Children's prosocial behaviours, internal state language, and emotion regulation during play with siblings and friends

Joleen Coirazza

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By: Joleen Coirazza

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_____ Chair
Dr. Harriet Petrakos

_____ Examiner
Dr. Sandra Chang-Kredl

_____ Examiner
Dr. Nathalie Rothschild

_____ Supervisor
Dr. Nina Howe

Approved by _____
Saul Carliner
Interim Chair of Department

_____2017 _____
André Roy
Dean of Faculty

ABSTRACT

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Joleen Coirazza, M.A.

Concordia University, 2017

Children's prosocial behaviors, use of internal state language, and abilities to regulate their emotions were investigated in 46 focal children (*M* age = 94.58 mos.) during play with their younger sibling (*M* age = 74.29 mos.) or older sibling (*M* age = 114.00 mos.) and best friend (*M* age = 96.88 mos.). The data consisted of two counterbalanced videotaped free play sessions at the focal children's home with siblings and friends. Using the video recordings, the transcribed play dialogue was coded for children's engagement in prosocial behaviors and use of internal state language (Recchia & Howe, 2008). Observations indicated that focal children employed a wide range of prosocial behaviors, with social statements (e.g., "we" statements) and shared affect (e.g., laughing, smiling, singing) being more frequently used than helping or sharing. No differences were found in terms of prosocial behaviors engaged in with friends or with siblings, which may be explained by the carryover effect. With regards to the internal state language categories, focal children made references to goals and cognitions more than emotions and preferences, regardless of the play session. Birth order differences determined that both older and younger focal children were rated higher on the emotion regulation subscale (e.g., empathy, appropriate negative emotions) with friends than siblings, while younger focal children were rated higher on the lability/negativity subscale (e.g., mood swings, negative emotions) with

friends than siblings. Finally, significant correlations were found between focal children's use of prosocial behaviors, internal state language, and the emotion regulation checklist scores, with several significant associations in the two play sessions, suggesting the complexity of interactions between siblings and friends. Findings are discussed in relation to theory, literature, and the play partner's effect on children's social and cognitive development.

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Statement of the Problem

Play is a diverse and complex set of activities that is impacted by social, cultural, and economic factors. It is often described as a form of representational assimilation wherein children make sense of their lived experiences, as they practice mastery and control over these experiences (Piaget, 1945; Vygotsky, 1967). The social constructivist model of development posits that play has important implications for children's social-emotional development (Göncü, Patt, & Kouba, 2002). Through play with others, children practice using cognitive abilities such as creativity, flexibility, language and communication, as well as intersubjectivity, and problem solving (Cheah, Nelson, & Rubin, 2001; Eisenberg, Fabes, & Spinrad, 2006). Thus, play is considered to be both an individually as well as a socially motivated activity as it is formed in part by the sociocultural structure of children's relationships (Gaskins, Haight, & Lancy, 2007; Göncü & Perone, 2009). While play is facilitated by the interactions characteristic of intimate relationships in childhood (i.e., parents, siblings, and friends), such relationships also foster the development of social skills.

Siblings and friends are typically the playmates of choice in childhood, and these relationships provide important contexts for studying play and social understanding. These two relationships are based on similar characteristics, as they are both intimate and dyadic in nature. Research suggests there may sometimes be a direct association between children's behaviors with siblings and friends (Lockwood, Kitzmann, & Cohen, 2001; McCoy, Brody, & Stoneman, 1994), which is referred to as the carryover effect. The carryover effect predicts similar social exchanges between the two relationships due to the expectation that children use similar interaction strategies in multiple types of relationships (Stocker & Dunn, 1990). Children who behave in positive ways with their siblings may be more likely to behave in positive ways with

friends (White, Ensor, Marks, Jacobs, & Hughes, 2014). A parallel function of these two relationships may also have a compensatory effect. Children who are isolated by their peers may have more positive sibling relationships, which provide support for the lack of friendships (East & Rock, 1992). Conversely, children who have adverse relationships with siblings may depend on high-quality friendships to make up for the lack of positive exchanges experienced with their siblings (Howe, Recchia, & Ross, 2011).

Although similarities are present between sibling and friendship relationships, distinct differences also exist between the two relationships. Siblings generally share an intimate relationship, given their long co-constructed affective history, and the great deal of time that is typically spent together (Dunn, 2002). Compared to siblings, friendships are mutual, voluntary, reciprocal, based on common interests, but may be of shorter duration (Dunn, 2002; Hughes, 2011). Given the unique qualities of each relationship, disparities may exist between children's interactions during play with siblings and friends (Dunn, 1983). Thus, the characteristics of these two relationships may influence children's abilities to engage in prosocial behaviors and use internal state language during play, which are discussed next.

Play may encourage prosociality, which is defined as the words and actions that are intended to benefit others, such as shared affect, sharing, helping, and social statements ("we") (Padilla-Walker & Carlo, 2014; Howe, Petrakos, Rinaldi, & LeFebvre, 2005). Being prosocial is necessary for engaging in positive interactions with peers, for developing relationships, and for fostering friendships (Montagner, 1984). Play also represents a behavioral manifestation of prosociality since participants must communicate symbolic meanings embedded in the play to

one another (Howes, 2011; Leach, Howe, & Dehart, 2015; Rubenstein & Howes, 1976), and use cognitive and communicative skills in order to understand and expand on each other's ideas (Vaughn et al., 2009). Further, play requires reciprocity in that both partners must want to play together for it to be mutually satisfying (Doyle & Connolly, 1989).

Play also involves social understanding, which refers to the ability to make accurate inferences about the thoughts and feelings of others' in various social contexts (Carpendale & Lewis, 2006), and is manifested in children's use of internal state language (i.e., making reference to the feelings, cognitions, and intentions of both partners) during play interactions (Howe, Petrakos, & Rinaldi, 1998). The ability to talk about one's own as well as others' internal thoughts and feelings assists cooperation and equality among players, ultimately contributing to the maintenance of the play (Göncü & Gaskins, 2011).

Prosociality and social understanding are also associated with emotion regulation (Denham et al., 2011; Eisenberg et al., 2006; Eisenberg & Fabes, 1995; Saarni, Campos, Camras, & Witherington, 2006; Stegge & Terwogt, 2007). Emotion regulation refers to the ability to monitor, evaluate, and modify emotional reactions, with the use of extrinsic and intrinsic processes, in order to accomplish one's goals (Thompson, 1994). Thus, emotion regulation may have implications for children's social play, as one important goal is for the activity to go on, uninterrupted by emotional outbursts between the players.

Current research has outlined the importance of friend and sibling relationships for the development of prosocial behavior and emotion regulation, through play. However, these two relationships have often been studied in isolation from one another, and often in conjunction with

parental influences (Brody, Stoneman, & Mackinnon, 1986; Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Dunn & Brown, 1994). More studies need to focus specifically on sibling and friend relationships since the ability to engage with others is especially important when adults are less likely to be available to monitor and facilitate children's encounters. Additionally, play is more likely to take place between same-aged children, and the close and intimate characteristics of sibling and friend relationships may provide insight into how play may encourage prosociality (Dunn, 1983; Howe, 1991; Piaget, 1932; Youniss, 1980). Furthermore, strategies of emotion regulation are rarely inherently optimal or maladaptive; they must be evaluated in terms of the individual's goals for the situation (Thompson & Meyer, 2007). While conflict situations have been a key focus for many researchers (Garvey, 1977; Howe et al., 2002; Howe et al., 2011), a focus is needed on prosocial situations in order to consider how children who demonstrate behaviours such as shared affect, sharing, helping, and social statements may be demonstrating adaptive emotion regulation. Emotional regulation may also be evident through children's use of internal state language. Thus, in the present study, 7-year-old's prosocial behaviors (i.e., shared affect, sharing, helping, social statements) and use of internal state language (i.e., cognitions, emotions, goals, and preferences) were observed during two play sessions (i.e., with an older or younger sibling and a same-aged friend). Children's emotion regulation was also assessed in each of these play sessions using the Emotion Regulation Checklist (adapted from Shields & Cicchetti, 1997). The following section focuses on how prosocial behaviours may be developed through play with friends and siblings.

Prosociality in Play within Sibling and Friend Relationships

Sibling relationships. Siblings are the second agents of socialization after parents since by the preschool period children typically spend more time with siblings than with parents or others (Dunn, 1993). Evidence for the notion that parents influence the behaviours of siblings suggests that mother's enjoyment of her maternal role is associated with more frequent prosocial behavior in older siblings, which may facilitate the transmission of prosocial behaviors between siblings (Brody et al., 1986). While parents become less present during play interactions by the preschool period, Brody reported that older siblings (aged 7-9) may take on complementary or parent-like roles in their interactions with younger siblings (aged 4.5 – 6.5). Older siblings often act as socialization agents for their younger siblings and engage in various prosocial behaviors such as helping and caretaking (Rinaldi & Howe, 1998). Similarly, while older siblings initially display more sharing behaviours during play than younger siblings, over time, the latter engage in similar levels of sharing as the former, which reflects their developing social skills, as well as the potential influence of teaching (White et al., 2014). Therefore, relationships with younger siblings may provide older children with their first opportunities to engage with less skilled individuals, and may foster the prosocial behaviours of sharing, helping, and teaching. Furthermore, research suggests that siblings are skillful at scaffolding one another's ideas by helping and teaching one another (Howe et al., 1998; Howe & Recchia, 2005; Howe, Rinaldi, Jennings, & Petrakos, 2002). This demonstrates how social play benefits both older and younger siblings, as they learn how to create complex play sequences when one child is less skilled than the other child. Similarly, the verbal negotiations evident when constructing a play script as well

as the differentiated roles required during this form of play provide opportunities for joint construction of narratives, which may facilitate cooperation and contribute to the formation of positive relationships (Howes & Wishard-Guerra, 2004).

Evidence also suggests that learning to share with a sibling may help children to acquire the prosocial skills needed to form positive relationships with peers. White et al. (2014) demonstrated that the frequency of early sharing with older siblings at age three predicted the frequency of sharing among peers three years later at age six. Taken together, the literature suggests sibling relationships may foster the prosocial behaviors of sharing, helping, and cooperation. In the preschool period, older siblings appear to share more frequently than younger siblings (White et al., 2014). Given this pattern of development, the current study focused on children who were seven years of age.

Friendships. Interactions with friends also represent an important set of experiences for acquiring prosocial skills. While associations are evident between prosocial behaviors and the parent-child relationship (Farver & Howes, 1993; Göncü, Mistry, & Mosier, 2000; Haight et al., 1999), few studies have focussed on prosociality among friends in middle childhood. Peers play a significant role in children's developing socialization skills in that these interactions serve as contexts for children to learn about themselves as well as others (Rubin, Bukowski, & Bowker, 2015). According to Mead (1934), social exchanges with peers are an important factor in the development of the self-system or the 'looking glass self', which proposes that children experience themselves indirectly through the responses of their peers. Once children begin to master control over their sense of self, they may begin to understand others as separate from

themselves, and may begin to display empathy, which appears to play an influential role in prosociality (Williams, O'Driscoll, & Moore, 2014).

Relationships with friends may also afford the opportunity to gain the perspective of others as well as the ability to develop other-oriented responses, which may motivate prosociality. For example, Padilla-Walker, Fraser, Black, and Bean (2014) reported that adolescents displayed more prosocial behaviors toward friends than non-friends, because they felt a sense of connectedness to them, being due in part, to sympathy. Similarly, pretend play among friends is more constant and pleasant than play between acquaintances in early childhood (Howes, Droege, & Mathesen, 1994). In contrast to siblings, peers are more equal in status with one another, and therefore must learn to share and accommodate the needs of both partners during play (Grusec, Hastings, & Almas, 2011). Children who engage in frequent and cooperative pretense with friends have fewer disagreements and failed communication bids, which support the maintenance of play (Dunn & Cutting, 1999). During play, children also form shared understandings through the prosocial behaviors of sharing, laughing, and teaching (Howe et al., 2002). Children who partake in coordinated play demonstrate high frequencies of joint laughing and running around together. Finally, cooperative pretend play is positively associated with affective perspective taking skills, language skills, and emotion understanding in 4-year-old children (Dunn & Cutting, 1999). Thus, interactions with friends provide children with opportunities for developing prosocial skills through practice with sharing, empathy, and cooperation.

Internal State Language in Play

Children who often engage in pretense also use sophisticated negotiation strategies designed at creating joint understanding about the play, as well as employing internal state language (Howe et al., 1998, 2005; Leach et al., 2015). As noted earlier, internal state language describes references to mental and emotional states (i.e., thoughts, feelings, desires, and preferences), and is an indicator of social understanding as it provides insight into children's understanding of how others' think and feel (Carpendale & Lewis, 2006; Hughes & Dunn, 1997). The social nature of play may motivate children to use mental state words (i.e., think, want, pretend) as a means to initiate and sustain the play, as well as to create shared meanings (Hughes & Dunn, 1997; Youngblade & Dunn, 1995). Thus, children who understand others' internal states may be more effective play partners in that they display knowledge about their partner's thoughts, emotions, and concepts about the social world; these are factors that may encourage prosociality through cooperation and joint pretend play.

Differences regarding the use of internal state language among friends and siblings may exist, although the literature is mixed. Siblings' shared meaning strategies during play were associated with internal state language, specifically references to goals and cognitions (Howe & Recchia, 2005; Leach et al., 2015). Additionally, while Hughes, Lecce, and Wilson (2007) reported higher rates of mental state language among siblings as compared to friends, Leach et al. (2015) report no differences between sibling and friend dyads in terms of internal state language use during a play session. Therefore, more research is needed with regard to the use of

internal state language within these two relationship contexts, to allow for an enhanced comparison between sibling and friend dyads.

Affect in Play

Emotions arise from interactions between individuals and the environment that are meaningful and motivational because they are relevant to the individual's goals (Gross & Thompson, 2007). Emotions involve interconnected changes in subjective experience, behavior, physiology, and expressions. Developmentally, many features of emotions and their interrelationships evolve over time. As preschoolers mature cognitively and emotionally, the goals that evoke emotions also change. Additionally, others' behaviours act as antecedent conditions for emotions, in the same manner that emotional expressions provide important information for others to act upon (Denham et al., 2011). During the preschool years, children develop the ability to shift their focus from external instigators of feelings, inwards, and begin to understand how emotions, desires, beliefs, and memories are associated (Thompson & Lagattuta, 2006). As children get older, they also begin to understand the connections between emotions and goals. These conceptual advances assist children's understanding of strategies for emotion self-regulation and support their ability for competently enacting such strategies. Thus, emotionally well-regulated individuals express the ability to alter how long, intensely, and quickly they feel as they do (Thompson & Meyer, 2007). This growing ability to alter ones' emotional states also interacts with socialization influences (Thompson & Lagattuta, 2006) as is discussed next.

Play and affect regulation have been linked theoretically, given that children control their play, and affect levels are experienced at moderate levels during this activity. Vygotsky's (1930-1935/1978) theory of sociodramatic play proposes that children engage in this highly social form of play as a way of imitating adults and performing activities that they are too young to accomplish in real life. Through play, children organize stimuli into patterns that allow for an understanding of social norms and the regulation of behavior in accordance with these norms. Due to the constant emphasis on social rules and coordination of goals and behavior with those of others, sociodramatic play demands that children control their impulses. Thus, Vygotsky (1930-1935/1978) argued that through play, children achieve self-control. Being faced with fluctuating affect levels offers children opportunities for tweaking emotional control and achieving mastery over these impulses to act out, which are necessary for developing prosociality.

Emotion Regulation and Prosociality in Play

Sociodramatic play also requires a high social demand as children must agree on who will adopt what role, the identities of each object and action, as well as the ability to agree on decisions about the story sequence (Howe et al., 2005). In this form of pretense, information about real-life activities may be exchanged ("This is how the Doctor does it"), sophisticated language may be used, and roles are negotiated (Smith, 2005). If a child is unable to control negative emotions so as to enable cooperation and negotiation, then he or she may be excluded from the ongoing play. Conversely, cooperation is most often rewarded by inclusion. Elias and Berk (2002) investigated the association between social play and self-regulation in 3- and 4-year-

old preschoolers. Their findings suggest that complex sociodramatic play predicts self-regulation during clean up time, especially for children with high levels of impulsivity. Thus, highly social forms of play with others may foster the development of self-regulation in preschoolers. Through experience with this form of play, children may be learning about negotiation and cooperation, behaviors that may encourage adaptive forms of emotion regulation. Furthermore, play provides children with a safe environment for practicing regulatory skills (Fein, 1989), and is argued to facilitate mastery over emotional experiences, which is a necessary component in prosociality.

In order for children to achieve emotional control, they must first understand the meaning of emotions. Conversations with friends play a role in the development of emotional understanding. Thompson and Meyer (2007) reported that talk about emotions becomes a means of affective self-disclosure in close friendships, provides norms for feeling rules, and is an example of emotional self-management in the peer group. The ability to understand and discuss emotional states with others, as well as the ability to manage one's emotions during interactions is associated with cooperative play (Dunn & Cutting, 1999). Internal state language may also strengthen an individual's relations with others, thus contributing to children's development of prosociality. There is a literature on connections between children's use of internal state language (i.e., cognitions, emotions, goals, preferences) and emotion regulation, which is discussed in the following section. Finally, competent responses to social situations have to be self-controlled in order for children to be accepted by their peers (Denham et al., 2011). Socially competent children are able to engage with others in affective and cognitively flexible ways so as to achieve the social goals of both partners cooperatively (Vaughn et al., 2009). Children who

display more positive emotions and demonstrate more prosocial behaviours may attract more playmates than children who display more negative emotions and fewer prosocial behaviours (Rubin, 2006).

The level of intimacy and affect present between siblings also provides an important context for the expression of emotions (Dunn, 1983; Howe et al., 2011). Positive exchanges among siblings, such as smiling, laughing, seeking proximity, and displaying affection, are affective experiences that are common in early childhood and set the stage for more mature or prosocial forms of sibling closeness (Kramer & Kowal, 2005). Likewise, the act of sibling scaffolding gives children a positive environment for experiencing different emotions, and is a way to practice different methods of emotion regulation while allowing siblings to model effective regulation strategies for one another. Furthermore, siblings who display frequent pretense interactions also exhibit the ability to build-on to their own and extend their partner's ideas (Howe et al., 2005). The shared history and joint constructions of play interactions between siblings may facilitate their ease of communication during pretend play. The ability to communicate effectively with play partners' also supports the idea of adaptive self-regulation.

Research suggests that a connection may exist between emotions and prosociality, given that many social interactions are guided and defined by emotional transactions. However, there is a paucity of research focussing on the relation between prosocial behaviours and emotion regulation. The ability to engage in prosocial behaviors (i.e., shared affect, sharing, helping, social statements) during play may be related to children's emotion regulation.

Internal State Language, Prosociality, and Emotion Regulation in Play

Shared knowledge and an understanding of others' internal states relate to the ability to manage our emotions, given that negotiating about the play and an understanding of others' points of view may enhance cooperation (Garvey, 1977; Rubin, 1980; Rubin, Fein, & Vandenberg, 1983). The ability to focus on positive feelings and behaviors during interactions may facilitate negotiation and problem-solving, and is involved in complex forms of play. For example, children must communicate and agree that a stick will be used to represent a dog and a ball will represent a cat, otherwise the play will break down. Thus, by negotiating and making compromises about the play sequence, players' are ensuring that both members are satisfied. These skills allow for the expression and regulation of emotions by conveying and communicating the prosocial behavior of shared pleasure, which is a key component in play (Vaughn et al., 2009).

Through social exchanges, children develop negotiation and compromising skills while reducing egocentrism, ultimately facilitating the acquisition of perspective-taking skills (Piaget, 1926, 1932; Smith & Rose, 2011). While research in this area is limited, one study has found that adolescents who have the ability to shift the focus from oneself to others also display greater cooperation as well as problem-solving, which may promote enhanced emotion regulation (Bergin, Talley, & Hamer, 2003). In the early years, during play, these skills may translate into the ability to keep one's emotions under control in order to negotiate turn-taking, while resolving conflicts constructively regarding the play sequence. Thus, effective social play may illustrate prosociality, given that participants must share objects, help one another, and regulate emotions

in order to support the play. Playing also encourages emotion regulation in that by adapting their behaviours, children are maintaining the play (Howes, 2011).

Being exposed to conversations about emotions appears to facilitate children's understanding of emotion states. Toddlers who are included in conversations about feeling states with their mothers display the ability to share a pretend framework during play with a sibling, in which a pretend feeling state is agreed on and discussed by both players (Dunn, Bretherton, & Munn, 1987). The children's expressed enthusiasm for this type of play may suggest their ability to express different feeling states, as well as their capacity to understand the feeling states of others. By understanding that others' may have similar feelings that can be shared through language, children are promoting higher levels of interpersonal relatedness to others, and may be fostering prosociality. Furthermore, the ability to understand, share, and discuss internal states with others may facilitate children's emotion regulation abilities and may be conducive to successful play interactions (Juen, Peham, Juen, & Benecke, 2007). Children who engage in more positive affective behavior towards their younger siblings also engage in more sibling-directed internal state language (Howe, 1991). Thus, the use of emotional language may assist older siblings in regulating interactions with their younger siblings. While parents may encourage the understanding of emotions in young children, their presence is not always necessary. Unsupervised social play provides a unique context for prosocial behavior as it encourages children to learn about emotional communication as well as affective perspective taking and emotion management.

The Present Study

The aim of the current study was to compare children's social interactions within two crucial social relationship contexts (i.e., friendships and siblings) in middle childhood. Specifically, focal children's engagement in prosocial behaviours (i.e., shared affect, sharing, helping, and social statements) as well as use of internal state language (i.e., cognitions, emotions, goals, preferences) during play sessions with a sibling and a friend were observed. This study investigated the effects of birth order on children's interactions with siblings and friends. Finally, exploratory analyses examined the possible associations between focal children's engagement in prosocial behaviors, use of internal state language, and ratings of emotion regulation during play sessions with a sibling and friend. Videotaped play sessions previously recorded in the home setting were coded for shared affect (e.g., smiling, laughing, singing), sharing (e.g., verbal & non-verbal), helping (e.g., explanations, physical aid), and internal state language. Furthermore, the Emotion Regulation Checklist (Shields & Cicchetti, 1997) was completed using the video-recorded play sessions to assess focal children's emotion regulation abilities. This checklist is composed of two subscales; emotion regulation and lability/negativity.

The present study had four research goals. First, we investigated focal children's engagement in prosocial behaviors during play with siblings and friends. We anticipated that focal children would demonstrate more prosocial behaviors with friends compared to their siblings since friendships are voluntary in nature and characterized by mutual liking (Dunn, 2002; Leach et al., 2015).

Second, we examined focal children's references to internal states with their sibling and friend. Given the intimate and co-constructed history siblings' share (Dunn, 2002; Howe et al., 2011; Leach et al., 2015), we predicted that focal children would employ more internal state language with their sibling than friend.

Third, we explored the effects of focal children's birth order (first- or second-born) on prosocial behaviors, internal state language, and emotion regulation with a sibling and friend. Based on evidence of the carryover effect (Stocker & Dunn, 1990) we anticipated that second-born focal children compared to first-born children would:

a. Employ more prosocial behaviors;

b. Use more internal state language;

c. Demonstrate more adaptive forms of emotion regulation in play sessions with friends.

Finally, given that prosociality and internal state language have been associated with emotion regulation (Bergin et al., 2003; Denham et al., 2011; Eisenberg et al., 2006; Saarni et al., 2006), we explored possible associations between focal children's levels of prosocial behaviour, internal state language and ratings of lability/negativity and emotion regulation in both play sessions.

a. Since prosociality has been linked with internal state language (Göncü & Gaskins, 2011), we expected to see positive associations between prosocial behaviors and internal state language in both relationship contexts, but stronger associations between friends than siblings.

b. Prosocial behaviors were predicted to have positive associations with the emotion regulation subscale scores, and negative associations with the lability/negativity subscale scores

within both relationship contexts. Stronger associations were expected between friends than siblings, since friendships are voluntary and based on mutual liking (Dunn, 2002).

c. Furthermore, internal state language was expected to have positive associations with the emotion regulation subscale, and negative associations with the lability/negativity subscale within both relationship contexts. Stronger associations were expected between siblings than friends, given siblings' long and shared affective history (Dunn, 2002). Alternatively, regulating one's emotions during play with friends may prove beneficial for promoting friendship as it maintains the play in this voluntary relationship (Howes, 2011).

Method

Participants

The participants included 46 focal children (*M* age = 94.58 months; *SD* = 6.59 months) from middle class, Caucasian families, representative of the Western New York state; 21 children were observed with a younger sibling (*M* age = 74.29 months; *SD* = 5.66 months) and 25 with an older sibling (*M* age = 114.00 months; *SD* = 7.12 months). The participants included 27 same-gender sibling dyads (13 sister pairs, 14 brother pairs) and 19 mixed-gender dyads (11 brother-sister pairs, 8 sister-brother pairs). Focal children were also observed with a same-aged friend (friend *M* age = 96.88 months), whom the family selected based on three criteria: (1) a frequent playmate, (2) the same age, and (3) the same gender as the focal child. In situations where all three criteria were not met, only the first two criteria were used, which resulted in four cases where an opposite-gender friend was chosen (three boys, one girl). Parents were asked to rate the closeness of the friendship on a 5-point scale (i.e., 1 = acquaintance, 3 = friend, 5 = best

friend; $M = 3.96$, $SD = .81$). Families were recruited from preschools, day care centres, schools, and referred by families already enrolled in the study. Selection criteria were based on the age of the focal child (approximately 7.9 years old) who had either a younger or older sibling (1.5 to 2 year age difference). Data collected for this study were part of a larger, longitudinal study that included data from an earlier time point, when focal children were approximately 4 years of age.

Procedure

The focal children were videotaped at home, on two separate occasions, engaging in 15-minute semi-structured and counterbalanced play sessions with a sibling and with a friend. Dyads were given one of two counterbalanced play sets (village or train) to facilitate cooperative social play: village set (19 siblings, 22 friend dyads) or train set (27 siblings, 23 friend dyads). Children were informed that they could play with the toys as they wished while the research assistant and mother sat in another room. These video recordings were transcribed by undergraduate research assistant's blind to the purposes of the original data collection (Dehart, 1999).

Conversational turns. During the transcription process, the children's language and behaviours were transcribed into separate turns, which were confined to a verbal response by the partner or by a passage of time. The number of conversational turns on each transcript was determined by counting the reciprocal exchanges or if a turn was separated by a time passage (approx. 2s).

Measures

Prosocial behaviors. The video recorded play sessions were coded for the frequency of prosocial behaviors exhibited between play partners (Howe et al., 2005; see Appendix A). The categories included: (1) shared affect (e.g., smiling, laughing, singing), (2) sharing (e.g., giving objects), (3) helping (e.g., 'here, I'll help you'), and (4) social statements (e.g., 'we' statements). Specifically, a total score of prosocial behavior was tallied; as well as individual frequency counts for each behavior. The coding scheme was created based on previous work examining play and relationship quality (Howe et al., 1998, 2005). Frequencies were summed for each category, and proportion scores were calculated, accounting for the overall number of prosocial behaviors in each of the play sessions (e.g., focal child shared affect in sibling session/focal child total prosocial behaviors in sibling session).

Internal state language. Internal state language was previously coded based on work by Howe et al. (2002). Each instance of internal state language was coded throughout the sessions according to four mutually exclusive categories: (1) cognitions (e.g., think, know), (2) emotions (e.g., happy, sad), (3) goals (e.g., want, try, need), and (4) preferences (e.g., like, hate) (See Appendix B). Frequencies were summed for each category and proportion scores were computed by dividing each category by the overall use of internal state language in each of the play sessions (e.g., focal child cognitions in sibling session/focal child overall internal state language in sibling session). An overall score of the four categories was also calculated. Given the objective of the present study, the focus was on emotion state words, but the other three categories were still analysed for exploratory purposes.

Emotion regulation. Focal children's emotion regulation was rated during the recorded play sessions with siblings and friends, using a modification of the Emotion Regulation Checklist (adapted from Shields & Cicchetti, 1997; see Appendix C). The original checklist includes 24 items assessing processes that are central to emotionality and regulation in children, such as affective lability, intensity, valence, flexibility, and situational appropriateness (Shields & Cicchetti, 1997, 1998). Items that did not fit the scope of the current study were removed resulting in an adapted checklist of 14 items. Specifically, excluded items included those involving interactions with adults, items that could not be rated based on play interactions, and items involving transitions between activities. Moreover, items mentioning interactions with peers were modified to also include siblings. Following the viewing of each play session with the sibling and the friend, the modified Emotion Regulation Checklist was completed. Items were rated on a 3-point likert scale assessing the frequency of behaviors (from 1 = Never to 3 = Often) and were divided into two subscales: emotion regulation and lability/negativity. Emotion regulation was evaluated using six items describing situationally appropriate affective displays, empathy, and emotional self-awareness. Higher scores indicated a greater ability to manage and modulate emotional arousal to accomplish one's goals. The lability/negativity subscale consisted of eight items assessing inflexibility, dysregulated negative affect, as well as unpredictability and sudden mood changes. Higher scores indicated excessive emotional reactions and frequent mood changes in emotion unrelated to external events or stimuli. A separate score for the sibling sessions was derived as well as for the friend session, so that children's emotional regulation could be compared in the two sessions.

Intercoder Reliability

Reliability for prosocial behavior categories was conducted by the author and a naïve research assistant on 20% (18/92) of the video-recorded play sessions: shared affect (k = .80), social statements = .87, and sharing/helping = .80. Intraclass correlation coefficients (ICC; absolute agreement between raters) for Emotion Regulation Checklist scores were calculated on a different set of 20% of the recorded play sessions: emotion regulation subscale = .76, emotion lability/negativity subscale = .90. The 18 video recordings used for reliability were randomly selected across play sessions, and the author individually coded the remaining 74 recordings. Reliability coding was previously conducted on 16% (n = 15/92) of the transcripts for internal state language (e.g., cognitions, emotions, goals, and preferences) (Leach, Howe, & Dehart, 2015). Cohen's *kappa's* revealed high levels of agreement for total references (k = .96), cognitions = .95, emotions = .95, goals = .96, and preferences = .96. According to Fleiss (1981), *kappas* over .75 are considered high.

Results

Descriptive Statistics

Analyses were conducted using proportion scores (as described previously) due to the range in number of prosocial behaviors displayed by the children (focal children with siblings: range = 0 - 32; focal children with friends: range = 3 – 88; sibling: range = 0 – 48; friends: range = 2 - 66). Means and standard deviations of the children's prosocial behaviors, internal state language, and emotion regulation scores are reported in Tables 1, 2, and 3.

Table 1

Means and Standard Deviations of Children's Prosocial Behaviors

	Sibling Session		Friend Session	
	Focal Child	Sibling	Focal Child	Friend
Prosocial Behaviors	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Social Statements	0.45 (0.28)	0.46 (0.28)	0.45 (0.24)	0.38 (0.26)
Sharing	0.03 (0.06)	0.07 (0.12)	0.02 (0.03)	0.02 (0.06)
Helping	0.23 (0.22)	0.24 (0.21)	0.19 (0.19)	0.22 (0.20)
Laughing	0.17 (0.19)	0.13 (0.16)	0.22 (0.19)	0.30 (0.27)
Smiling	0.08 (0.13)	0.06 (0.09)	0.11 (0.13)	0.06 (0.10)
Singing	0.05 (0.10)	0.04 (0.10)	0.02 (0.03)	0.02 (0.04)

Note. $N = 46$. Means and standard deviations are proportion scores based on the overall number of prosocial behaviors in the play sessions.

Table 2

Means and Standard Deviations of Children's Internal State Language

	Sibling Session		Friend Session	
	Focal Child	Sibling	Focal Child	Friend
Internal State Language	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Goals	0.55 (.26)	0.53 (.17)	0.56 (0.18)	0.52 (0.19)
Cognitions	0.32 (0.21)	0.33 (0.15)	0.31 (0.13)	0.33 (0.18)
Emotions	0.06 (0.10)	0.07 (0.10)	0.07 (0.09)	0.08 (0.11)
Preferences	0.08 (0.10)	0.07 (0.10)	0.04 (0.07)	0.07 (0.08)

Note. $N = 46$. Means and standard deviations are proportion scores based on the overall use of internal state language in the play sessions.

Table 3

Means and Standard Deviations of Children's Emotion Regulation Checklist Scores

	Sibling Session		Friend Session	
	Focal Child	Sibling	Focal Child	Friend
ER Subscales	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
ER	11.34(1.08)	11.36 (1.30)	11.75 (0.76)	11.61 (0.74)
Lability	11.18(0.67)	11.05 (0.77)	11.07 (0.58)	11.04 (0.66)

Note. $N = 46$. Means and standard deviations are based on focal children's raw scores on each of the Emotion Regulation Checklist subscales.

Gender and Age

A series of one-way ANOVAs were conducted to determine any significant differences between focal children's gender and prosocial behaviors, internal state language, and emotion regulation subscale scores. These analyses did not yield any significant results, and therefore gender was not controlled for in the following analyses. Furthermore, age of focal children (in months) was found to correlate significantly with prosocial behaviors, and was therefore partialed out from subsequent correlations. These analyses did not yield any significant results, so only the original correlations are reported.

Hypothesis 1: Prosocial Behaviors

In order to test the hypothesis concerning focal children's use of prosocial behaviors in the sibling session and peer session, a 2 (relationship: sibling or peer) X 4 (prosocial behaviors) repeated measures ANOVA was conducted. After using Geisser-Greenhouse to correct for sphericity, a main effect of prosocial behavior was found, $F(1.89, 81.20) = 39.11$, $p < .001$, $\eta^2 = .47$; this suggested an overall mean difference in the prosocial behaviors engaged in by focal children (see Table 4 for means and standard errors). *Post hoc* tests revealed that focal children engaged in social statements and shared affect significantly more often than sharing and helping, but the social statements variable was not significantly different than shared affect. Helping occurred more often than sharing, but was not significantly different from shared affect. Sharing was the least frequently used behavior of focal children. No significant interactions were found between relationship with sibling or friend and focal children's use of prosocial behaviors ($p > .05$), thus not supporting the hypothesis.

Associations of prosocial behaviors between and within play sessions for the focal child's behavior. Exploratory Pearson correlations were conducted to investigate possible associations between focal children's prosocial behaviors within each play session and between play sessions. Several correlations were found within the friend session (see Table 5). Focal children's use of social statements was negatively correlated to helping and laughing in the friend session. Also in the friend session, focal children's helping was negatively associated with smiling. Several correlations were also revealed in the sibling session (see Table 6). Focal children's social statements were negatively correlated to sharing, helping, laughing, and smiling. Also in the sibling session, focal children's smiling correlated positively with sharing and with singing, whereas laughing was negatively associated with singing. Several correlations were established between prosocial behaviors across the friend and sibling sessions (see Table 7). Focal children's laughing in the sibling session correlated negatively to helping and correlated positively to laughing in the friend session.

Table 4

Means and Standard Errors for Prosocial Behaviors Employed by the Focal Child Across Sessions

Prosocial Behaviors	*M*	*SE*
Sharing	.02[b]	.01
Helping	.21[b]	.02
Social Statements	.45[a]	.03
Shared Affect	.31[a]	.03

Note. $N = 46$. Means and standard errors are based on proportion scores of the overall prosocial behaviors employed by focal children across sessions. Means in the same column are labeled with different superscripts when *post hoc* Bonferroni tests revealed significant differences at $p < .001$ (i.e., "a" is significantly different from "b").

Table 5

Pearson Correlations between the Focal Child's Prosocial Behaviors in the Friend Session

	Social Statements	Sharing	Helping	Laughing	Smiling
Sharing	-.22				
Helping	-.36*	.02			
Laughing	-.69**	.11	-.22		
Smiling	-.26	-.04	-.44**	.10	
Singing	.02	-.03	.02	-.07	-.02

* $p < .05$, ** $p < .01$.

Table 6

Pearson Correlations between the Focal Child's Prosocial Behaviors in the Sibling Session

	Social Statements	Sharing	Helping	Laugh	Smile
Sharing	-.35*				
Helping	-.42**	-.19			
Laughing	-.39**	.01	-.28		
Smiling	-.57**	.46**	-.23	.14	
Singing	-.23	.18	-.08	-.35*	.31*

* $p < .05$, ** $p < .01$.

Table 7

Pearson Correlations of the Focal Child's Prosocial Behaviors across the Sibling and Friend Sessions

	Friend Session					
	Social Statements	Sharing	Helping	Laughing	Smiling	Sing
Sibling Session						
Social Statements	.21	-.01	-.03	-.29	.02	.16
Sharing	.08	-.18	.01	.10	-.24	-.05
Helping	.01	-.24	.27	-.08	-.19	-.20
Laughing	-.21	.14	-.30*	.36*	.27	.11
Smiling	-.19	.22	.05	.16	.05	-.14
Singing	.03	.14	-.01	.06	-.06	.00

* $p < .05$, ** $p < .01$.

Hypothesis 2: Internal State Language

In order to test the hypothesis concerning focal children's use of internal state language in the sibling session and peer session, a 2 (relationship: sibling or peer) X 4 (internal state language) repeated measures ANOVA was conducted. After using Geisser-Greenhouse to correct for sphericity, a main effect of internal state language was found, $F(1.86, 76.41) = 153.97$, $p < .001$, $\eta^2 = .79$, indicating an overall mean difference in the internal state language engaged in by focal children (see Table 8 for means and standard errors). *Post hoc* tests revealed that focal children referred to goals and cognitions significantly more often than the other two internal state language categories with both siblings and friends. Emotions and preferences were the least frequently referred to by the children and did not differ significantly from one another. No significant interactions were found between relationship with sibling or friend and focal children's use of internal state language ($p > .05$), thus not supporting this hypothesis.

Associations of internal state language between and within play sessions for the focal child's behavior. Exploratory Pearson correlations were conducted to investigate possible associations between focal children's internal state language within each play session and between play sessions. One correlation was found within the friend session (see Table 9). References to goals were negatively correlated to references to preferences. Within the sibling session (see Table 10) references to goals were negatively correlated to cognitions, emotions, and preferences. Several correlations were also found between the sibling and friend sessions (see Table 11). References to goals in the friend session were positively correlated with making references to cognitions in the sibling session. References to preferences in the friend session

correlated positively to references to goals and correlated negatively to references to cognitions in the sibling session.

Table 8

Means and Standard Errors for Internal State Language Employed by the Focal Children Across the Sibling and Friend Sessions

ISL	*M*	*SE*
Goals	.55[a]	.02
Cognitions	.33[a]	.02
Emotions	.07[b]	.01
Preferences	.06[b]	.01

Note. $N = 46$. Means and standard errors are based on proportion scores of the overall ISL employed by focal children across sessions. Means are labeled with different superscripts when *post hoc* Bonferroni tests revealed significant differences at $p < .001$ (i.e., "a" is significantly different from "b").

Table 9

Pearson Correlations between the Focal Child's ISL in the Friend Session

	Goals	Cognitions	Emotions
Cognitions	-.16		
Emotions	.08	-.00	
Preferences	-.34*	-.16	.01

* $p < .05$, ** $p < .01$.

Table 10

Pearson Correlations between the Focal Child's Internal State Language in the Sibling Session

	Goals	Cognitions	Emotions
Cognitions	-.80**		
Emotions	-.51**	.04	
Preferences	-.48**	-.01	.27

Note. * $p < .05$, ** $p < .01$.

Table 11

Pearson Correlations of the Focal Child's Internal State Language across the Sibling and Friend Sessions

			Friend Session	
	Goals	Cognitions	Emotions	Preferences
Sibling Session				
Goals	-.18	-.16	.08	.31*
Cognitions	.33*	.09	-.22	-.37*
Emotions	-.12	.19	.15	-.06
Preferences	-.10	.03	.09	.02

* $p < .05$, ** $p < .01$.

Hypothesis 3A: Birth Order Effects and Prosocial Behaviors

To test the hypothesis concerning the effects of focal children's birth order on their engagement in prosocial behaviors with siblings and peers, a 2 (relationship: sibling or peer) X 2 (birth order: older or younger focal child) X 4 (prosocial behaviors) ANOVA was employed. No significant interactions were found between relationship, birth order, and prosocial behaviors ($p > .05$). See Table 12 for means and standard errors.

Hypothesis 3B: Birth Order Effects and Internal State Language

In order to test the hypothesis concerning the effects of focal children's birth order on their use of internal state language with siblings and peers, a 2 (relationship: sibling or peer) X 2 (birth order: older or younger focal child) X 4 (internal state language) ANOVA was employed. No significant interactions were found between relationship, birth order, and internal state language ($p > .05$). See Table 13 for means and standard errors.

Hypothesis 3C: Birth Order Effects and Emotion Regulation Scores

To test the hypothesis regarding the effects of focal children's birth order on their Emotion Regulation Checklist scores, a 2 (relationship: sibling or peer) X 2 (birth order: older or younger focal child) X 2 (ER: emotion regulation subscale or lability/negativity subscale) ANOVA was employed. A main effect of the emotion regulation subscale was found, $F(1, 43) = 112.77$, $p < .001$, $\eta^2 = .72$, indicating an overall mean difference in emotion regulation scores among older and younger focal children. An interaction was also evident between relationship and emotion regulation subscale scores, $F(1, 43) = 5.56$, $p < .05$, $\eta^2 = .12$, suggesting differences between focal children's emotion regulation subscale scores in the sibling and friend sessions.

Post hoc tests revealed that focal children scored higher on the emotion regulation subscale in interactions with friends than with siblings. A significant interaction was found between relationships, birth order, and emotion regulation subscale scores, $F(1, 43) = 4.04$, $p = .05$, $\eta^2 = .09$, suggesting differences between focal children's emotion regulation scores in both sessions and by birth order. *Post hoc* tests revealed that both older and younger focal children scored higher on the emotion regulation subscale with friends than with siblings. Younger focal children scored higher on the lability/negativity scale with friends than siblings. Finally, older focal children scored lower on the lability/negativity scale with friends than with siblings. See Table 14 for means and standard errors.

Table 12

Means and Standard Errors for Prosocial Behaviors Employed by Younger and Older Focal Children Across Sessions

	Younger		Older	
	Sibling Session	Friend Session	Sibling Session	Friend Session
Prosocial Behaviors	*M* (*SE*)	*M* (*SE*)	*M* (*SE*)	*M* (*SE)*
Sharing	.03 (.01)	.01 (.01)	.02 (.01)	.02 (.01)
Helping	.23 (.05)	.17 (.04)	.23 (.05)	.24 (.04)
Social Statements	.49 (.06)	.54 (.05)	.41 (.06)	.35 (.05)
Shared Affect	.26 (.05)	.28 (.05)	.34 (.06)	.39 (.05)

Note. $N = 46$. Means and standard errors are based on proportion scores of behaviors by focal children's birth order.

Table 13

Means and Standard Errors for Internal State Language Employed by Younger and Older Focal Children Across Sessions

	Younger		Older	
	Sibling Session	Friend Session	Sibling Session	Friend Session
ISL	*M* (*SE*)	*M* (*SE*)	*M* (*SD*)	*M* (*SE)*
Cognitions	.31 (.05)	.31 (.03)	.35 (.05)	.33 (.03)
Emotions	.06 (.02)	.09 (.02)	.07 (.02)	.05 (.02)
Goals	.57 (.06)	.58 (.03)	.48 (.06)	.57 (.04)
Preferences	.06 (.02)	.03 (.02)	.10 (.02)	.06 (.02)

Note. $N = 46$. Means and standard errors are based on proportion scores of internal state references by focal children's birth order.

Table 14

Means and Standard Errors for Younger and Older Focal Children's Emotion Regulation Scores Across Sessions

	Younger Focal Child		Older Focal Child	
	Sibling Session	Friend Session	Sibling Session	Friend Session
Emotion Regulation Subscales	*M* (*SE*)	*M* (*SE*)	*M* (*SD*)	*M* (*SE)*
Emotional regulation	13.88 (.26)	14.21 (.18)	13.67 (.27)	14.24 (.19)
Lability	12.04 (.14)	12.30 (.14)	12.19 (.15)	11.71 (.15)

Note. $N = 46$. Means and standard errors are based on raw scores of focal children's Emotional Regulation Checklist subscale scores by birth order.

Hypothesis 4: Prosocial Behaviors, Internal State Language, and Emotion Regulation

Pearson correlations were conducted as exploratory analyses in order to investigate the hypotheses of positive associations between focal children's prosocial behaviors, internal state language (ISL), and emotion regulation within each play session.

Associations between prosocial behaviors and ISL. First, correlations examined whether associations existed between focal children's prosocial behaviors and internal state language in the sibling and friend play sessions. Partial support was found. (see Table 15). In the sibling session, focal children's use of social statements was positively associated with references to goals, whereas laughing and smiling were negatively associated with references to goals. Within the friend session, focal children's singing was positively associated with references to preferences.

Associations between prosocial behaviors and emotion regulation. Another set of correlations was conducted to test associations between prosocial behaviors and emotion regulation scores of focal children within each play session. This was partly supported (see Table 16). In the sibling session, focal children's helping was negatively associated with their emotion regulation subscale scores; their use of social statements was negatively associated with scores on the lability subscale. In the friend session, focal children's smiling was negatively associated with lability subscale scores.

Associations between ISL and emotion regulation. Finally, a series of Pearson correlations was carried out to investigate the associations between focal children's internal state language and emotion regulation in the sibling and friend sessions (see Table 17). This was

partially supported. A positive association was found between focal children's references to cognitions and emotion regulation scores in the sibling session. No significant findings were evident between internal state language and emotion regulation in the peer session.

Table 15

Pearson Correlations between Focal Children's Prosocial Behaviors and Internal State Language in the Sibling and Friend Sessions

	Sibling Session				Friend Session			
Prosocial Behaviors	Goal	Cog	Emot	Pref	Goal	Cog	Emot	Pref
Social Statements	.44**	.22	-.01	.14	.02	-.11	-.16	-.09
Sharing	-.09	-.28	-.03	-.16	.12	.10	.12	-.04
Helping	-.01	.02	-.26	-.21	-.14	.10	.19	-.04
Laughing	-.30*	-.10	.23	.20	.02	-.02	.04	.12
Smiling	-.31*	-.14	.17	-.03	.11	.06	-.03	-.02
Singing	-.19	-.13	-.05	-.17	-.03	-.01	-.08	.31*

Note. Goal = goals. Cog = cognitions. Emot = emotions. Pref = preferences.
* $p < .05$, ** $p < .01$.

Table 16

Pearson Correlations between Focal Children's Prosocial Behaviors and Emotion Regulation Scores in the Sibling and Friend Sessions

	Emotion Regulation Sibling Session		Emotion Regulation Friend Session	
Prosocial Behaviors	ER	Lab	ER	Lab
Social Statements	.28	-.32*	-.11	.21
Sharing	.08	-.07	.07	.24
Helping	-.44**	.05	-.01	-.00
Laughing	.11	.11	.01	-.09
Smiling	-.01	.07	.19	-.36*
Singing	-.07	.16	-.08	.11

Note. ER = emotion regulation subscale. Lab = lability/negativity subscale.
* $p < .05$, ** $p < .01$.

Table 17

Pearson Correlations between the Focal Child's Internal State Language and Emotion Regulation Scores in the Sibling and Friend Sessions

	Emotion Regulation Sibling Session		Emotion Regulation Friend Session	
Internal State Language	ER	Lab	ER	Lab
Goals	.11	-.11	.08	-.00
Cognitions	.32*	-.23	.08	-.07
Emotions	.06	.16	.10	.04
Preferences	.09	.16	.02	-.03

Note. ER = emotion regulation subscale. Lab = lability/negativity subscale.
* $p < .05$, ** $p < .01$.

Discussion

The overall purpose of this study was to examine the associations between focal children's prosocial behaviors, internal state language, and emotion regulation during pretend play across two relationship contexts, the sibling and friend relationships. A discussion of the findings reported above will follow according to the research questions and themes that emerged from the data. Subsequent to this discussion will be an outline of the limitations of this study, directions for future research, as well as the implications of the findings for parents and early childhood educators, and a final conclusion.

Prosocial Behaviors During Play

The first goal of the present study was to examine focal children's engagement in prosocial behaviors during play with siblings and friends.

Types of prosocial behaviors. Exploratory analyses revealed interesting differences in focal children's displays of prosocial behaviors. First, overall focal children engaged in social statements and shared affect significantly more than the other categories of prosocial behaviors (sharing and helping). Social statements are characterized as positive words that include joint references and benefit the dyad (e.g., "we" statements), and ultimately maintain children's engagement in the play. These statements may be used to facilitate play, "*we* had it upside down"; as a way to negotiate about the play, "*we* can't put it there because it won't fit"; as a way to ask questions, "where should *we* put this one?"; or as conditional statements, "after *we* build this *we* could do that". These statements encourage the development of shared understanding through communicative skills, which are necessary for understanding and expanding on each

other's ideas (Howe et al., 2005; Leach et al. 2016; Vaughn et al., 2009). The finding that focal children engaged in higher levels of social statements are in line with the work of other researchers who have investigated shared meanings in play and found that social play interactions become increasingly shared in older children, who tend to use such talk during play to create, clarify, maintain, and negotiate the play scenario (Göncü, 1993; Garvey, 1990; Howe et al., 2005).

Shared affect was also frequently used. Affective behaviors include verbal or nonverbal instances where both children were engaged in laughing, smiling, or singing. Shared affect among partners facilitates communication and encourages bonding (Kelly, Iannone, & McCarty, 2014). Thus, these behaviors demonstrate the connectedness of partners during play, which encourage smooth interactions and may ultimately facilitate the continuation of the play session.

The aforementioned behaviors of social statements and shared affect may act as foundations for subsequent prosocial behaviors, and may explain why helping and sharing were observed less frequently. Helping refers to information or actions that are intended to alleviate an instrumental need (i.e., handing the partner a missing piece, answering questions), while sharing is characterized by actions or words that are intended to alleviate a material need (e.g., recognizing and responding to partner's lack of a desired toy) (Padilla-Walker & Carlo, 2014; White et al., 2014). Compared to the previous behaviors, helping and sharing could be seen as behaviors that alleviate individualistic rather than dyadic needs. That the children were already connected to one another through their statements and affect could explain why they did not need to help or share their toys because they were already engaged in joint play, and possibly working

toward the same goal and with the same materials. Perhaps comparing Time 1 data from when children were 4-years-old to our current data set would show more interesting differences in the development of these behaviors and is a question for future research.

Relationship associations. It was anticipated that focal children would demonstrate more prosocial behaviors with friends as compared to siblings since friendships are voluntary and characterized by mutual liking (Dunn, 2002; Leach et al., 2015). This hypothesis was not supported. The lack of significant associations between focal children's engagement in prosocial behaviors during play with a friend and with a sibling may be explained by the carryover effect. The carryover effect posits that children use similar interaction strategies in multiple types of relationships, and therefore predicts similar social exchanges between relationships with friends and siblings (Stocker & Dunn, 1990). Therefore, the focal children were observed engaging in prosocial behaviors with their siblings and the same pattern was evident in their use of the same prosocial behaviors with their friends. Other research has demonstrated that distinct differences exist between these two relationships. Specifically, while siblings share an intimate and long affective history, friendships are mutual and reciprocal relationships that are based on common interests (Dunn, 2002; Hughes, 2011). Nevertheless, it appears that focal children approached the two partners in similar ways in the current study. Perhaps, comparing Time 1 data with our Time 2 data would have proved fruitful in finding differences between these two relationships, given the difference in age of focal children across time. This is a question for future research.

Prosocial behaviors between and within sessions. Exploratory analyses investigated possible associations between and within play sessions for focal children's engagement in

prosocial behaviors. In the friend session, focal children's social statements (i.e. "we") were negatively associated to helping and laughing. This seems logical given that social statements tend to be spoken when asking questions or negotiating, which are not necessarily related to helping and do not involve laughing. Helping in friend session was also negatively associated with smiling. Perhaps assisting one another requires concentration and therefore the amount of smiling during this helping behavior is decreased.

Similarly to the friend session, in the sibling session focal children's social statements were negatively associated to sharing, helping, laughing, and smiling. Perhaps as with the other behaviors, dyadic negotiations or questions aimed at encouraging the play sequence involve communication and understanding one another (Howe et al., 2005; Leach et al. 2016; Vaughn et al., 2009), and therefore do not necessarily involve sharing one's toys or smiling. Within the sibling session, smiling was associated to sharing and singing. This seems reasonable; if someone shares something with us, then this is likely to encourage a smile as a form of acknowledgement and appreciation. Singing is a behavior that people generally find enjoyable, and singing along with someone else would logically involve happy feelings, which may encourage smiling. Laughing was negatively associated with singing, which makes sense given that it would be quite difficult to perform these two behaviors at the same time.

Several associations were established across play sessions. Focal children's laughing in the sibling session was negatively associated to helping in the friend session. Perhaps children who laugh with siblings engage in more silly behaviors and fewer connected and helpful interactions, which they then carry over into interactions with friends (Stocker & Dunn, 1990).

Laughing in the sibling session was however associated with laughing in the friend session. This finding seems more reasonable, in that the focal children's humour may be stable across play partners. Children who are silly may remain so regardless of their play partner. They may also attract friends who remind them of their sibling, thus if said sibling makes them laugh, they may be more attracted to friends who do the same.

Internal State Language During Play

The second goal of this study was to investigate focal children's use of internal state language during play with siblings and friends.

Types of internal state language. Several interesting findings arose with regards to the types of internal state language used by focal children during their interactions with friends and siblings. Focal children referred to goals and cognitions significantly more often than emotions and preferences, which is in line with the findings of other research (Howe & Recchia, 2005; Leach et al., 2005; Leach et al. 2012). Cognitions are words reflecting a child's beliefs (thoughts), "I *think*"; or knowledge, "I have no *idea*". Goals refer to a child's desires, "I *need* that piece"; obligations, "I *have to* do this"; intentions, "I didn't do it on *purpose*"; or attempts, "Let me *try*". Children will refer to their own mental states by making statements such as "*I* wonder if this goes here" or "*I* want that piece". They also refer to the mental states of their partner by asking questions such as "what do *you* think?" or "Do *you* need it?" The social constructivist model of development suggests that play allows children the opportunities to practice using cognitive abilities (Cheah et al., 2001; Eisenberg et al., 2006), which could explain why references to goals and cognitions were most prevalent. Likewise, in order to develop

shared understandings children need to be able to verbally express their mental states due to the cognitive skills required for play.

The play situations observed in this study appear to be affording the children ample opportunities for expressing their own thoughts and cognitions as well as the ability to encourage their play partners to do the same. On the other hand, the ability to talk about internal thoughts and feelings is associated with assisting cooperation and equality among players, and ultimately contributes to the maintenance of play (Göncü & Gaskins, 2011). Perhaps a bi-directional influence between play and communication exists; wherein play provides opportunities for practicing cognitive abilities, while children's abilities to communicate their internal states enhance their play experiences. This relationship could also explain why children predominantly referenced cognitions and goals, and may be impacted by children's age. Leach et al. (2016) compared children's internal state language references at Time 1 (age 4) with Time 2 (age 7) data, and found that children referenced cognitions more often with siblings than friends at Time 2. While Leach et al. (2016) used the same data set as the present study, the way children's internal state language was proportionalized in the two studies was different, and may explain the different findings. To tease apart the possible bi-directionality of play and children's cognitive abilities, research could compare children's use of internal state language in a play scenario with their use in a nonplay scenario (e.g., talk about a conflict situation and how they resolved it).

While cognitions and goals must be expressed verbally (e.g., "I *need* that horse"), emotions and preferences can be communicated nonverbally through actions and facial

expressions (e.g., smiling, laughing, frowning) and may explain the low frequency of references to emotions and preferences. According to Hughes and Dunn (1997) references to mental states (e.g., thoughts, beliefs, and memories) during play may be essential to facilitating the pretend scenario, which is in line with our findings. Overall, it seems that children may be using internal state language to initiate and sustain interactions with other children, especially during play.

Relationship associations. Given the intimate and co-constructed history that siblings share (Dunn, 2002; Howe et al., 2011; Leach et al., 2015), it was predicted that focal children would employ more internal state language with their sibling than friend. No significant differences were found between children's use of ISL with a sibling or with a friend, thus not supporting the hypothesis. Apparently focal children employ references to internal states consistently regardless of their social partner.

Internal state language between and within sessions. Exploratory analyses investigated possible associations between and within play sessions for focal children's use of ISL. In the friend session, focal children's references to goals were negatively associated with references to preferences. This finding seems logical given that while preferences are more personal or individual in nature (e.g. "I *love* that"), goals may refer to the dyads desires, intentions, or attempts (e.g., "we *have to*" "we *could try* this way").

Within the sibling session, several associations were uncovered. Focal children's references to goals were negatively associated with cognitions, emotions, and preferences. This finding is consistent with the aforementioned finding, in that while goals may easily refer to the dyad, cognitions (e.g. "I *believe*"), emotions (e.g. "that makes me *sad*"), and preferences (e.g. "I

hate that") are all more individualistic in nature and may be used as personal statements. A child who refers to their own internal states may therefore be less inclined to make references to the dyad or to their play partners' internal states. Future work could tease apart children's references to compare how many times they refer to the dyad or their play partner as compared to the number of references they make about their own internal states. Children who make more references about the dyad or ask the other person about their internal states may be demonstrating more prosocial behaviors than someone who is more concerned with their own internal states.

Several interesting findings were also revealed between the friend and sibling sessions. Focal children's references to goals in the friend session were positively associated with making references to cognitions in the sibling session. Perhaps the goals focal children expressed and worked towards in the friend session carried over in the sibling session as cognitions about how the play sequence should unfold. Similarly, references to preferences with friends were positively associated to goals in the sibling session. Perhaps children are more inclined to speak about their personal preferences with friends as a result of the interactions with their siblings. If they worked towards the same goals during play with their sibling, then perhaps during play with a friend they may speak about preferring one way over another based on what they did with their sibling.

On the other hand, preferences in the friend session were negatively associated to cognitions in the sibling session. Given the previous findings, this discovery is curious and would require more investigating. Comparing how the children play with the same toys or work

towards accomplishing the same goals across the friend and sibling session may reveal more findings about the types of internal states they use within and across both sessions.

Birth Order Effects

The third goal of this study was to examine children's birth order effects on their involvement in prosocial behaviors, internal state language, and emotion regulation with siblings and friends.

Birth order effects on prosocial and internal state language. Based on the carryover effect (Stocker & Dunn, 1990), it was anticipated that younger focal children would employ more prosocial behaviors and use more internal state language. This hypothesis was not supported. No differences in terms of prosocial behaviors or internal state language use were found between older or younger focal children. While younger focal children might practice these behaviors through interactions with older siblings, older focal children may also acquire said behaviors through interactions with their parents or through interactions with friends. Perhaps more findings would have been evident if Time 1 data had been compared to the Time 2 data.

Birth order effects and emotion regulation associations. The Emotion Regulation Checklist was used to determine children's ability to regulate their emotions and was adapted to fit the scope of this study (Cicchetti, 2011). The checklist is divided into two parts: lability/negativity (e.g., exhibits wide mood swings; is easily frustrated) and emotion regulation (e.g., is empathic towards others; displays appropriate negative emotions). Lower

lability/negativity and higher emotion regulation subscale scores represent more adaptive forms of emotion regulation.

It was predicted that second-born children would display more adaptive forms of emotion regulation in play sessions with friends. This hypothesis was partially supported. Results demonstrated that both older and younger focal children scored higher on the emotion regulation subscale with friends than siblings; they displayed more smiling, positive responses, empathy, and appropriate negative emotions with friends. Similarly, older focal children scored lower on the lability/negativity subscale in interactions with friends than siblings. This finding seems logical, given that as children approach school age, they spend less time with their siblings and must learn to socialize with same-aged children. Peers are more equal in status than siblings, and therefore must learn to accommodate to the needs of both partners during play (Grusec, Hastings, & Almas, 2011). Children who engage in frequent and cooperative pretense with friends have fewer disagreements compared to friends who engage in less frequent and less cooperative pretense, which demonstrates adaptive emotion regulation (Dunn & Cutting, 1999). Self-control is also important when it comes to peer acceptance and the ability to attract playmates. Unlike the sibling relationship, which is characterized by a long co-constructed affective history and a great deal of time spent together, friendships are more mutual, voluntary, reciprocal, and may be of shorter duration (Dunn 2002; Hughes, 2011). Therefore, if children let their emotions get the best of them in a situation with a friend, the consequences may prove more detrimental than if they were interacting with a sibling. A child who has trouble regulating his/her emotions (e.g., pouts, displays wide mood swings, is easily frustrated) may have difficulty maintaining the play

session and, ultimately a friendship. On the other hand, if a child displays these same behaviors with a sibling, while the play may break down, the sibling relationship remains. Thus, the more fragile and less-permanent characteristics of friendships may encourage children to pay more attention to regulating their emotions in this context.

Conversely, younger focal children scored higher on the lability/negativity subscale with friends than siblings; specifically, they exhibited more mood swings, negative emotions, negative responses, and overly exuberant behaviors with friends. Although they may regulate their emotions with friends, younger focal children may be more likely to display negative outbursts of behaviors that are characteristic of those on the lability/negativity scale. Perhaps younger children are not as skilled at social understanding as are older children, and therefore are more inclined to display these negative behaviors because they are not experienced at making accurate inferences about others' thoughts and feelings (Dunn, Cutting, & Fisher, 2002). Furthermore, Cutting and Dunn (2006) reported that siblings' communication was more successful than friends, suggesting that siblings engaged in more joint discussions about their play than friends. The ability to understand the thoughts and feelings of others, as well as the ability to engage in joint discussions can have a great impact on children's abilities at regulating their emotions.

An interesting question for future research could be to record the time it takes children to regulate their emotions during moments of upset with a sibling and friend (e.g., pouting, crying, shouting). The time it takes a child to calm down and be able to return positively to the situation may relate to and speak of their regulation abilities. To take this one step further, comparisons

can be made between the Time 1 and Time 2 data, to identify any changes over time, in terms of birth order, age, and socialization influences on emotion regulation.

Prosocial Behaviors, Internal State Language, and Emotion Regulation

The final goal of the current study was to examine possible associations between focal children's prosocial behaviors, internal state language, and ratings of emotion regulation in play sessions with friends and siblings.

Prosocial behaviors and internal state language. Positive associations were expected between prosocial behaviors and internal state language in both sessions, but stronger associations between friends. This hypothesis was partly supported. With friends, focal children's singing was positively related with references to preferences. Apparently, focal children who sang songs together with their friends were also more inclined to vocalize preferences, as these may resemble the preferences of their playmates. Perhaps their ability to vocalize their preferences (e.g., "I *love* that one" or "I *hate* this") demonstrates how the focal children are developing their sense of self or their 'looking glass self' (Mead, 1934). Through interactions with their friends and singing together they are experiencing themselves indirectly, and learning to master their sense of self, which plays an influential role in prosociality (Williams, O'Driscoll, & Moore, 2014). Similarly, in sibling sessions, focal children's social statements were positively associated with references to goals. It seems logical that siblings who use words referring to the dyad (e.g., "*let's* build this together" or "*we* should put this there") would also have and vocalize similar goals (e.g., "we *need to* find that piece" or "let's *try* to put this here"). The ability to understand that others may have similar goals that can be shared

through language promotes higher levels of interpersonal relatedness, and may encourage prosociality.

In contrast to the previous findings, laughing and smiling were negatively associated with references to goals in the friend session. Perhaps while focal children do laugh and smile with their friends, these behaviors may not be related to their common goals during the play session. For example, if one friend is being silly, which prompts laughing, this does not necessarily mean they are working together towards the same end goal. Perhaps, discussion of goals is more serious business between friends and such negotiations are not well-served by laughing and smiling. This finding suggests that perhaps the prosocial behaviors of friends need to be studied in finer detail, in order to tease apart possible confounds. Another way to delve into this further would be to compare the focal children's behaviors to those of their playmates.

Prosocial behaviors and emotion regulation. It was anticipated that prosocial behaviors would be positively associated with the emotion regulation subscale scores, while negatively associated with the lability/negativity subscale scores within both sessions. Stronger associations were predicted between friends than siblings, given the voluntary nature of these relationships (Dunn, 2002). This hypothesis was also partly supported. In the sibling session, focal children's social statements were negatively associated with lability/negativity subscale scores. Similarly, in the friend session focal children's smiling was negatively associated with lability/negativity subscale scores. It seems logical that the more smiling observed between play partners, that they would demonstrate fewer behaviors such as negative responses or mood swings. Furthermore, it follows that when children use more social statements including both partners, such as "*let's*

build this together" or "*we* can put this here", they will also engage in fewer adverse behaviors since such statements suggest cooperative actions. As Thompson and Meyer (2007) suggested, perhaps these children understand the connections between emotions and goals, and their ability to control how long, intensely, and quickly they feel as they do, which interacts with socialization influences (Thompson & Lagattuta, 2006). Due to the fluctuating affect levels involved, play affords children practice at achieving self-control (Vygotsky, 1930-1935/1978). Given the children's age of 7 years, they may have had enough time to practice tweaking their emotional control skills and have achieved at least partial mastery over their impulses to act out, which is necessary for developing prosociality. Comparisons with Time 1 data would allow us to see whether these skills are developed with age and experience.

Despite these findings, helping was negatively associated with emotion regulation in the sibling session. This appears counter-intuitive, in that if a child displays more frequent helping behaviors (e.g., answering questions, handing a missing piece) then it could be argued that they would also display a better ability at regulating their emotions. Perhaps as compared to the friend session, siblings are less worried about keeping their emotions in check, given the invulnerable and long-standing affective history they already share. Siblings may engage in helping behaviors as a way to control one another or the play. This construct could be examined with a closer lens, to distinguish whether children are helping others as a way of controlling the play scenario or if they are in fact using these behaviors as a way of being prosocial.

Internal state language and emotion regulation. Internal state language was predicted to be positively associated with the emotion regulation subscale and negatively associated with

the lability/negativity subscale within both sessions. Given the long and shared affective history they share, stronger associations were expected between siblings (Dunn, 2002). This hypothesis was partially supported. No associations were found between internal state language and emotion regulation in the peer session. However, a positive association was evident between focal children's references to cognitions and emotion regulation subscale scores in the sibling session. The ability to communicate about our beliefs (thoughts) or knowledge is conducive to social exchanges and play situations, as it encourages cooperation and problem solving, which may promote enhanced emotion regulation (Bergin, Talley, & Hamer, 2003). Perhaps children are demonstrating the ability to regulate their emotions by using their cognitive internal states to negotiate turn taking, to resolve possible conflicts, and overall maintaining the play sequence. Due to the long affective history they share, it may be easier for children to speak about their internal states with siblings than when they are with friends. Finally, it is interesting that no associations were found between internal state language referencing emotions and the emotion regulation subscale. Future work could focus solely on these two constructs and try to find possible connections between children's internal states related to emotions and the ways in which they regulate their emotions.

Limitations

Despite the richness of the data set used for the present study, several limitations must be discussed. First, while the sample size of 46 may be deemed acceptable due to the time-consuming nature of observational data, a larger sample size may have increased the statistical power. Also, the sample demographics were not very diverse given that the majority of

participants were from middle-class and Caucasian backgrounds; however they were representative of their rural, suburban, and small town communities. The small sample size as well as the lack of demographic variability may affect the generalizability of the findings.

A second limitation refers to the constructs used in the study. Children's emotion regulation was measured using an adapted version of Cicchetti's (2011) original Emotion Regulation Checklist, which utilized parent and teacher questionnaires to measure children's levels of emotion regulation. Parent and teacher ratings are more generalizable and applicable than ratings from a coder, given that they spend a lot of time with the children and have countless opportunities to observe them in varying situations and interactions. Thus, having parents and teachers fill out the rating scale may prove more fruitful in discovering children's abilities to regulate their emotions and may lead to more generalizable findings.

That only Time 2 data were used is also a possible limitation of the current study. Had Time 1 data when focal children were 4 years of age been compared to Time 2 when children were 7 years old, a progression over time in terms of the focal children's engagement in the various behaviors may have been observed. Finally, comparing focal children's behaviors to those of their siblings and friends could have also proven more fruitful than focussing on the focal children alone. By including these additional measures, the interpretations of results may have been expanded and more illuminating.

The context of the play scenarios in the current study could explain why stronger associations were not made apparent. An additional context could have been added involving a discussion wherein focal children were asked to converse about a conflict situation, as well as a

joyful or fun situation with a sibling or friend. This may have helped uncover more use of internal state language, given that children would be asked to speak about their experiences and feelings, whereas during play, some children speak less or speech may revolve around the play scenario itself. This added context might also uncover the ways in which children regulate their emotions during periods of upset (i.e., a conflict situation). Stronger relationship differences could have also been uncovered had the study included comparisons of sibling and friend behaviors with those of the focal children, rather than solely focussing on behaviors of focal children. Finally, including a parent and teacher questionnaire to further assess children's emotion regulation abilities at school and at home, may have afforded a more global account of how well they control their negative impulses in different social situations.

Future Research Directions

Given the aforementioned limitations, the results of this study demonstrate the possibilities for future research. First, comparisons can be made between the Time 1 and Time 2 data, to identify any changes over time, in terms of birth order, age, and socialization influences on prosocial behaviors, internal state language, and emotion regulation.

Second, providing parents and teachers with the Emotion Regulation Checklist to fill out, as in the original version by Cicchetti (2011), might lead to a more global portrait of the children's behaviors at school and at home, and in different social situations, which may perhaps provide a more accurate assessment of the children's emotional regulation behaviors. Furthermore, by recording the time it takes children to regulate their emotions during moments

of upset with a sibling and friend (e.g., pouting, crying, shouting) may relate to and speak of their regulation abilities and would be interesting to look at in future work.

Third, children's references to internal states are complex and may have various meanings. Sometimes focal children referenced their own mental states while at other times they referred to the mental states of their play partners. Teasing apart children's references to compare how many times they refer to the dyad or specifically to their play partner as compared to their own internal states could add to our understanding of their social abilities.

Finally, while not many differences were found between focal children's behaviors with siblings as compared to friends, it may be worthwhile to study triads including both friend and sibling to compare whether behaviors observed in each dyad separately also carryover into triadic interactions.

Implications

The present study sheds light on children's prosocial behaviors, internal state language, and their abilities to regulate their emotions during play with siblings and friends. This study adds to the literature on children's development and their social relationships. Children's behaviors during play are diverse and complex, as was made evident in this study. Children used communication strategies that referred to the dyad and which encouraged shared understandings. Children also demonstrated connectedness by engaging in affective behaviors such as smiling, laughing, and singing. The play scenarios afforded children with opportunities to communicate about cognitive strategies relating to their own and their play partners' mental states.

Children also practiced regulating their emotions through play, as partners accommodated and negotiated about the play scenarios. While both older and younger focal children displayed the ability to regulate their emotions, they did so more often with friends than with siblings. Older focal children also seemed to have a better handle on their emotions than younger focal children. Children's engagement in prosocial behaviors and their use of internal state language also related moderately to their abilities at regulating their emotions.

The information provided in this study can be used towards implementing educational programs for helping parents and teachers be made aware of the influences of prosocial behaviors and internal state language on children's abilities to regulate their emotions. Given that connections were made evident between children's engagement in prosocial behaviors, use of internal state language, and adaptive forms of emotions regulation during play, parent and teacher workshops could be offered informing them about the cognitive complexities needed for pretend play and the ways in which play affords children practice at achieving self-control. Thus, demonstrating why unstructured and cooperative play should be encouraged and facilitated at home as well as at school. Parents should be encouraged to talk openly to their children about emotions at home, to help them identify and learn to regulate their emotions. Early childhood education programs should also include an emotion component, in order for children to learn how to be aware of and feel comfortable expressing their feelings, as these are the foundations for successful emotion regulation, which is necessary for successful social exchanges.

Conclusion

Overall, the findings of the present study support findings from previous studies examining children's prosocial behaviors and internal state language during play with siblings and friends (Göncü, 1993; Garvey, 1990; Howe et al., 2005; Howe & Recchia, 2005; Leach et al., 2005; Leach et al. 2012). Furthermore, this study adds to the literature by examining adaptive forms of emotion regulation through the use of prosocial behaviors and internal state language during play. Results demonstrate that within and across the sibling and friend play sessions, a multitude of behaviors and communication strategies are being used. Moreover, the ways in which children regulate their emotions vary across these two relationship contexts. This study has revealed that children's interactions with siblings and friends during play are complex, and each affords children with opportunities at practicing prosocial skills, communicating about internal states, and effective emotion regulation.

References

Bergin, C., Talley, S., & Hamer, L. (2003). Prosocial behaviours of young adolescents: A focus group study. *Journal of Adolescence, 26*, 13-32.

Brody, G.H., Stoneman, Z., & MacKinnon, C.E. (1986). Contributions of maternal child rearing practices and play contexts to sibling interactions. *Journal of Applied Developmental Psychology, 7*, 225-236.

Brownell, C.A., Svetlova, M., Anderson, R., Nichols, S.R., & Drummond, J. (2013). Socialization of early prosocial behavior: parents' talk about emotions is associated with sharing and helping in toddlers. *Infancy, 18*, 91-119.

Carpendale, J., & Lewis, C. (2006). *How children develop social understanding*. Oxford, UK: Blackwell.

Cheah, C.S.L., Nelson, L.J., & Rubin, K.H. (2001). Non-social play as a risk factor in social and emotional development. In A. Göncü and E.L. Klein (Eds.), *Children in play, story, and school* (pp.39-71). New York, NY: Guilford Press.

Cutting, A.L., & Dunn, J. (2006). Conversatuins with siblings and with friends: Links between relationship quality and social understanding. *British Journal of Developmental Psychology, 24,* 73-87.

DeHart, G. B. (1999). Conflict and averted conflict in preschoolers' interactions with siblings and friends. In W. A. Collins, & B. Laursen (Eds.), *Relationships as developmental contexts* (pp. 281–303). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Denham, S., Warren, H., Von Salisch, M., Benga, O., Chin, J., & Geangu, E. (2011). Emotions and social development in childhood. In P.K. Smith and C.H. Hart (Eds.), *The Wiley Blackwell Handbook of childhood Social Development, Second Edition* (pp. 413-433). New York, NY: Blackwell.

Doyle, A.-B. & Connolly, J. (1989). Negotiation and enactment in social pretend play. Relations to social acceptance and social cognition. *Early Childhood Research Quarterly, 4,* 289-302.

Dunn, J. (1983). Sibling relationships in early childhood. *Child Development, 54*, 787-811.

Dunn, J. (1993). *Young children's close relationships: Beyond attachment*. Thousand Oaks, CA: Sage.

Dunn, J. (2002). Sibling relationships. In P. K. Smith & C. H. Hart (Eds.). *The Wiley-Blackwell handbook of childhood social development.* (pp. 223-237). Malden, MA: Wiley-Blackwell.

Dunn, J., Bretherton, I., & Munn, P. (1987). Conversations about feeling states between mothers and their young children. *Developmental Psychology, 23*, 132-139.

Dunn, J., & Brown, J. (1994). Affect expressions in the family, children's understanding of emotions, and their interactions with others. *Merrill-Palmer Quarterly, 40*, 120-137.

Dunn, J., & Cutting, A.L. (1999). Understanding others, and individual differences in friendship interactions in young children. *Social Development, 8*, 201-219.

Dunn, J., Cutting, A. L., & Fisher, N. (2002). Old friends, new friends: Predictors of

children's perspective on their friends at school. *Child Development, 73,* 621-635.

Elias, C., & Berk, L. (2002). Self-regulation in young children: Is there a role for sociodramatic play? *Early Childhood Research Quarterly, 17*, 216-238.

Eisenberg, N. & Fabes, R.A. (1995). The relation of young children's vicarious emotional responding to social competence, regulation, and emotionality. In J. Dunn (Ed.). *Connections between emotion and understanding in development* (pp. 203-228). Hove, UK: Erlbaum.

Eisenberg, N., Fabes, R.A., & Spinrad, T.L. (2006). Prosocial development. In N. Eisenberg (Ed.), *Handbook of child psychology: Social, emotional, and personality development* (Vol. 3, pp. 646-718). Hoboken, NJ: Wiley.

Farver, J.M., & Howes, C. (1993). Cultural differences in American and Mexican mother-child pretend play. *Merrill Palmer Quarterly, 39*, 344-358.

Fein, G.G. (1989). Mind, meaning, and affect: Proposals for a theory of pretense. *Developmental Review, 9*, 345-363.

Fleiss. J.L. (1981). Statistical methods for rates and proportions. New York, NY: John Wiley.

Garvey, C. (1977). *Play.* Cambridge, MA: Harvard University Press.

Gaskins, S., Haight, W., & Lancy, D. F. (2007). The cultural construction of play. In A. Göncü & S. Gaskins (Eds.), *Play and development: Evolutionary, sociocultural, and functional perspectives* (pp. 179-202). Mahwah, NJ: Lawrence Erlbaum.

Gaskins, S., & Miller, P.J. (2009). The cultural roles of emotions in pretend play. In C.D. Clark (Ed.), *Transactions at play. Play & culture studies* (Vol. 9, pp. 5-21). Lanham, MD: University Press of America.

Göncü, A., & Gaskins, S. (2011). Comparing and extending Piaget's and Vygotsky's understandings of play: Symbolic play as individual, sociocultural, and education interpretation. In A.D. Pellegrini (Ed.), *The Oxford handbook of the development of play* (pp. 48-57). New York, NY: Oxford University Press.

Göncü, A., Mistry, J., & Mosier, C. (2000). Cultural variations in the play of toddlers. *International Journal of Behavioral Development, 24,* 321-329.

Göncü, A., Patt, M. B., & Kouba, E. (2002). Understanding young children's pretend play in context. In P. K. Smith & C. H. Hart (Eds*.), The Wiley-Blackwell handbook of childhood social development* (pp. 418-437). Oxford, UK: Blackwell.

Göncü, A., & Perone, A. (2009). Adults in children's play commentary: Inquiries into the role of adults in children's play. *Transactions at play, 9*, 125.

Gross, J.J., & Thompson, R.A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3-24). New York, NY: Guilford.

Grusec, J. E., Hastings, P., & Almas, A. (2011). Prosocial behavior. In P. K. Smith & C. H. Hart (Eds*.), The Wiley-Blackwell handbook of childhood social development* (pp. 549 -566). Oxford, UK: Blackwell.

Haight, W.L., Wang, X.L., Fung, H. H., Williams, K., & Mintz, J. (1999). Universal, developmental, and variable aspects of young children's play: A cross-cultural comparison of pretending at home. *Child Development, 70,* 1477-1488.

Howe, N. (1991). Sibling-directed internal state language, perspective taking, and affective behaviour. *Child Development, 62,* 1503-1512.

Howe, N., Petrakos, H., & Rinaldi, C. M. (1998). " All the sheeps are dead. He murdered them": Sibling pretense, negotiation, internal state language, and relationship quality. *Child Development, 69*, 182-191.

Howe, N., Petrakos, H., & Rinaldi, C.M., & LeFebvre, R. (2005). "This is a bad dog, you know…": Constructing shared meanings during sibling pretend play. *Child Development, 76*, 783-794.

Howe, N., & Recchia, H. (2005). Playmates and teachers: reciprocal and complementary interactions between siblings. *Journal of Family Psychology, 19*, 497-502.

Howe, N., Rinaldi, C. M., Jennings, M., & Petrakos, H. (2002). "No! The Lambs can stay out because they got cozies!": Constructive and destructive sibling conflict, pretend play, and social understanding. *Child Development, 73*, 1460-1473.

Howe, N., Ross, H. S., & Recchia, H. (2011). Sibling relationships in early and middle childhood. In P. K. Smith & C. H. Hart (Eds.), *The Wiley-Blackwell handbook of childhood social development, second edition* (pp. 356-372). Oxford, UK: Wiley-Blackwell.

Howes, C. (2011). Social play of children with adults and peers. In A.D. Pellegrini (Ed.). *The Oxford handbook of the development of play* (pp. 231-244). New York, NY: Oxford University Press.

Howes, C., Droege, K., & Mathesen, C.C. (1994). Play and communicative processes within long- and short-term friendship dyads. *Journal of Social and Personal Relationships, 11*, 401-410.

Howes, C., & Wishard-Guerra, A. (2004). Revisiting shared meaning: Looking through the lens of culture and linking pretend play through proto-narrative development to emergent literacy. In E. Zigler, D.G. Singer, & S. J. Bishop-Josef (Eds.), *children's play: The roots of literacy* (pp.173-185). Washington, DC: Zero to Three.

Hughes, C. (2011). *Social understanding and social lives: from toddlerhood through to the transition to school.* London, England: Psychology Press.

Hughes, C., & Dunn, J. (1997). "Pretend you didn't know": Preschoolers' talk about mental states in pretend play. *Cognitive Development, 12*, 477-497.

Hughes, C., Lecce, S., & Wilson, C. (2007). 'Do you know what I want?' Preschoolers' talk about desires, thoughts and feelings in their conversations with sibs and friends. *Cognition and Emotion*, *21*, 330–350.

Juen, F., Peham, D., Juen, B., & Benecke, C. (2007). Emotion, aggression, and the meaning of prevention in early childhood. In G. Steffgen & M. Gollwitzer (Eds.), *Emotions and aggressive behavior* (pp. 201-210). Cambridge, MA: Hogrefe & Huber.

Kelly, J., Iannone, N., McCarty, M. (2014). The function of shared affect in groups. In C. Von Scheve & M. Salmela (Eds.), Collective emotions: Perspectives from psychology, philosophy, and sociology (pp. 175-188). New York, NY: Oxford University Press.

Kramer, L., & Kowal, A.K. (2005). Sibling relationship quality from birth to adolescence: The enduring contributions of friends. *Journal of Family Psychology, 19,* 503-511.

Leach, J., Howe, N., & Dehart, G. (2015). 'An earthquake shocked up the land!': Children's communication during play with siblings and friends. *Social Development, 24*, 95-112.

Mead, G.H. (1934). *Mind, self, and society*. Chicago, IL: University of Chicago Press.

Montagner, H. (1984). Children's winning ways. *Psychology Today*, 59-65.

Padilla-Walker, L. M, & Carlo, G. (2014). *Prosocial development: A multidimensional approach*. New York, NY: Oxford University Press.

Piaget, J. (1926). *The language and though of the child*. London: Routledge & Kegan Paul.

Piaget, J. (1932). *The moral judgment of the child*. Glencoe: Free Press.

Piaget, J. (1945). *Play, dreams, and imitation in childhood*. New York, NY: Norton.

Recchia, H. E., & Howe, N. (2008). Family talks about internal states and children's relative appraisals of self and sibling. *Social Development, 17*, 776-794.

Rinaldi, C., & Howe, N. (1998). Siblings' reports of conflict and the quality of their relationships. *Merrill-Palmer Quarterly, 44*, 404-422.

Rubenstein, J., & Howes, C. (1976). The effects of peers on toddler's interaction with mother and toys. *Child Development, 47*, 597-605.

Rubin, K.H. (2006). *On hand holding, spit, and the big tickets: A commentary on research from a cultural perspective.* New York, NY: Cambridge University Press.

Rubin, K.H. (1980). Fantasy play: Its role in the development of social skills and social cognition. In K. H. Rubin (Ed.), *Children's play: New directions for child development* (Vol. 9, pp. 69-84). San Francisco, CA: Jossey-Bass.

Rubin, K. H., Bukowski, W. M., & Bowker, J. C. (2015). Children in peer groups. In M. H. Bornstein, T. Leventhal, & R. M. Lerner (Eds.), *Handbook of child psychology and developmental science* (Vol. 4, pp.175-222). Hoboken, NJ: Wiley.

Rubin, K. H., Fein, G. G., & Vandenberg, B. (1983). Play. In P. H. Mussen (Ed.), *Handbook of child psychology* (Vol. 4, pp. 693-774). New York, NY: Wiley.

Saarni, C., Campos, J. J., Camras, L. A., & Witherington, D. (2006). Emotional development: Action, communication, and understanding. In N. Eisenberg (Ed.), *Handbook of child psychology: Social, emotional, and personality development, Vol. 3* (pp. 226-299). Hoboken, NJ: Wiley.

Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion q-sort scale. *Developmental Psychology, 33*, 906-916.

Shields, A., & Cicchetti, D. (1998). Reactive aggression among maltreated children: The contributions of attention and emotion disregulation. *Journal of Clinical Child Psychology, 27*, 381-395.

Smith, P. K. (2005). Social and pretend play in children. In A. D. Pellegrini & P. K. Smith

(Eds.), *The nature of play: Great apes and humans* (pp.173-209). New York, NY: Guilford.

Smith, R. L., & Rose, A. J. (2011). The cost of caring in youths' friendships: Considering associations among social perspective taking, co-rumination, and empathetic distress. *Developmental Psychology, 47*, 1792-1803.

Stegge, H., & Terwogt, M. M. (2007). Awareness and regulation of emotion in typical and atypical development. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 269-286). New York, NY: Guilford.

Stocker, C., & Dunn, J. (1990). Sibling relationships in childhood: Links with friendships and peer relationships. *British Journal of Developmental Psychology, 8*, 227-244.

Thompson, R.A. (1994). Emotion regulation: A theme in search of definition. In N. A. Fox (Ed.), The development of emotion regulation and dysregulation: Biological and behavioral aspects. *Monographs of the Society for Research in Child Development, 59* (2-3, Serial No. 240), 25-52.

Thompson, R. A., & Meyer, S. (2007). Socialization of emotion regulation in the family. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 249-268). New York, NY: Guilford.

Thompson, R. A., & Lagattuta, K. H. (2006). Feeling and understanding: Early emotional development. In K. McCartney & D. Phillips (Eds.), *Blackwell handbook of early childhood development* (pp. 317-337). Oxford, UK: Blackwell.

Vaughn, B. E., Shin, N., Kim, M., Coppola, G., Krzysik, L., Santos, A., … & Korth, B. (2009). Hierarchical models of social competence in preschool children: A multisite, multinational study. *Child Development, 80*, 1775-1796.

Vygotsky, L.S. (1967). Play and its role in the mental development of the child. *Soviet Psychology, 5,* 6-18.

Vygotsky, L. S. (1930-1935/1978). *Mind in Society: The development of higher mental processes.* In P. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds. & Trans.), Cambridge, MA: Harvard University Press.

White, N., Ensor, R., Marks, A., Jacobs, L., & Hughes, C. (2014). "It's mine!" Does sharing with siblings at age 3 predict sharing with siblings, friends, and unfamiliar peers at age 6? *Early Education and Development, 25*. 185-201.

Williams, A., O'Driscoll, K., & Moore, C. (2014). The influence of empathic concern on prosocial behavior in children. *Frontiers in Psychology, 5*, 1-8.

Youngblade, L. M., & Dunn, J. (1995). Individual differences in young children's pretend play with mother and sibling: Links to relationships and understanding of other people's feelings and beliefs. *Child Development*, *66*, 1472-1492.

Youniss, J. (1980). *Parents and peers in social development: A Sullivan-Piaget perspective*. Chicago, IL: University of Chicago Press.

APPENDIX A

Prosocial Behavior Coding Scheme

A. Prosocial Behaviors (nonverbal and verbal)

1. **Affective behaviors** (a) laughing (b) smiling (c) singing
    - Each instance wherein either child is seen laughing (e.g., giggling, chuckling, laughing out loud) or smiling (e.g., smiling in response to partner or at each other) during an interaction (includes pretense).
        - This can be during verbal (e.g., talking to each-other) or nonverbal instances (e.g., passing each other toy pieces, or building together)
    - Singing - children engage in singing real or made-up songs together or in response to one another (e.g. if they take turns singing parts of a song, or one completes the song that the other began, etc.)
        - This includes humming or singing out loud
        - Must be sung in a "positive" way and not "negative" way if lyrics are changed (e.g. if rather than "I love you, you love me" they sing "I hate you, you hate me" then the latter would not count)
        - If singing is continuous, code once per conversational turn (i.e., one code per song sung together) (e.g., if both children sing an entire song together over 3 minutes of time, they receive 1 code each)
            - BUT if one child stops singing while other continues or if only one child is singing then these would not be coded.
    - If both children are engaging in these behaviors together, then each gets a code
    - Does not include if both children are smiling/laughing with the RA or another person/animal. Must be in the context of the interaction.
    - If 2+ behaviors are present at the same time, laughing gets coded over the others, then smiling, and lastly singing (can only have 1 code for each instance)
    - Does not include malicious laughing (i.e., laughing at partner who is crying/unhappy)

2. **Sharing** (toys/materials)

a. Actions/words intended to alleviate a material need (e.g., recognizing and responding to partner's lack of a desired toy)

1. **Spontaneous:** offering an object in his/her possession without being asked (e.g., handing, passing, tossing)
    - It must be obvious that the other child needs or wants a certain toy, even if they have not directly asked for it (e.g., "oh I could really use that ladder…").
2. **Requested:** Giving an object that is in their possession following partner's request (e.g., handing, passing, throwing)

- The child may not specifically ask for an item, they may reach for a piece in the partner's possession while saying "let me borrow this; let's put this piece here; this is the piece I'm missing; I need this…" etc. In these instances, if the child in possession of the toy hands it over without objection, then this is coded as sharing-requested. (e.g. Focal Child: "I need this" and takes a piece from friend, who doesn't object).

**These may all include verbal and/or non-verbal exchanges
** Sharing does not have to be wanted or accepted, only attempted
** Sharing must be positive in nature, and must not be a result of, or lead to, negative outcomes (e.g., throwing a piece that hits the partner and makes them cry would not be counted).
** If child is offering to share something repeatedly, it is only counted as 1 instance.
**if child takes something belonging to the other child but then gives it back, this is not sharing.
** Giving a child an order "make this" while handing them pieces, does not count as sharing.

3. **Helping** (actions or information): Actions intended to alleviate an instrumental need (i.e., recognizing and responding to partner's inability to complete a specific goal-directed action). Can include verbal indications (e.g. "I'll help you").
   - Actions intended to help partner achieve a goal (e.g., giving missing piece of train set, adding pieces to partner's structure or "side" of the play set)
   - Offering verbal information to help partner achieve a goal (e.g., "the missing piece is over there!").

   1. **Spontaneous:** offering assistance (action or information) to partner (e.g., explaining, handing a missing piece, providing information, etc.)

   It must be obvious that the other child needs or wants a certain toy in order to Accomplish a goal, even if they have not directly asked for it (e.g., "I need one more piece to finish the train track…"; "we need another curvy").

   2. **Requested:** Offering assistance (action or information) following partner's request.

   If partner asks a question and other partner gives a response or tries to, then partner gets a code (e.g., Focal Child: "what's this?: Sib: "I think its a mailbox").

   ** Suggestions during **cooperative** play do not count (e.g., Focal Child: "we need to put more (pieces) over here" Peer: "maybe we should put a river here")
   ** Help does not have to be wanted or accepted, only attempted
   **In both cases (i.e., spontaneous, requested) the interaction must be positive (e.g. if the helper and helpee disagree or argue about how to do something, then this would not be coded).

** If "help" is during pretense or in a playful/sarcastic way, then it is not counted (e.g., sib: "are the FBI going to come and get us?" Focal Child: "Now that you said that to the camera they will").
** If help is repeated several times, it is only counted once.

4. **Social Statements ("SS")**
   - Positive social statements including the dyad (**we**, **let's**, **us**, **our**) made by focal child (FCSS), peer (PRSS), or sibling (SBSS).
     - Words including "**let's**" (e.g., let's build this; let's do it this way), "**we**" (e.g., we have to look at that), "**us"** (e.g., all these toys are for **us**) **"our"** (e.g., it's **our** castle; **we** need this for **our** village)
     - **Includes:**
       - words used while engaging in pretense (e.g., **let's** go to dog city)
       - statements related to play items and/or used to facilitate play (e.g., **we** had it upside down, **we** don't need this one...**we** need this one! **we** can't hook them together cuz then **we'll** have a dead end) - but must not be "negative" in nature
       - negotiations (e.g., no **we** can't put it there, it won't fit!)
       - questions (e.g., where do **we** put this? how about **we** do this?)
       - conditional statements (e.g., then **we** could take this one and put it over there; after we build this **we** could do that; **we** should do it like this)
       - statements for avoiding getting into trouble (e.g., No **let's** not, **we** would get in trouble)
       - if one child imitates by repeating part or all of what the other has said
         - this counts as 2 codes (1 for Focal Child and 1 for Sib/Peer)
     - Can count 2+ items on the same line as long as it is not repetitions (e.g., **we** have to do this. **let's** go!)
     - Same lines may include several SS where only 1 of the codes is counted (e.g., No, **let's** just stop this (not coded because "negative"). Should **we** put these together? (coded)

     - Does **not include:**
       - negations/statements that may break down the play (e.g., **we** don't have to do it together; **let's** just play by ourselves)
         - **This does not include statements that make up negotiations or problem-solving** (e.g., **we** can't put it this way cuz it won't fit)
       - if a child is using social statements in their **solitary** pretense dialogue (i.e., child makes a toy character say: "**let's** go")

- social statements present in **expressions/sayings** (e.g., **let's** see; here **we** go)
- If it is clear that the child is not speaking about the dyad (e.g., **we** have that at home → in this case the child is referring to his family)
- the same child's repetitions (if partner ignores or didn't hear/asks for clarification and the child repeats, then the SS is only counted the first time it was said) (e.g., Focal Child: "**let's** do this", Sib: "what?" Focal Child: "**let's** do this")
    - this also includes if a child repeats themselves to complete their thought (e.g., **we** gotta… **we** gotta turn this)

Rules

** Any statements or behaviors made to RA or anyone other than Focal Child or Sib/Friend is not coded.

** If statements are incomplete/incomprehensible:

- Only statements that may be determined to be prosocial are coded (e.g., **let's**… not counted; **we** need… counted).
    - verbal and nonverbal behavior will be observed to help determine if they are positive/negative

APPENDIX B

Internal State Coding Scheme

(Recchia & Howe, 2008)

1) **Cognitions:** words that reflect a child's beliefs (thoughts) or knowledge.
2) **Emotions**: words that indicate a positive, negative, or general (neutral) emotion (e.g., happy, sad) or a physiological state (e.g., hungry, tired).
3) **Goals**: words that apply to goals, specifically; desires, obligations, intentions, or attempts.
4) **Preferences**: words that express a preference (e.g., like, dislike, better, worse).

1. **Cognitions:** words that reflect a child's beliefs (thoughts) or knowledge.
   a. <u>Beliefs (thoughts)</u>
   - Believe (B)
   - Deserve (B)
   - Decide, as in "What do you think?" (B)
   - Dreams (B)
   - Consider (B)
   - Fair/not fair (B)
   - feel ("I feel that you…")(B)
   - guess (B)
   - kidding/joking (B)
   - I'll bet (B)
   - Imagine (B)
   - Mean it (B) as in " I mean it"
   - memories (B)
   - might (be) (B)
   - probably (B)
   - not sure/(to be) sure (B)
   - pretend, "I'm making believe", "once upon a time" (B)
   - real, as opposed to pretend (B)
   - reason, as in no reason (B)
   - serious (B)
   - suppose (B)
   - think, thought (B)
   - trust (B)

- wonder (B)
- promised (B)
- worry (B)
- "What is your idea?" ="What do you think?" (B)

b. <u>Knowledge</u>

- Aware (K)
- Confused (K)
- Common sense (K)
- figure out, find out (K)
- forget, never mind (K)
- get it ("Do you get it?") (K)
- idea (K)
- It's true (K)
- know/I don't know (K)
- lying (K)
- "mixed up" as in confused (K)
- notice (K)
- prove (K)
- realize (K)
- remember (K)
- right, as in correct (K)
- understand, "I see" (K)
- wrong, as in incorrect (K)
- "I have no idea" = "I don't know"(K)
- "I mean a cow" – self-correcting (K)

2. **Emotions**: words that indicate a positive, negative, or general (neutral) emotion or a physiological state.

c. <u>Positive</u>

- comforted
- curious
- enjoy
- excited
- feel (better/good/ok)
- fun
- funny (applied to object)
- glad
- happy

- laugh
- pleased
- proud
- smile
- surprised (happily), wow
- to love (a person)
- cozy
- ETC.

d. Negative

- afraid
- angry
- bored
- crying
- embarrassed
- feel (bad/worse/awful/hurt)
- hate (a person)
- hurt (mentally)
- jealous
- lonely
- mad
- miss
- sad
- scared
- scream
- surprised (in a bad way)
- upset
- ew, gross, disgusting
- sorry
- ETC.

e. General

- -"How did you feel when you did that?"
- -"Are you alright?"
- -"What is the matter?"
- -surprised (when there is no indication of whether it is negative or positive)

f. Physiological State

- Hunger

- Pain (burn, hurt, ouch, ow, sting)
- Fatigue
- Tired
- Alive, living/, dead
- Sick
- Feel (e.g. feel drops on me; feels cold)
- Taste (without a preference)

3. **Goals**: words that apply to goals, specifically desires, obligations, intentions, or attempts.

g. <u>Desires</u>

- change my mind
- desire
- dying to
- hope
- hopefully
- PERSON cry for
- PERSON expect (another person) to
- would like
- would love to
- want, wanna
- need (as in want)
- wish
- would love
- pray for
- aim for
- looking for
- interested

h. <u>Obligations</u>

- got to
- have to/ had to/having to/has to
- make sure
- must
- need to
- not to
- ought to
- should, better
- supposed to

- am expected to/expect someone to
- obliged to

i. Intentions

- accident
- expect to
- intend to
- mean to
- meant
- on purpose
- plan to
- shall
- going to, gonna

j. Attempts

- attempt
- try
- seems

4. **Preferences**: words that express a preference.
   - hate (something – not person)
   - like/dislike (e.g. I like puppies)
   - love (something, NOT person)
   - "That's my favourite"
   - don't care (lack of preference)
   - better (as in choice)
   - traits (e.g. being lazy, clumsy, silly, stupid, sissy, funny, not very nice)
   - "Do you mind?"
   - "I don't feel like it anymore"
   - Yum/yuck/tasty (preference to flavour)

APPENDIX C

Emotion Regulation Checklist

This checklist is adapted from Cicchetti's (2011) version. The purpose is to determine children's ability to regulate their emotions in a free-play context with a sibling and with a friend.

Using a 3-point scale, each item of the checklist was rated every 2 minutes for each child (i.e., focal child, sibling, and focal child, friend). Once each video was viewed in entirety, and based on the ratings, a score for each subscale (i.e., Lability/negativity; emotion regulation) was given to each child. Several items were reverse scored (i.e., 4, 5, 11, 16, 18).

The ratings were based on frequency (i.e., as the frequency increases, the rating increases).

NOT OBSERVED: If an item did not occur in the play session, a score of "1" was given.

SOMETIMES: If an item occurred fewer than three times in the play session, a score of "2" was given.

OFTEN: If an item occurred three or more times in a play session, a score of "3" was given.

Emotion Regulation Checklist

(Adapted from Shields & Cicchetti, 1997)

Positive	Item	Original Version (Cicchetti, 2011)	Never 1	Sometimes 2	Often 3
Traits	1.	Is a cheerful child (e.g., smiling, laughing).			
Regulation	5.*	Can recover quickly from episodes of upset or distress (e.g., does not pout or remain sullen, anxious or sad after emotionally distressing events).			
	11.*	Can modulate excitement in emotionally arousing situations (e.g., does not get carried away in high-energy play situations or overly excited in inappropriate contexts).			
Responses to Others	21.	Is empathic towards others; shows concern when others are upset or distressed.			
	7.	Responds positively to neutral or friendly overtures by peer/sibling (e.g., helping partner find a piece, responding to requests, turn-taking, sharing, being polite, conversational back and forth, etc.).			
	23.	Displays appropriate negative emotions (i.e., anger, fear, frustration, distress) in response to hostile, aggressive or intrusive acts by peer/sibling.			
Negative					
Mood	17.	Is overly exuberant when attempting to engage others in play (e.g., yelling, laughing loudly, throwing toys all around, jumping/running).			
	2.	Exhibits wide mood swings (i.e., child's emotional states difficult to anticipate because s/he moves quickly from positive to negative moods).			
	4.*	Is easily frustrated/prone to angry outbursts or tantrums (e.g., whines/cries/hits when partner does something they don't like)			

Interactions with others	10.	Takes pleasure in the distress of others (e.g., laughs when another person gets hurt or punished; enjoys teasing others/name calling, taunting, taking others' toys).			
	19.	Responds negatively to neutral or friendly overtures by peer/sibling (e.g., may speak in an angry tone of voice or respond fearfully; hitting, pushing, threatening).			
	24.	Displays negative emotions when attempting to engage others in play (e.g., anger, threats, warnings, etc.).			
Sadness	16.*	Seems sad or listless (e.g., sad facial expressions, non-responsive to other child).			
	18.*	Displays flat affect (e.g., expression is vacant and inexpressive; child seems emotionally absent).			
* Reverse scored items					
Subscale 1 (Lability/negativity): items 2,10, 17, 19, 24 – positively scored; items 4, 5, 11 – reverse scored Subscale 2 (ER): items 1, 7, 21, 23 – positively scored; items 16, 18 – reverse scored					