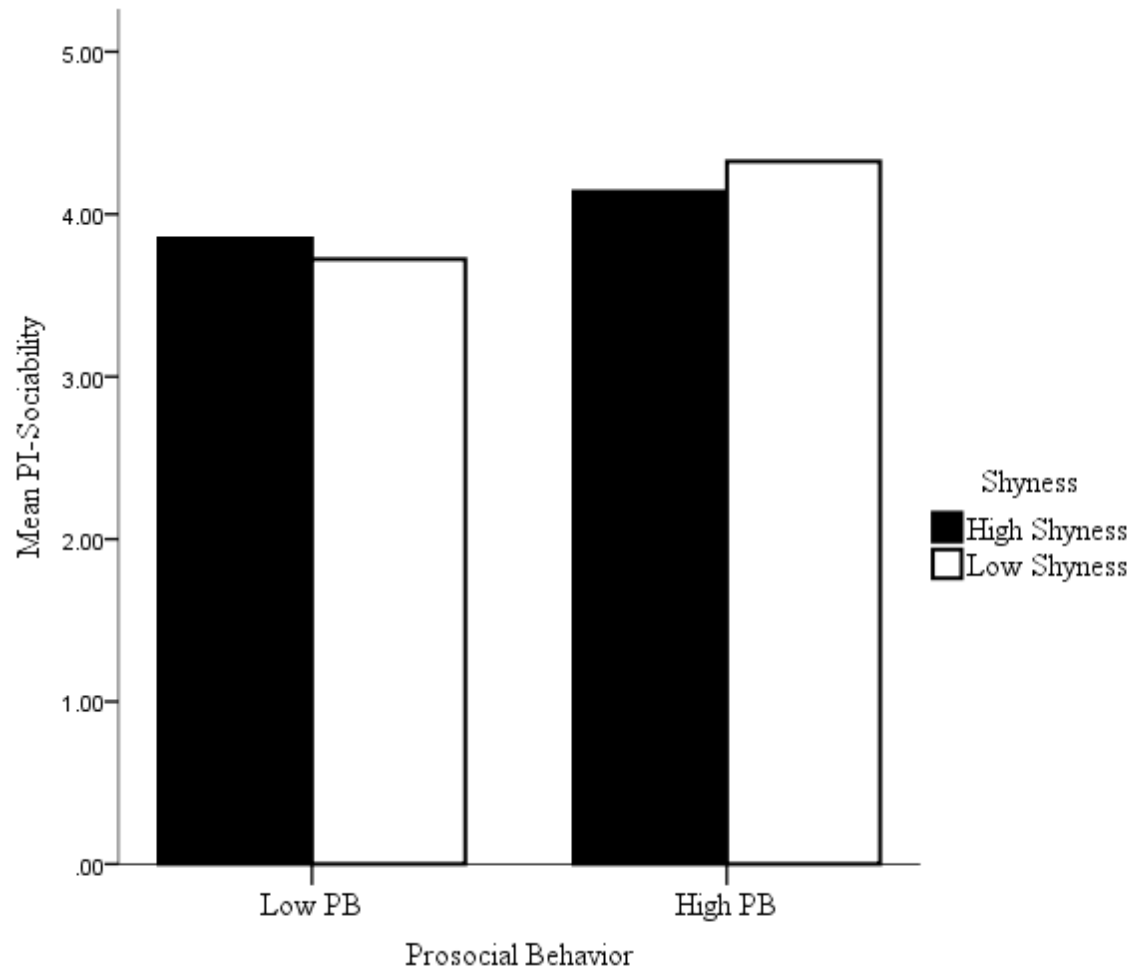


Figure 7. Testing Shyness as a Moderator of the Association between Prosocial Behavior and PI-Sociability. PB = Prosocial behavior; PI = Peer interactions.

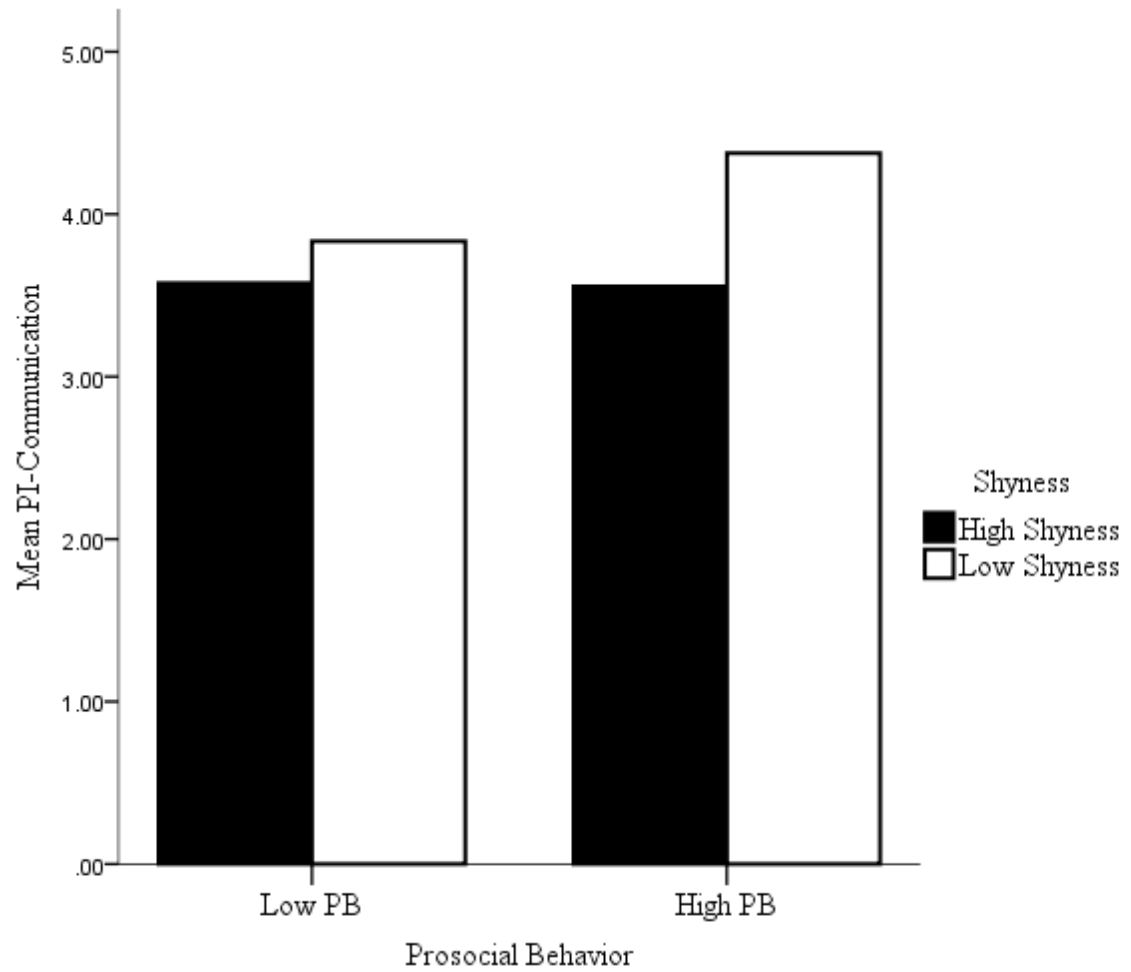


Figure 8. Testing Shyness as a Moderator of the Association between Prosocial Behavior and PI-Communication. PB = Prosocial behavior; PI = Peer interactions.

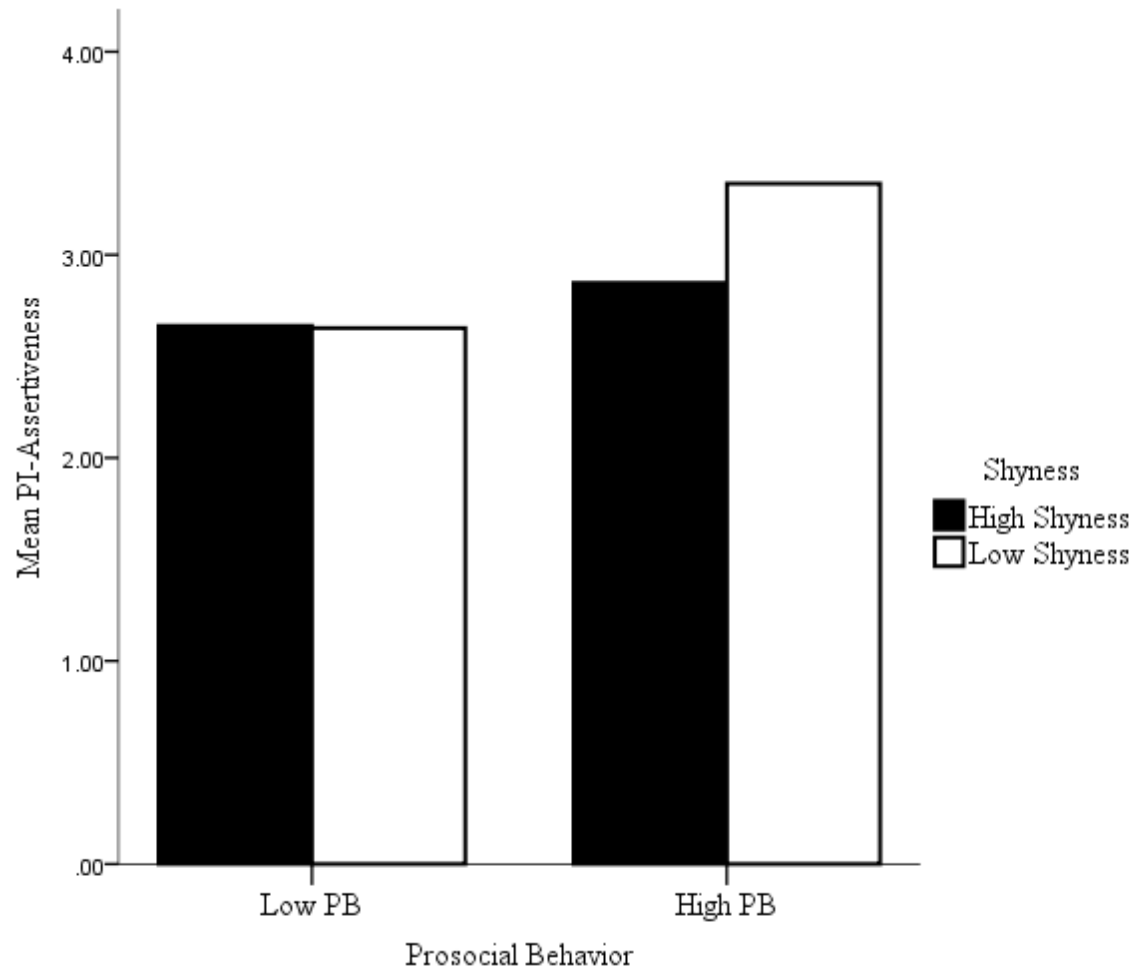


Figure 9. Testing Shyness as a Moderator of the Association between Prosocal Behavior and PI-Assertiveness. PB = Prosocal behavior; PI = Peer interactions.

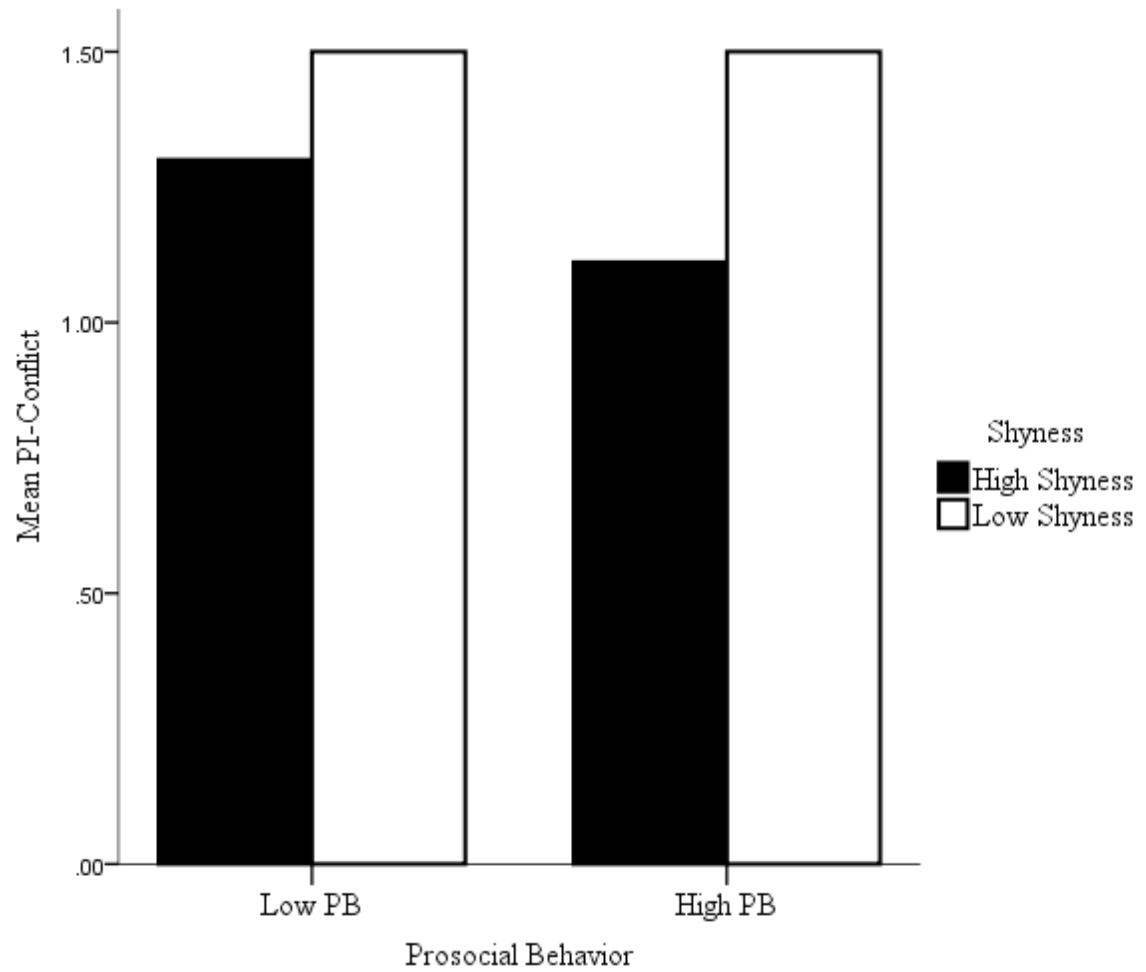


Figure 10. Testing Shyness as a Moderator of the Association between Prosocial Behavior and PI-Conflict. PB = Prosocial behavior; PI = Peer interactions.

Appendix A: Complete Demographic Information Form

Demographic Questionnaire

Cover Sheet

Child's Name:_____ Date of birth:_____

Child's gender (circle): Male Female

Child's race (circle): White Black Asian Multi---racial

Is this child Latino/a? Yes No

Child's school:_____ Child's teacher:_____

Language spoken at home?_____

Demographic Questionnaire

Your occupation: _____

Your age: _____ Marital status: _____ Gender: Male Female

Your race (circle): White Black Asian Multi---racial

Are you Latino/a? Yes No

What is (are) your first language(s)? _____

What is your relationship to the child? (Mother, Father, Guardian, etc.) _____

Did you complete 8th grade? Yes No

Did you complete high school? Yes No

How many years of college have you had? _____

Your Partner's occupation: _____

Your Partner's age: _____ Gender: Male Female

Your Partner's relationship to the child: _____

Partner's race (circle): White Black Asian Multi---racial

Is your partner Latino/a? Yes No

Did your partner complete 8th grade? Yes No

Did your partner complete high school? Yes No

How many years of college has your partner had? _____

Approximate total family income:

_____ less than \$5000 _____ \$5000 to \$15000 _____ \$15000 to \$25000

_____ \$25000 to \$35000 _____ \$35000 to \$45000 _____ \$45000 to \$55000

_____ \$55000 to \$65000 _____ \$65000 to \$75000 _____ \$75000 to \$85000

_____ \$85000 to \$95000 _____ over \$95000

Appendix B: Complete Strengths and Difficulties Questionnaire

Strengths and Difficulties Questionnaire

T 4-10

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior over the last six months or this school year.

Child's name

Male/Female

Date of birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children, for example toys, treats, pencils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often loses temper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, prefers to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally well behaved, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries or often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, depressed or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often offers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets along better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good attention span, sees work through to the end	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Overall, do you think that this child has difficulties in any of the following areas:
emotions, concentration, behavior or being able to get on with other people?

No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties upset or distress the child?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties put a burden on you or the class as a whole?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature

Date

Thank you very much for your help

Appendix C: Complete inCLASS Observation Form

Child's Initials: _____

Observer: _____ Double? Y / N Lead? Y / N Visit: _____ Cycle: _____ Date: ____/____/____ Start Time: ____:____ End: ____:____			
Activity Setting (check all that occur; circle primary): Structured time: <input type="checkbox"/> Whole _____ <input type="checkbox"/> Small _____ <input type="checkbox"/> Individual _____ <input type="checkbox"/> Free Play _____ <input type="checkbox"/> Routines/Transitions _____ <input type="checkbox"/> Meals/Snacks _____		Physical Setting: (check all that occur; circle primary) <input type="checkbox"/> Classroom <input type="checkbox"/> Outside <input type="checkbox"/> Other: _____	Number Present (count at end of cycle # in the room): Adults: _____ Children: _____ Teacher Behaviors: Teacher is part of activity <input type="checkbox"/> YES <input type="checkbox"/> NO Activity is teacher-directed <input type="checkbox"/> YES <input type="checkbox"/> NO
	Dimensions:	Description:	Code
TEACHER INTERACTIONS	Positive Engagement - Attunement - Proximity-Seeking - Shared Positive Affect		
	Communication - Initiates - Sustains - Varied Purposes		
	Conflict - Aggression - Neg. Affect - Attention-seeking - Noncompliance		
PEER INTERACTIONS	Sociability - Proximity-Seeking - Shared Positive Affect - Cooperation - Popularity		
	Communication - Initiates - Sustains - Varied Purposes		
	Assertiveness - Initiation - Leadership		
	Conflict - Aggression - Neg. Affect - Attention-seeking - Confrontation		
TASK ORIENTATION	Engagement - Sustain Attention - Active Engagement		
	Self-Reliance - Personal Initiative - Independence		
	Behavior Control - Patience - Matches Expectations - Physical Awareness		

Appendix D: Complete Child Behavior Questionnaire Form

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Children's Behavior Questionnaire

Subject No. _____

Date of Child's Birth:

Today's Date _____

_____/_____/_____
Month Day Year

Sex of Child _____

Age of Child _____
Years months

Instructions: Please read carefully before starting:

On the next pages you will see a set of statements that describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. There are of course no "correct" ways of reacting; children differ widely in their reactions, and it is these differences we are trying to learn about. Please read each statement and decide whether it is a "true" or "untrue" description of your child's reaction within the past six months. Use the following scale to indicate how well a statement describes your child:

- | Circle # | If the statement is: |
|----------|--------------------------------------|
| 1 | extremely untrue of your child |
| 2 | quite untrue of your child |
| 3 | slightly untrue of your child |
| 4 | neither true nor false of your child |
| 5 | slightly true of your child |
| 6 | quite true of your child |
| 7 | extremely true of your child |

If you cannot answer one of the items because you have never seen the child in that situation, for example, if the statement is about the child's reaction to your singing and you have never sung to your child, then circle NA (not applicable).

Please be sure to circle a number or NA for every item.

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not
			untrue				applicable

My child:

1. Seems always in a big hurry to get from one place to another.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

2. Gets angry when told s/he has to go to bed.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

3. Can lower his/her voice when asked to do so.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

4. Is hard to get her/his attention when s/he is concentrating on something.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

5. Sometimes prefers to watch rather than join other children playing.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

6. Gets so worked up before an exciting event that s/he has trouble sitting still.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

7. Is not afraid of large dogs and/or other animals.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

8. When picking up toys or other jobs, usually keeps at the task until it's done.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

9. Is comfortable in situations where s/he will be meeting others.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

10. Rarely gets irritated when s/he makes a mistake.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not
			untrue				applicable

My child:

11. Is good at games like "Simon Says," "Mother, May I?" and "Red Light, Green Light."

1 2 3 4 5 6 7 NA

12. Seems to be at ease with almost any person.

1 2 3 4 5 6 7 NA

13. When s/he sees a toy s/he wants, gets very excited about getting it.

1 2 3 4 5 6 7 NA

14. Tends to run rather than walk from room to room.

1 2 3 4 5 6 7 NA

15. Can easily shift from one activity to another.

1 2 3 4 5 6 7 NA

16. Has a hard time following instructions.

1 2 3 4 5 6 7 NA

17. Has temper tantrums when s/he doesn't get what s/he wants.

1 2 3 4 5 6 7 NA

18. When s/he wants to do something, s/he talks about little else.

1 2 3 4 5 6 7 NA

19. Gets embarrassed when strangers pay a lot of attention to her/him.

1 2 3 4 5 6 7 NA

20. When practicing an activity, has a hard time keeping her/his mind on it.

1 extremely untrue	2 quite untrue	3 slightly untrue	4 neither true nor untrue	5 slightly true	6 quite true	7 extremely true	NA not applicable
--------------------------	----------------------	-------------------------	------------------------------------	-----------------------	--------------------	------------------------	-------------------------

My child:

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

21. Is afraid of burglars or the "boogie man."

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

22. When outside, often sits quietly.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

23. Acts very friendly and outgoing with new children.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

24. Will move from one task to another without completing any of them.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

25. Moves about actively (runs, climbs, jumps) when playing in the house.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

26. Is afraid of loud noises.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

27. Joins others quickly, even when they are strangers.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

28. Doesn't worry about injections by the doctor.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

29. Gets quite frustrated when prevented from doing something s/he wants to do.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

30. Prepares for trips and outings by planning things s/he will need.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not
			untrue				applicable

My child:

31. Has strong desires for certain kinds of foods.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

32. Is not afraid of the dark.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

33. Gets mad when even mildly criticized.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

34. Is sometimes shy even around people s/he has known a long time.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

35. Can wait before entering into new activities if s/he is asked to.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

36. Gets angry when s/he can't find something s/he wants to play with.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

37. Is afraid of fire.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

38. Looks forward strongly to the visit of loved relatives.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

39. Sometimes sits quietly for long periods in the house.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

40. Sometimes seems nervous when talking to adults s/he has just met.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not
			untrue				applicable

My child:

41. Is very frightened by nightmares.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

42. Has difficulty waiting in line for something.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

43. Has a lot of trouble stopping an activity when called to do something else.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

44. Becomes very excited while planning for trips.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

45. Prefers quiet activities to active games.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

46. Acts shy around new people.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

47. Has trouble sitting still when s/he is told to (at movies, church, etc.).

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

48. Is able to resist laughing or smiling when it isn't appropriate.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

49. Becomes very excited before an outing (e.g., picnic, party).

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

50. Is comfortable asking other children to play.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not applicable
			untrue				

My child:

51. Rarely gets upset when told s/he has to go to bed.

1 2 3 4 5 6 7 NA

52. Rarely runs or moves quickly in the house.

1 2 3 4 5 6 7 NA

53. When drawing or coloring in a book, shows strong concentration.

1 2 3 4 5 6 7 NA

54. Plays games slowly and deliberately.

1 2 3 4 5 6 7 NA

55. Becomes easily frustrated when tired.

1 2 3 4 5 6 7 NA

56. Talks easily to new people.

1 2 3 4 5 6 7 NA

57. Is afraid of the dark.

1 2 3 4 5 6 7 NA

58. Is usually pretty calm before going on an outing (e.g., picnic, party).

1 2 3 4 5 6 7 NA

59. Is good at following instructions.

1 2 3 4 5 6 7 NA

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not
			untrue				applicable

My child:

60. Is rarely frightened by "monsters" seen on TV or at movies.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

61. Gets irritable about having to eat food s/he doesn't like.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

62. Sometimes turns away shyly from new acquaintances.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

63. When building or putting something together, becomes very involved in what s/he is doing, and works for long periods.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

64. Sits quietly in the bath.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

65. Approaches places s/he has been told are dangerous slowly and cautiously.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

66. Gets very enthusiastic about the things s/he does.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

67. Plays actively outdoors with other children.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

68. Rarely protests when another child takes his/her toy away.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

69. Seems completely at ease with almost any group.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not
			untrue				applicable

My child:

70. Has difficulty leaving a project s/he has begun.

1 2 3 4 5 6 7 NA

71. Is not afraid of heights.

1 2 3 4 5 6 7 NA

72. Is not very careful and cautious in crossing streets.

1 2 3 4 5 6 7 NA

73. Shows great excitement when opening a present.

1 2 3 4 5 6 7 NA

74. Can easily stop an activity when s/he is told "no."

1 2 3 4 5 6 7 NA

75. Is easily distracted when listening to a story.

1 2 3 4 5 6 7 NA

76. Is full of energy, even in the evening.

1 2 3 4 5 6 7 NA

77. Easily gets irritated when s/he has trouble with some task (e.g., building, drawing, dressing).

1 2 3 4 5 6 7 NA

78. Doesn't become very excited about upcoming television programs.

1 2 3 4 5 6 7 NA

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not
			untrue				applicable

My child:

79. Is rarely afraid of sleeping alone in a room.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

80. Has an easy time leaving play to come to dinner.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

81. Gets angry when called in from play before s/he is ready to quit.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

82. Sometimes doesn't seem to hear me when I talk to her/him.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

83. Is usually able to resist temptation when told s/he is not supposed to do something.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

84. Sometimes becomes absorbed in a picture book and looks at it for a long time.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

85. Has difficulty sitting still at dinner.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

86. Remains pretty calm about upcoming desserts like ice cream.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

87. Gets nervous about going to the dentist.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

88. Looks forward to family outings, but does not get too excited about them.

I	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

1	2	3	4	5	6	7	NA
extremely	quite	slightly	neither	slightly	quite	extremely	NA
untrue	untrue	untrue	true nor	true	true	true	not applicable
			untrue				

My child:

89. Likes to sit quietly and watch people do things.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

90. Gets mad when provoked by other children.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

91. Has a hard time concentrating on an activity when there are distracting noises.

1	2	3	4	5	6	7	NA
---	---	---	---	---	---	---	----

Please check back to make sure you have completed all the pages of the questionnaire. Thank you very much for your help!