ABSTRACT

Title of thesis: CORRELATES OF SOCIAL COMPETENCE AT AGE TWO: THE ROLES OF TEMPERAMENT AND MATERNAL STYLE

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The roles of temperament and parenting in the development of social competence at age two years were examined. Toddlers (N=108; 54 girls) and their mothers participated in a laboratory assessment of temperament and observation of mother-toddler interaction during structured and unstructured free play. Additionally, mothers completed the Toddler Behavior Assessment Questionnaire (Goldsmith, 1988) and the Child Rearing Practices Q-Sort (Block, 1981). Mother-toddler dyads returned to the laboratory for an observed session of play with an unfamiliar, same-age, same-sex peer. Indices of maternal style and temperament based on questionnaire and observational data from the first session were used to predict socially competent behavior with the peer during the second session. The results supported a trend indicating that toddlers who displayed low levels of distress (e.g. anger and whininess) spent a moderate amount of time engaged in socially competent peer play as compared to toddlers who displayed greater distress in said task.

CORRELATES OF SOCIAL COMPETENCE AT AGE TWO: THE ROLES OF TEMPERAMENT AND MATERNAL STYLE

by

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Overview

Correlates of Social Competence at Age Two:

The Roles of Temperament and Maternal Style

The toddler period is a developmental cornerstone in the emergence of social competence. During this age, individuals first acquire the basic social skills that are necessary for competent social behavior throughout the lifespan. As early as age two, toddlers are attracted to peers as social partners (Eckerman & Whatley, 1977; Holmberg, 1980; Rubenstein & Howes, 1976; Vandell, 1980) and possess a sophisticated social repertoire that includes signaling and perceiving social cues, turn-taking, and imitation (Goldman & Ross, 1978; Ross & Lollis, 1989; Ross, Lollis & Ellliot, 1982). Importantly, this age marks the beginning of children's more self-directed journey into social interaction. Their newly gained, although rudimentary, abilities to move and act independently, combined with a high level of attraction to the social world create a "launching pad" for social experience. Indeed, by about two years of age, the majority of toddlers are capable of independently initiating social interaction with both adults and peers (Goldman & Ross, 1978; Holmberg, 1980; Rauh, 1987), as well as short periods of cooperative play with age-mates (Howes & Matheson, 1999). Theoretically, these basic social skills "open the door" for more prolonged, and rich social exchanges with peers that may provide experience critical to the development of socially competent behavior in later periods (Piaget, 1932, 1959; Rose-Krasnor, Rubin, Booth, & Coplan, 1996; Rubin, Burgess, Dwyer & Hastings, 2003).

Numerous empirical studies support the association of social functioning during childhood to both adaptive and maladaptive outcomes concurrently and throughout the

lifespan (see Rubin, Bukowski & Parker, 1998 for review). For example, levels of aggression and inhibition during the toddler period predict externalizing and internalizing problems respectively, both concurrently and in later periods (Cummings, Iannotti, & Zahn-Waxler, 1989; Hay, Castle, & Davies, 2002; Rubin et al., 1998; Rubin et al., 2003).

Social behavior exhibited even at the early age of two and three years exhibits moderate continuity throughout childhood (Howes & Phillipsen, 1998). Indeed, empirical findings associate individual differences in the emergence and quality of children's peer interactions at this age with both adaptive and maladaptive social functioning at later ages (Howes & Matheson, 1992; Rubin et al., 2003). In one longitudinal examination of children's peer interactions, Howes and Phillipsen (1998) reported that children who spent more time engaged in complex play with peers as toddlers were less withdrawn as preschoolers, and less withdrawn and aggressive at age nine.

While the relation between social behavior in childhood and developmental outcomes has generated a great degree of study, social competence during its formative period (i.e., toddlerhood) has received far less attention. Indeed, only a handful of investigations have examined social behavior in this age group with reference to *observed peer* interaction as opposed to parent report of social competence with peers, or observation of social behavior with parent or other adults, (Howes & Phillipson, 1998; Calkins, Gill, Johnson, & Smith, 1999; Rubin et al., 2003; Rubin et al., 1998). Further, most research on toddler social interaction concentrates on the correlates of *maladaptive* behaviors such as aggression and withdrawal (Calkins et al., 1999; Rubin et al., 2003; Rubin et al., 1998, Rubin et al., 1995). This leaves an important gap in our understanding

of the development of socially competent behavior. While some researchers have investigated the relations between emotion regulation, emotional functioning and social competence (Calkins, Gill, Johnson, & Smith, 1999; Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major, & Queenan, 2003; Eisenberg, Fabes, Shepard, Murphy, Guthrie, & Jones, 1997), and security of attachment during infancy and later adaptive social functioning (Belsky & Fearon, 2002; Bohlin, Hagekull, & Rydell, 2000; Howes, & Ritchie, 1999; Pierrehumbert, Iannotti, & Cummings, 1989), the majority of these investigations do not examine peer interactions until age three-years or later. The proximal correlates of observed social competence with peers at age two-years are largely unexplored.

Greater understanding of the early development of social interaction with peers can provide more insight into why children "shift" onto different developmental pathways in early life. In addition to understanding the correlates of maladaptive social interaction at this important developmental period, it is also critical to understand the proximal correlates of adaptive social behavior with peers. In other words, it is essential that we understand the components of social competence during toddlerhood. This knowledge may prove significant in the fostering of adaptive social behavior throughout the lifespan.

In this study, I examined the roles of self-regulatory processes and maternal style in the development of social competence at age two years using a combination of measures including maternal report and behavioral observation. The goal of this study was to shed light on the origins of individual differences in social competence at this age.

Literature Review

Social Functioning in Toddlers

Toddlers are social beings. Whereas developmental theorists during the 1940's to the 1960's frequently portrayed this age group as disinterested in peers, and somewhat "socially blind" (see Ross & Goldman, 1974; Rauh, 1987 for detailed discussions), more recent theoretical and empirical work reveals the highly social nature of toddlers (Ross, 1982). In fact, re-examination of early empirical findings from the 1930's and 1940's supports the observation that there is a high degree of social interaction and attention directed towards age-mates during the toddler period (Ross & Goldman, 1978). Toddlers are more attracted to toys being manipulated by others than to unused toys, even if the toys are identical (Rubenstein & Howes, 1976). Indeed, toddlers use toys as vehicles for social interaction, and exhibit more complex play with toys when a peer is present (Eckerman & Whatley, 1977). In addition, when observed in the home setting, toddlers direct more *social* behaviors (as distinguished from behaviors attempting to elicit care or comfort) to peers than to their mothers (Rubenstein & Howes, 1976). Furthermore, they interact socially with unfamiliar age-mates even when in novel settings (Hay & Ross, 1982; Howes & Matheson, 1992; Howes & Phillipson, 1988; Rubin et al., 1997).

Social development during the toddler period is also marked by a rapid gain of social skills (Ross, 1982). Toddlers have the ability to imitate their peers, engage in parallel play, and to use and perceive nonverbal social signals such as pointing, smiling and laughter to demonstrate intention (Hay & Ross, 1982; Goldman & Ross, 1978; Ross, Lollis & Elliot, 1982; Rauh, 1987, Vandell, 1980). They are capable of engaging in complex complimentary play that involves simple turn-taking, and pretend (Ross, 1982; Ross, Lollis & Elliot, 1982). Remarkably, toddlers even exhibit the ability to abstract

novel and universal “rules of play” when interacting with unfamiliar peers, and to use intentional violations of such rules in order to renew a partner’s interest in an ongoing game (Ross, 1982; Ross & Goldman, 1974). Such social skills are basic components of competent social interaction at all ages (Ross, 1982).

Additionally, toddlers show some of the basic abilities needed for the formation of friendships. They modify their behavior to coordinate with peers, and exhibit interaction patterns that vary as a function of partner characteristics (Rauh, 1987; Ross, 1982; Rubenstein & Howes, 1976; Vandell, 1980). That toddlers may be capable of having unique, social relationships with familiar peers is demonstrated by the finding of “*relationship effects*” (e.g. those found only after a period of familiarization, and not upon immediate interaction) in toddler interactions (Ross & Lollis, 1989). Toddlers even show spontaneous empathetic response to peers (Buhler, 1935 as cited in Ross & Goldman, 1974). However, the emergence of these social skills is far from uniform across all toddlers. Further, individual differences in the emergence and proportion of time spent in different levels of play (i.e., parallel play, “complex play”, etc.) show moderate continuity over early childhood (Howes & Matheson, 1992; Howes, & Phillipsen, 1998).

Defining Social Competence at Age Two-Years

Social competence has been defined as: “the ability to achieve personal goals in social interaction while simultaneously maintaining positive relationships with others over time and across situation.” (Rubin & Rose-Krasnor, 1992, p.285). While this definition is quite useful for later childhood and beyond, some modification is necessary for the definition of social competence during toddlerhood. One of the important

developmental functions of peer interaction during toddlerhood is to provide opportunities to gain further social experience. Following this perspective, at two-years of age, a more fitting definition of social competence may be the ability initiate and/or maintain positive peer interaction. Although two-year olds are not yet capable of possessing "true" friendships, they do show the ability to distinguish between peers, and show preference for social interaction with peers who display the most advanced social skills (Raugh, 1987). By examining the social abilities of toddlers who are sought after as "playmates" by their peers, insight into the particular behaviors that typify social competence at age two-years may be gained.

One type of behavior that may be a marker of social competence is prosocial behavior. Indeed, even during the preschool period, prosocial behavior is highly correlated with teacher ratings of social competence, popularity amongst peers, and low exhibition of some types of aggression (see Eisenberg, 1998 for a review). However, prosocial behavior in and of itself is not a sufficient indicator of social competence, especially during the early toddler period. One problem is presented by the frequency of prosocial acts directed to peers exhibited by children. By two-years of age, children do exhibit some prosocial behaviors such as offering toys, and giving comfort in response to distress exhibited by others, however it is infrequent, especially with regard to peer interactions (Eisenberg, 1998). Further, prosocial behavior amongst preschool age children does not necessarily enhance likeability or promote further positive social interaction. In one study, preschoolers who exhibited high levels of compliant prosocial behavior received low levels of positive reinforcement from peers (Eisenberg, Cameron, Tryon, & Dodge, 1981). In fact, characteristics of the enactor of prosocial behavior

influence peer response to prosocial behavior: prosocial behavior exhibited by assertive, sociable children does receive positive peer reinforcement (Eisenberg, 1998). Therefore, while prosocial behavior is one probable marker of social competence at age two-years, a broader definition is needed.

Often, social competence is inferred through lack of aggression and/or conflict. This is problematic for a number of reasons. First, some degree of conflict is normative for toddlers (Hay & Ross, 1982; Rubin et al, 1998a). Second, instrumental aggression has been positively correlated with peer status in young children (Price & Dodge, 1989) and assertiveness during early childhood (Hegland & Rix, 1990). Third, conflict and aggression are not always supported as markers of maladaptive social behavior in later life when examined in conjunction with other variables (e.g., sex, dysregulated temperament, parenting; Rubin et al., 1998; Rubin et al., 2003). Indeed, for some toddlers, aggression and involvement in conflict may be more a by-product of a highly social nature, and not maladaptive social functioning (Rubin et al., 1998a; Rubin et al., 2003).

One interesting way to operationalize social competence at age two is the frequency and proportion of time spent in high levels of "complex play" with peers. The ability to construct complex play sequences has been theorized as critical in facilitating peer interaction during early childhood (Rubin et al., 1998b). In addition, frequency, proportion of time spent in, and early emergence of complex play is associated with adaptive social outcomes both concurrently and in later development (Howes & Phillipsen, 1998). Play initiation is also a useful indicator of social competence. At age two, bids to play are accepted at a high rate (Ross et al., 1982). Therefore, toddlers who

are consistently high in making such offers are likely to spend more time in play with peers, gaining valuable social experience. Based on the above reasoning, social competence at age two can be indexed by the ability to independently initiate social interaction, the ability to engage in such complex forms of social behavior as play involving turn-taking sequences; interactive, imitative play; complimentary play; and the ability to engage in *brief* peer conversation.

Temperament and social competence

One likely contributor to individual differences in the display of socially competent behavior at age two may be temperament. Temperament refers an individual's characteristic pattern of response to stimulation. That is, a person's general "nature"- whether cheerful, glum or retiring, is believed to be somewhat determined by temperament. While there is continuing debate over an exact definition of temperament, there is general agreement that temperament is multidimensional, appears early in development, is largely biologically based, and exhibits some degree of stability/continuity over the lifespan (Goldsmith, Buss, Plomin, Rothbart, Thomas, & Chess, 1987; Rothbart & Bates, 1998; Sanson, Hemphill, Smart, 2004).

While some researchers stress a dimensional approach to the study of temperament, others have utilized a categorical approach instead (Fox & Henderson, 1999). In their groundbreaking, longitudinal research investigating temperament, Thomas and Chess (1968, 1977) grouped individuals into different categories or types of temperament based on their pattern of scores across different dimensions of temperament. Based on their findings, Thomas and Chess (1968, 1977) proposed three major temperamental types: difficult, easy and "slow to warm." A child who showed frequent

and intense negative mood, was slow to adapt to change, generally withdrew from novel or intense stimuli, and lacked a clear daily rhythm of biological functions such as sleep and hunger was categorized as having a *difficult* temperament. A child who adapted easily to change, showed a clear daily rhythm of hunger and sleep, had a tendency to approach novel stimuli, and showed frequent positive affect was categorized as having an *easy* temperament. While this is the original definition of difficult and easy temperament, researchers have used other definitions. For example, Buss and Plomin (Goldsmith et al, 1987) conceptualize difficult temperament as the combination of high activity level, high negative emotionality, and low soothability. Difficult temperament has also been conceived as the combination of high negative emotional reactivity and poor emotion regulation (Rubin et al., 1998).

Both difficult and easy temperament categories have been utilized in the prediction of later behavior, however investigations utilizing easy temperament are less common. Empirically, difficult temperament during infancy has been associated with externalizing problems and aggression in childhood (Billman & McDevitt, 1980; Fabes, Shepard, Gutherie & Martin, 1997; Guerin, Gottfried, & Thomas, 1997). Easy temperament has been associated with greater cooperation and task persistence in preschool (Mobley & Pullis, 1991), personality maturity in toddlers (Lamb, Hwang, Bookstein, Broberg, Hult, & Frodi, 1988), and prosocial responses to peer distress in childhood (Farver & Branstetter, 1994).

As the terms “difficult” and “easy” imply, this conception of temperament includes the notion that temperament type may influence socialization. A “difficult” child may pose a greater challenge for parenting than an “easy” child (Goldsmith et al.,

1987). Similarly, an "easy" child may facilitate positive peer interactions from an early age by displaying high levels of positive affect, possessing a greater propensity for longer social exchanges, and having a highly social or outgoing nature. Conversely, a difficult or emotionally reactive child may have few positive peer interactions, and consequently less early social experience, limiting or slowing the development of social skills. Indeed, empirical evidence supports an association between difficult and easy temperament and social behavior. For example, Billman and McDevitt (1980) reported that four-year olds classified as difficult temperament exhibited more rough and tumble play and aggressive behavior during free-play at nursery school than preschoolers classified as easy temperament. Additionally, in one study three-year olds classified as having difficult temperaments in infancy were more intense during peer conflicts, and spent more time engaged in conflict when compared with other three-year olds (O'Brien, Roy, Jacobs, Macaluso, Peyton, 1999). Further, preschoolers who were classified according to peer interviews as "rejected" in social status were more likely to display difficult temperament (i.e. high activity level, low task persistence and high distractibility) than preschoolers ranked as popular (Walker, Berthelsen & Irving, 2001).

Self regulation and Social Competence

Another important body of literature investigating the association between temperament and social behavior is that of self-regulation and social behavior. Self-regulation encompasses the abilities to modify one's own behavioral and emotional responses in order to comply with social standards (Kochanska, Coy, & Murray, 2001). At the age of two years, the ability to self-regulate is believed to largely reflect individual differences in the self-regulatory aspect of temperament, and therefore to be

predominantly biologically based (Kochanska, Murray, & Harlan, 2000). The importance of self-regulation for the development of social competence is readily apparent. For example, if a toddler is engaged in a game of "peek-a- boo" with a same-age peer, it is more than likely that the peer may become distracted, and end the game prematurely. If the toddler who desires to re-establish the game fails to control his/her frustration, and displays negative emotions or disruptive behavior, it is very unlikely that the game will be resumed. The display of negative emotions or disruptive behavior may be most likely to attract adult intervention, and possibly end all consequent peer interaction. However, if the toddler can effectively regulate her/his frustration, and displays positive emotions instead, the likelihood of continuing peer interaction is increased. The use of such regulated behavior in the face of frustrating social situations may therefore have a "snowballing" impact on social competence, fueling further development by providing longer positive peer experiences.

Recently, a number of investigators have addressed the importance of the self-regulatory components of temperament on social development (Calkins, Gill, Johnson & Smith, 1999; Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major & Queenan 2003; Fabes, Eisenberg, Jones, Smith, Gutherie, Poulin, Shepard, & Friedman, 1999; Kochanska, Murray, & Harlan, 2000; Rubin, Burgess, Hastings, & Dwyer, 2003; Rubin, Coplan, Fox & Calkins, 1995). For the most part, these studies focus on the relation between emotional or behavioral dysregulation and *maladaptive* social behavior. For example, empirical evidence from multiple studies supports the association between emotional dysregulation and aggression during childhood (Calkins et al., 1999; Denham, McKinley, Couchoud, & Holt, 1990; Eisenberg, Fabes, Shepard, Murphy, Gutherie and

Jones, 1997; Eisenberg et al., 1993). In one longitudinal study, Rubin and colleagues (2003) found that behavioral and emotional undercontrol at age two predicted externalizing problems at age four. Specifically, of the toddlers who exhibited high levels of conflict and aggression at age two, only those with poor regulatory control were significantly more likely to exhibit externalizing problems in preschool. In a series of studies, Eisenberg and colleagues have found that children with poor emotion regulation who display high emotionality are rated as less popular with peers by both adults and peers and to exhibit poor social skills (e.g., Eisenberg et al., 1993, 1994).

Conversely, the ability to effectively regulate emotional state during childhood is associated with adaptive developmental outcomes concurrently and in later development (Eisenberg et al., 1993; Fox & Calkins, 1993; Rubin et al., 1995). However, few studies have examined the relation between high self-regulatory ability and socially adaptive behavior. Eisenberg and colleagues (1997) found that high levels of regulation were predictive of highly competent social behavior in childhood both concurrently and longitudinally (Eisenberg, Fabes, Shepard, Murphy, Gutherie, Jones, Friedman, Poulin & Maszk, 1997). In preschool age children, effortful control, a component of self-regulation that refers to the ability to both inhibit and sustain behaviors, is associated with the display of socially competent behaviors with peers. In children aged four-and-one-half years, high levels of effortful control predicted socially competent response to peers in everyday interactions, but only when peer interaction was of a high intensity (Fabes et al., 1999).

In a series of studies, Denham and colleagues examined the contributions of "emotional competence" to social competence during early childhood. Emotional

competence refers to the abilities to express positive emotions, regulate negative emotions and show understanding of others' emotional states (Denham et al., 2003). Recently, Denham and colleagues examined the contributions of the various components of emotional competence at 3-4 years of age to social competence concurrently and longitudinally (5-6 years of age). Social competence was indexed through teacher and peer ratings of popularity or "likeability". Interestingly, high levels of observed positive emotions during peer interactions did not directly predict social competence. While emotion knowledge did predict social competence both concurrently and longitudinally, the strongest predictor was emotion regulation. In particular, emotion regulation predicted social competence for children high in the display of negative emotions, but not for children who characteristically displayed positive emotions during peer interaction. Although low in number, these findings support the importance of self-regulatory ability on social interactions at multiple ages in childhood.

Even fewer researchers have examined the relation between socially competent behavior with peers and self-regulation at age two-years. This is surprising as this developmental period presents an interesting junction in the early emergence of both social interaction (Howes & Matheson, 1992) and self-regulation (Kochanska, Coy & Murray, 2001; Kopp, 1982). It is possible that patterns of social interaction throughout childhood are highly influenced by the nature of these first peer experiences. Thus, the ability to self-regulate during this time may have unique implications for concurrent and later social behavior (Calkins et al., 1999). Indeed, empirical findings support continuity in patterns of peer play from 13-47 months of age (Howes & Matheson, 1992).

Only a handful of studies have examined the relations between two-year olds' emotion regulation and observed socially competent behaviors with same-age peers. Calkins and colleagues (1999) observed two-year olds during a battery of laboratory tasks designed to elicit frustration, and a play interaction with an unfamiliar peer that included a cooperative play task. Particular emotion regulation strategies (e.g., venting, orienting to mother, thumb-sucking, orienting on focal object) were coded from behaviors exhibited during the frustration task. According to the results, high negative emotionality predicted greater conflict during peer interaction when accompanied by ineffective emotion regulation strategies such as venting. Interestingly, high levels of cooperative play were only predicted by one emotion regulation strategy: orienting to mother. The authors noted that, in general, low levels of cooperative play and social interaction were seen during the free play episodes. During the cooperative play task, encouragement by mother, and facilitation by mother were both positively correlated with cooperative play. These findings support the importance of parenting on social competence exhibited at age two years. Indeed, while two-year olds do show rudimentary ability to self-regulate and high motivation to interact with peers, adults still provide important scaffolding to peer interaction at this age.

Parenting and Social Competence

Prior research indicates a strong association between parenting style and social behavior (see Rubin & Burgess, 2002 for a recent review). Parental warmth and responsiveness is one aspect of parenting that is associated with social competence in early childhood (Chen & Rubin, 1994; Zhou, Eisenberg, Losoya, Fabes, Reiser, Gutherie, Murphy, Cumberland, & Shepard, 2002). Parental warmth and responsiveness refers to

a parent's tendency to show verbal and physical affection, support, and approval, as well as the ability to understand and respond to a child's needs (Zhou et al., 2002). The expression of parental warmth and affection creates a safe environment that supports social exploration, thereby fostering social development (Rose-Krasnor et al., 1996). In particular, maternal warmth and sensitivity during the toddler period is associated with earlier emergence and greater achievement in social and cognitive/language development (Kochanska, 1992; Kochanska & Murray, 2000:Landry, Miller-Loncar, Smith, & Swank, 1997) and prosocial behavior (Fabes, Eisenberg, & Miller, 1990; Zhan-Waxler, Radke-Yarrow & King, 1979). Maternal style that is characterized by a high degree of warmth and sensitivity is believed to promote prosocial and moral development in early childhood (Zhou et al., 2002). For example, maternal warmth and sensitivity and positive directiveness are associated with greater autonomy and independent social initiative, higher levels of positive compliance, and greater internalization of conscience in early childhood, all of which are theorized to be early components of moral and prosocial development (Crockenberg & Litman, 1990; Kochanska & Murray, 2000; Landry, Smith, Swank, & Miller-Loncar, 2000).

Based on the large body of work linking maternal warmth and sensitivity to adaptive social functioning in childhood, it was hypothesized that toddlers with mothers who expressed a high degree of warmth and sensitivity would exhibit greater social competence than their counterparts whose mothers were less warm and sensitive.

Parenting, Temperament and Social Competence at age Two

The interplay between temperament and parenting has important implications for the early development of social competence. A dynamic interplay is likely operating

between these factors. Research on the development of self-regulation indicates that maternal responsiveness at 22 months is associated with greater effortful control, a component of self-regulation (Kochanska et al., 2000). Because this relation was not found at earlier time points, the age of two years appears to be of special significance, possibly being the time when parenting begins to exert influence on what was largely under the influence of biology during early development. While self-regulatory ability is still rudimentary during the toddler period, warm, sensitive parenting may provide external guidance during peer interactions. For toddlers with well-regulated temperament, the ability to regulate negative emotional responses and comply with adult directives may enhance positive parental guidance during social interactions.
Warm and sensitive parental guidance may also provide dysregulated toddlers with greater opportunities for positive peer interaction by "scaffolding" play behaviors, and reducing conflict. This may, in turn, buffer the effect of dysregulated temperament on social competence during this period. An interesting question is whether the impact of warm, sensitive parenting on social competence will be greatest for well-regulated or dysregulated toddlers. In either case, the investigation of temperament, parenting and social competence at age two should yield important insight into the development of social competence.

Regardless of the rich implications for social development presented by such an investigation, the interplay between parenting, temperament and adaptive social behavior has rarely been studied during this formative age. In this study, measures based on both observation and maternal-report for maternal warmth and emotionality/emotion regulation were used to predict observed behavior with peers. I hypothesized that: 1)

toddlers characterized easy temperament would exhibit high levels of socially competent behavior with peers; 2) high maternal warmth and sensitivity would be moderately associated with social competence; 3) high maternal warmth and sensitivity would moderate the relation between temperament and social competence so that toddlers with difficult temperaments would show deficits in social competence only if their mothers demonstrated low maternal warmth and sensitivity.

Method

Participants

Participants were drawn from a larger, longitudinal project investigating aspects of child temperament, parenting, and social and emotional development (see Rubin, Hastings, Chen, Stewart, & McNichol, 1998; Rubin, Hastings, Stewart, Henderson, and Chen, 1997). This study utilized data gathered during the first two sessions of the larger project. The data from all participants who participated in both initial sessions were included in the analyses. One hundred and eight toddlers (54 females) and their mothers participated in the study. Based on newspaper birth announcements, potential participants were identified and contacted by phone. Participation rate was 75% for all two-parent families contacted (Rubin et al., 1997). All participants were residents of a Southern Ontario population center of approximately 250,000 that includes the cities of Kitchener and Waterloo.

The majority of the participants were middle-class, Caucasians from two-parent families (96% married). Mothers' average age was 31.05 years (SD = 4.12, *range* = 23-41). Fathers' average age was 32.49 years (SD = 3.91, *range* = 24 - 43). The mean score for families on the *Hollingshead Social Status Index* (Hollingshead, 1965) was 46.47 (SD = 10.80, *range* = 18 – 66), with both parents on average having received some college education.

Mother-toddler dyads were brought into the laboratory for the first session within 3 months of the toddler's second birthday (*M* age = 24.99 months, *SD* = 1.08). The second session took place within 12 weeks of the first session. One hundred and four mother-toddler dyads (52 females) participated in both Sessions 1 and 2.

Procedure

Session 1. Mother-toddler dyads were videotaped throughout 50 minutes of structured and unstructured activities. Initially, mother-infant dyads were brought into a large, unfamiliar room containing one large and one small chair, a low table, and an assortment of age-appropriate toys.

Unstructured free play. Mothers were instructed to allow their toddlers to play freely in the room, and to interact with the toddler as they would under normal circumstances during free play at home (15 min.). Following free play, children were presented with two data collection procedures that are not included in the currently proposed project: 1) physiological data collection (heart period), and 2) a standard inhibition paradigm which included a separation-stranger-reunion sequence. (see Rubin et al., 1997 for a detailed description of these procedures). Following the inhibition paradigm, the dyad was presented with a task designed to elicit mild toddler frustration, a standard measure for emotionality/emotion regulation.

Frustration task. The experimenter presented the toddler with a brightly colored, wind-up toy car, and demonstrated how it worked. Mothers were instructed to engage the child's attention and play together with the car for 30 s. After which time, a knock on the door signaled mothers to silently place the toy car into a clear plastic container and seal the lid. Mothers were instructed not to open the container for the toddlers; however, they could encourage their toddlers' efforts to get the car. After one minute, the experimenter returned to the room and removed the container with the car, and explained the children could play with the car again at a later time.

In addition to the observation tasks, all mothers completed the *Toddler Behavior Assessment Questionnaire* (TBAQ; Goldsmith, 1988) and the *Child Rearing Practices Q-Sort* (CRPR; Block, 1981).

Session 2. Within twelve weeks of Session 1, mother-toddler dyads returned to the laboratory for observation during 50 minutes of structured and unstructured activities with another mother-toddler dyad. Toddlers were paired with an unfamiliar, same-age, same-sex peer. Peer interactions took place in a large, unfamiliar room that was divided in half by a two-sided bookcase (approximately 3 1/2ft tall, and about two-thirds of the width of the room). One large, and one small chair were positioned on each side of the bookcase, and a set of six similar, but not identical, age-appropriate toys. The first mother-toddler dyad was brought over to the far side of the room, and the mother was instructed to sit in the large chair on that side of the room. The second mother-toddler dyad was then brought into the near side of the room, and the mother was instructed to sit in the large chair on that side of the room.

Unstructured free play: 1. Both dyads were videotaped for 10 min of unstructured free play during which time mothers were asked to remain seated, and allow their toddlers to move freely through the room.

Unstructured free play: 2. After this time, the bookcase was moved horizontally against the wall, and the toys were placed in the center of the room. 25 min of unstructured free play was videotaped. During this time, mothers were instructed to remain seated for only the first five minutes, and were then allowed to move freely throughout the room and interact as typical with their own toddler as well as the other mother-toddler dyad. This free play period was followed by a “snack- time” activity.

Snack time. Experimenters brought in a low table and placed the large chairs at either end of the table, and the small chairs side by side along one side of the table (the opposite side of the table was positioned against the wall). Next, cookies and juice for the toddlers, and juice, coffee, or tea for the mothers were placed on the tables. Participants were told it was "snack time," no further instructions were given. This period lasted 15 min. during which all participants were videotaped.

Measures

Assessment of parenting style: observed positive and warm mothering. The unstructured free play period (15 min) was coded from videotape using the *Parental Warmth and Control Scale* (*PWCS*; Rubin and McKinnon, 1994). This coding scheme is designed to assess frequency and intensity of such parental behaviors as negative dominance and expression of warmth using time-sampling procedures. For the purpose of this study, the indices of maternal positive affect, positive control, and sensitivity were be utilized. For the index of maternal positive affect, the frequency and intensity of maternal display of positive affect directed at toddler was recorded for each minute. During each minute positive affect could be coded as either absent, medium (smiling, laughing, mild praise, and/or positive tone of voice) or high (physical affection and/or strong praise or verbal affection). The kappa coefficient based on 120 min of observation time of nine mothers was .79. Average scores for maternal positive affect, positive control and sensitivity across Session 1, free play episodes two and three were generated for each mother-toddler dyad. The scores were then standardized and summed to create the index of observed maternal warmth. Factor analyses of maternal variables confirmed

these three indices of observed maternal behavior formed a single factor (see discussion below).

Assessment of parenting style: self-report warm and positive mothering. Maternal report of warmth and acceptance was based on responses to the *Child Rearing Practices Report Q-Sort* (CRPR; Block, 1981), a 91-item card sort that assesses multiple dimensions of parenting values, and behaviors. This is a frequently used assessment of parenting style with high levels of reported test-retest reliability, and construct reliability (Deal, Halverson & Wampler, 1999). The 91-items yield six indices: acceptance, rejection, punishing, protectiveness, encouragement of achievement, and encouragement of independence. Originally, I had intended to create a global variable of maternal warmth and acceptance using both observed and self-reported maternal data. In order to explore whether this global variable was justified, factor analyses with both observed and self-reported maternal variables were conducted. However, factor analyses did not confirm a single, positive maternal factor. Instead, two separate factors representing positive or warm mothering were confirmed: one utilizing the positive and warm observed maternal variables (positive affect, positive control and sensitivity), and one utilizing indices from the CRPR. The variable for self-reported maternal warmth and acceptance was created according to the results of these factor analyses. First, the indices of maternal rejection, and punishing were reversed, and standardized. Next these reversed indices and the standardized index of maternal acceptance were combined to create the variable of *self-reported* maternal warmth and acceptance.

Assessment of self-regulation: Observed emotionality during frustration task. Toddlers' behaviors during the frustration task at *Session 1* were coded from videotape

using a time-sampling procedure. Frequency and intensity of each of the following behavior categories: angry affect (frowning, fussing, screaming) whiny behavior, anxious behavior, positive affect, and neutral affect were recorded for each 10s interval so that low scores represent absent or little exhibition of that particular behavior (e.g., high anger = 3, absent to low anger = 0). These scores were then averaged by length of observation. Coder reliability for angry affect across 12 dyads was 86.6 (kappa = .81). Factor analyses revealed three factors: angry/whiny, anxious and not positive, and neutral. Accordingly, for the purpose of this study, two variables of *observed* temperament were created utilizing the behaviors observed during the frustration task: observed temperament-angry/whiny and observed temperament-anxious. For observed temperament-angry/whiny, the scores for angry affect and whiny behavior were standardized and combined. For observed temperament-anxious, the score for positive affect was reversed and standardized and then combined with the standardized score for anxious behavior.

Assessment of temperament: Maternal report. Maternal report of toddler's temperament was based on responses to The Toddler Behavior Assessment Questionnaire (TBAQ; Goldsmith, 1988). This assessment yields indices of five dimensions of temperament: activity level, social fearfulness, anger proneness, pleasure expression, and interest-persistence. It is a frequently used assessment and Cronbach Alpha scores in the .80's have been consistently reported for all five dimensions (Goldsmith, 1996; Goldsmith and Campos, 1990). Factor analyses revealed two factors: easy and difficult temperament. Accordingly, two variables of maternal-report temperament were created. The standardized scores for pleasure and interest were combined with the reversed and standardized score of social fearfulness to create the variable of maternal-report easy

temperament. The standardized scores for anger and activity were to create the variable of maternal-report difficult temperament.

Although I had originally intended to create a global variable of toddler temperament utilizing both the observed and maternal-report temperament variables, these variables were not significantly correlated. Therefore, these variables were not combined to form a single aggregate variable of temperament.

Assessment of social competence. Toddler behavior during Session 2 (50 min) was coded from videotape using two coding schemes: the *Toddler Play Observation Scale* (*TPOS*; Rubin & Stewart, 1994) and the *Toddler Interaction Initiation Scale* (*TIIS*; Rubin & Stewart, 1994).

The *TPOS* coding scheme (Rubin & Stewart, 1994) codes the total number of 10s intervals spent in unoccupied behavior, onlooking behavior, aggression, peer conversation, adult interaction, solitary play, parallel play, complimentary play (that involving interactive turn-taking), and rough-and-tumble play. Frequency of time spent in peer conversation, parallel play, and complimentary play were proportionalized by number of 10s observation periods, and totaled to derive a measure of proportion of time spent in socially competent peer interaction.

The *TIIS* coding scheme (Rubin & Stewart, 1994) is an event sampling procedure that records each time a toddler initiated interaction with a peer. Interactions were further classified as prosocial initiations or conflict initiations. Coders agreed that an initiation had occurred 95% of the time, and the kappa coefficient for type of initiation was .91. The frequency of prosocial peer initiations was proportionalized by length of observation to derive a score of socially competent peer initiations.

The resulting scores from each coding scheme were normalized using a z-score transformation and then summed to derive a score for social competence.

Formation of Aggregate Variable of Social Competence

A preliminary factor analysis of percentage of time spent in parallel play, complimentary play, peer-directed conversation and prosocial peer initiations was conducted with varimax rotation. The analysis produced a single social competence factor (Eigen-value 1.81) accounting for 45.25 percent of variance. Therefore, these variables were standardized and combined to form an aggregate variable of social competence.

Results

Overview and preliminary analyses

Means and standard deviations for all variables of interest are reported both for the whole sample, and separately for boys and girls, in Table 1. The results of the *t*-tests examining possible sex differences in all study variables (social competence with peer, reported temperament-easy, reported temperament-difficult, observed temperament-angry/whiny, observed temperament-anxious, self-report warm and positive mothering and observed warm and positive mothering) are also reported in Table 1. No sex differences were found for any of the variables. Next, correlations among all study variables were computed. The results are presented in Table 2. It is of note that the only significant correlation amongst the variables was that between self-reported warm and positive mothering and observed *anxious* temperament ($r = -.26$, $p<.05$). In this regard, the greater the frequency of warm/positive parenting the less observed anxious temperament.

Lastly, due to the relatively low occurrence of the behaviors that comprised peer social competence during free play, the participants were placed into groups depending on the total amount of socially competent peer-directed behaviors (i.e., low, moderate and high) and a series of one-way analyses of variance was conducted in order to test temperament- and parenting-related differences in toddlers' peer social competence.

Regression Analyses

Eight sets of regression analyses were conducted to examine whether temperament and maternal behavior predicted, either independently or interactively,

toddler social competence [The results of these analyses are presented in Tables 3-10}. Listwise deletion was used for all analyses.

Because the predictor and outcome variables: mother-reported easy temperament, mother-reported difficult temperament, observed anger and whininess during frustration task, observed anxious behavior during the frustration task, observed positive parenting, self-reported positive parenting and peer competence, were composite variables of other standardized variables, they did not require centering before the interaction terms were created. Each regression analysis followed the same basic order. The variable representing an index of temperament was entered at the first step, followed by the parenting variable, and lastly, the interaction term created from temperament and parenting was entered in the third step. The variable representing temperament was always entered in the first step, given that temperament is an internal property of the toddler. The parenting variable was entered at the second step, as it represents an external, or environmental variable. The interaction term was then entered at the last step.

The regression analyses reported do not include sex as a predictor, as preliminary analyses did not find sex differences amongst any of the study variables. However, eight additional sets of regression analyses were conducted with sex entered at the first step, and including interaction terms created from the interaction of sex and each variable. The results of these regression analyses contained no significant findings and are not presented.

Reported Temperament-Easy, and Observed and Reported Maternal Warmth as Predictors of Social Competence with Peers at Age Two Years. The overall regression

predicting competent play from mother-reported easy temperament and observed positive parenting was non-significant, F (3,79) = .15, *ns*. The overall regression predicting competent play from reported easy temperament and self-reported positive parenting was non-significant, F (3,80) = .84, *ns*.

Observed Temperament-Anxious, and Observed and Self-Reported Maternal Warmth as Predictors of Social Competence with Peers at Age Two Years. The overall regression predicting competent play from observed anxious behavior and observed positive parenting was non-significant, F (3,95) = .28, *ns*. The overall regression predicting competent play from observed anxious behavior and self-reported positive parenting was non-significant, F (3,80) = .98, *ns*.

Observed Temperament-Anger/Whininess, and Observed and Self-Reported Maternal Warmth as Predictors of Social Competence with Peers at Age Two Years. The overall regression predicting competent play from observed angry/whiny behavior and observed positive parenting was non-significant, F (3,95) = .38, *ns*. The overall regression predicting competent play from observed angry/whiny behavior and self-reported positive parenting was non-significant, F (3,80) = .40, *ns*.

Reported Difficult Temperament, and Observed and Self-Reported Maternal Warmth as Predictors of Social Competence with Peers at Age Two Years. The overall regression predicting competent play from reported difficult temperament and self-reported positive parenting was non-significant, F (3,83) = .63, *ns*. The overall regression predicting competent play from reported difficult temperament and observed positive parenting was non-significant, F (3,79) = .69, *ns*.

One-way analyses of variance

Due to the relatively low occurrence of the behaviors that comprised peer social competence during free play, the participants were placed into one of three groups (low, medium and high) depending on the total amount of socially competent peer-directed behaviors (i.e., parallel play, complimentary play, peer-directed conversation, and prosocial initiations directed to peer) exhibited during Session 2, free play episodes two and three. One-way analyses of variance revealed significant differences among the three groups F (2,101) = 231.73 (p<.001). Post-hoc comparisons using the LSD method revealed significantly greater time spent in socially competent play with peer for the high level social competence group as compared to both the low and medium groups (Ms = -1.79, -.19, and 1.99 respectively, p<.001). Additionally, the medium level social competence group had significantly greater time spent in socially competent play as compared to the low level social competence group.

To test temperament-and parenting-related differences in toddlers' peer social competence, a series of one-way analyses of variance was conducted with peer social competence as the independent variable, and reported temperament-easy, reported temperament-difficult, observed temperament-angry, observed temperament-anxious, self-reported positive parenting and observed positive parenting as the respective dependent variables.

The ANOVA predicting observed anger/whininess approached significance, F (2,101) = 2.84, p = .06. Post-hoc comparisons using the least significant difference (LSD) method revealed significantly lower observed anger/whininess for toddlers in the midlevel social competence group, as compared to the low-level social competence group

(Ms = -.45 and .33, respectively, $p<.05$) and somewhat lower observed anger/whininess as compared to the high-level social competence group (M = .17, $p=.08$).

Discussion

The purpose of this study was to examine the relations among temperament, parenting and competent peer interaction during the toddler period. In particular, I was interested in how individual differences in toddlers' temperament and degree of maternal warmth and sensitivity were related to socially competent play with peers at two-years of age. Although socially competent interaction with peers during childhood is associated with positive developmental outcomes both concurrently and longitudinally (see Rubin et al., 1998), few researchers have examined individual differences in positive social behaviors during the toddler period.

This study is distinguished by the age of the participants: by observing the social interactions of two-year olds, insight is gained in the very early emergence of social competence with peers. In addition, while prior research with toddlers often relied on parent or teacher report to assess social behavior rather than direct observation, a strength of the current study is the use of behavioral observation of social interaction with a same age peer for the assessment of social competence. Further, whereas social competence with younger children has often been defined as the absence of aggression and/or conflict, here social competence was defined as the exhibition of particular types of complex social play. Finally, the current study relied on both maternal report and observed behavior to examine toddlers' temperament and maternal style.

I hypothesized that temperament as well as parenting would predict the extent to which two-year olds engaged in socially competent play with a same age peer. First, I hypothesized that toddlers characterized as having "easy" temperaments would engage in

more socially competent play with an age-mate than toddlers characterized with "difficult'' temperaments. Second, I hypothesized that the toddlers whose mothers were characterized as having a highly warm and positive maternal style would also display greater social competence than their peers. Lastly, I hypothesized that maternal style would modify the impact of difficult temperament on social competence by both enhancing the impact of easy temperament, and buffering that of difficult temperament. By and large, the data examined revealed few findings of statistical significance.

There was a trend indicating that toddlers who spent a moderate amount of time engaged in socially competent peer play displayed lower levels of distress (e.g. anger and whininess) during a laboratory task designed to elicit frustration as compared to toddlers who spent less time engaged in socially competent play. This trend lends support to the hypothesis that toddlers' emotional reactivity should be related to their ability to engage in socially competent peer play. This is in agreement with the findings of Calkins, Gill, Johnson and Smith (1999) that negative emotionality was inversely related to cooperative social play in this age group. The finding that low reactivity was related to moderate levels of socially competent play, and not the highest levels as was predicted is difficult to interpret. The toddlers exhibiting more instances of complex, cooperative play may simply be engaging in more social interaction overall. They are likely the least socially wary and the most "approach-oriented." In that light, it is less surprising that they may be more reactive to frustration.

A possible explanation of why I did not detect other significant relations amongst the variables of interest may be the context in which toddler interactions were observed. Examination of social behaviors exhibited during Session Two Free-play episodes two

and three reveal that toddlers engaged in very low levels of peer interaction in general and socially competent play in particular. The low occurrence of peer interaction hindered my ability to examine individual differences in peer-directed social behavior. It is very possible that the novel laboratory setting, as well as the unfamiliarity of the other toddler impeded peer interaction and the frequent display of peer-directed social behavior. Indeed, in the most similar study with this age group to date, very low levels of cooperative play were seen even during a task designed to elicit cooperative play (Calkins, et al., 1999). Calkins and colleagues (1999) suggested that all toddlers may exhibit increased levels of onlooking and passive behavior when first introduced to a peer. In fact, in older children, watching and waiting before attempting to join in ongoing play is associated with popularity with peers and a greater chance of successfully joining ongoing play (Putallaz, 1983). Thus, it is possible that observations made during this introductory period of toddler play may fail to distinguish important differences in play and social competence. Perhaps if the children had been observed in a well-known setting, or more importantly, with familiar peers, the range and frequency of social behavior would have been greater and it would have provided a more accurate picture of their social ability. Importantly, the low incidence of socially competent play hindered the ability to uncover relations with parenting and temperament.

Given this limitation, it is difficult to offer further speculation. However, a few considerations merit discussion. With respect to the lack of support for a relation between observed maternal warmth and sensitivity and toddler social competence, it is possible that the context of observation again obscured rather than clarified the relation. Whereas warm and affectionate parenting is generally believed to foster adaptive

developmental outcomes in children, it has been argued that in certain contexts too much affection and control may actually dampen independent exploration and increase shyness in some children (Rubin et al., 1997; Rubin, Cheah and Fox, 2001). Rubin, Cheah and Fox (2001) proposed that high levels of maternal affection and control exhibited during interactions that are unstructured and do not necessitate much parental guidance may be indicative of an oversolicitous maternal style, and therefore be associated with child reticence. In support of this contention, they found that oversolicitous mothering during an unstructured free-play was predictive of socially reticent behavior in four-year olds. Additionally, it has been reported that toddlers who displayed inhibited behavior in both peer and adult contexts had mothers who were high in oversolicitous behavior (Rubin et al., 1997). In the current study, observation of maternal behavior occurred during unstructured Free-play episodes, and mothers with high warmth/sensitivity scores may have included mothers who were predominantly high in positive affect and positive control and exhibited intrusive parenting, as well as those who exhibited more sensitive parenting. In future studies, it may be important to examine maternal behaviors in multiple settings in order to distinguish appropriately warm/sensitive parenting from oversolicitous parenting.

Additionally, it is possible that by two-years of age, the impact of toddlers' emotional reactivity on social competence may be modified by the toddler's ability to regulate their emotional state. Prior research supports an association between emotion regulation and children's behavioral development (Calkins et al., 1999; Denham, McKinley, Couchoud, & Holt, 1990; Eisenberg, Fabes, Shepard, Murphy, Gutherie & Jones, 1997; Eisenberg et al., 1993). For example, Rubin and colleagues (2003) found

that behavioral and emotional undercontrol at two years predicted externalizing problems at age four-years. Specifically, of the toddlers who exhibited high levels of conflict and aggression at age two, only those with poor regulatory control were significantly more likely to exhibit externalizing problems in preschool. Additionally, Denham and colleagues (2003) reported that emotion regulation at age 3-4 years predicted social competence at age 5-6 years. In particular, emotion regulation predicted social competence for children high in the display of negative emotion, but not for children who characteristically displayed positive emotions during peer interactions. Thus, it is possible that for the toddlers in this study who displayed negative emotional reactivity, their ability to effectively regulate emotional state may have been more important to their display of socially competent peer interaction than their level of emotional reactivity. Perhaps too, in the context of the frustration task, the display of angry or whiny behavior may have reflected an effective strategy for obtaining a desired goal, and not an earmark of dysregulated temperament. After all, during the frustration task, the toddler is dependent on his or her mother's help to regain access to the desired toy. The display of distress may be a potent motivator of maternal aid. A toddler who shows superior skill in regulating his or her behaviors may therefore display distress when eliciting maternal aid, but refrain from displaying negative emotions when engaged in peer interaction.

In conclusion, whereas the interplay between temperament and parenting appears to have an important influence on the development of social competence in childhood, further research is needed to elucidate the nature of this relationship. As the toddler period may provide insight into the early emergence of social competence, more studies focusing on this age group are needed. However, due to the low occurrence of social

interaction exhibited by toddlers in laboratory settings, naturalistic observation of play between familiar peers may be necessary.

To date, some of the most enlightening investigations examining the influence of temperament on positive social behavior (e.g., prosocial behavior, social competence) have focused on the moderating role of self-regulation on the impact of negative emotionality on social behavior. However, this research is complicated by the difficulty of separating emotionality from regulation. That is, if a child maintains composure during a frustrating task, is it because the child is not experiencing high levels of distress or negative emotion, or because s/he is able to effectively regulate the behavioral expression of negative emotion? This is an important topic for future research. Another promising area for future research is that focusing on the interplay between specific parenting behaviors and temperament profiles in the development of social competence. For example, does warm and positive parenting influence the social behavior of inhibited toddlers differently than it does that of uninhibited toddlers? Close examination of context in which the parenting behavior occurs is an important consideration for this area of research. What may be considered warm parenting in one context may actually be overprotective in another. Therefore, an interesting possibility for future research would be the observation of parenting strategies exhibited during peer interactions in a familiar setting.

Table 1

Means and Standard Deviations for All Study Variables

				Boys		Girls			
Variable	*n*	M	SD	M	SD	M	SD	*t*	*df*
Peer competence									
Peer competence	104(52 girls)	-.06	1.70	-.10	1.55	.09	1.85	-.56	102
Temperament									
Observed									
Angry	108(54 girls)	-.01	1.45	-.03	1.63	.03	1.25	-.20	106
Anxious	108(54 girls)	.02	1.54	-.11	1.63	.11	1.45	-.77	106
Reported									
Easy	90(41 girls)	.03	2.13	.02	2.39	.03	1.80	.12	87
Difficult	90(41 girls)	-.04	1.72	-.03	1.54	.03	1.93	-.17	88
Positive parenting									
Observed	99(48 girls)	.05	2.00	-.13	2.07	.24	1.95	-.92	97
Reported	86(40 girls)	.01	1.81	.05	1.80	-.05	1.84	.25	84

Note. Peer competence is a composite of parallel play, complimentary play, peer-directed conversation and prosocial initiations during free play. Observed temperament-angry is a composite of observed angry and whiny behavior during the frustration task. Observed temperament-anxious is a composite of observed anxious and the reverse of positive behaviors during the frustration task. Reported temperament-easy is a composite of mother-rated positive affect, interest and persistence, and the reverse of socially fearful items on the Toddler Behavior Assessment Questionnaire (**). Reported temperament-difficult is a composite of mother-rated anger and activity items on the Toddler Behavior Assessment Questionnaire (**). Reported positive parenting is a composite of self-reported acceptance, the reverse of punishing, and the reverse of rejecting items on the Child Rearing Practices Report (**). Observed positive parenting is a composite of maternal sensitivity, positive control and positive affect directed to child during episode one snack time.

Table 2

Two-Tailed Correlations Among All Study Variables

	Observed angry	Observed anxious	Easy tempera-ment	Difficult tempera-ment	Observed pos. parenting	Reported pos. parenting
Peer competence	.02	-.05	.03	.10	.02	-.11
Observed angry		.06	-.04	.03	-.14	-.06
Observed anxious			.01	-.04	.03	-.26*
Easy temperament				.11	.04	.07
Difficult temperament					.07	-.08
Observed pos. parenting						.03

*p<.05.

Table 3
Summary of Hierarchical Regression Analysis Predicting Competent Play from Mother-Reported Easy Temperament and Observed Positive Parenting *(N = 83)*

Variable	*B*	*SE B*	β
Easy Temperament	.01	.08	.02
Positive parenting	-.06	.09	-.07
Temp X Parenting	.01	.05	.03
Note. R^2 = .00 for Step 1; ΔR^2 = .01 for Step 2; ΔR^2 = .01 for (all *ns*).			

Table 4
Summary of Hierarchical Regression Analysis Predicting Competent Play from Mother-Reported Difficult Temperament and Observed Positive Parenting *(N = 83)*

Variable	*B*	*SE B*	β
Difficult Temperament	.14	.10	.14
Positive parenting	-.06	.09	-.08
Temp X Parenting	.01	.05	.03
Note. R^2 = .02 for Step 1; ΔR^2 = .01 for Step 2; ΔR^2 = .00 for Step 3 (all *ns*).			

Table 5
Summary of Hierarchical Regression Analysis Predicting Competent Play from Observed Angry/Whiny Behavior and Observed Positive Parenting *(N = 99)*

Variable	*B*	*SE B*	β
Observed Angry	.02	.12	.02
Positive parenting	.02	.09	.03
Temp X Parenting	.05	.05	.02
Note. R^2 = .00 for Step 1; ΔR^2 = .00 for Step 2; ΔR^2 = .01 for Step 3 (all *ns*).			

Table 6
Summary of Hierarchical Regression Analysis Predicting Competent Play from Observed Anxious Behavior and Observed Positive Parenting *(N = 99)*

Variable	*B*	*SE B*	β
Observed anxious	-.07	.11	-.06
Positive parenting	.02	.09	.03
Temp X Parenting	-.04	.06	-.07
Note. R^2 = .00 for Step 1; ΔR^2 = .00 for Step 2; ΔR^2 = .00 for Step 3 (all *ns*).			

Table 7
Summary of Hierarchical Regression Analysis Predicting Competent Play from Observed Anxious Behavior and Self-Reported Positive Parenting *(N = 84)*

Variable	*B*	*SE B*	β
Observed Anxious	-.03	.11	-.03
Positive parenting	-.12	.11	-.12
Temp X Parenting	-.07	.06	-.15
Note. R^2 = .00 for Step 1; ΔR^2 = .01 for Step 2; ΔR^2 = .02 for Step 3 (all *ns*).			

Table 8
Summary of Hierarchical Regression Analysis Predicting Competent Play from Observed Angry/Whiny Behavior and Self-Reported Positive Parenting *(N = 84)*

Variable	*B*	*SE B*	β
Observed Angry	-.01	.12	-.01
Positive parenting	-.10	.10	-.11
Temp X Parenting	.03	.06	.07
Note. R^2 = .00 for Step 1; ΔR^2 = .01 for Step 2; ΔR^2 = .00 for Step 3 (all *ns*).			

Table 9
Summary of Hierarchical Regression Analysis Predicting Competent Play from Reported Difficult Temperament and Self-Reported Positive Parenting *(N = 84)*

Variable	*B*	*SE B*	β
Difficult Temperament	.09	.12	.09
Positive parenting	-.09	.10	-.10
Temp X Parenting	.04	.06	.07
Note. R^2 = .01 for Step 1; ΔR^2 = .01 for Step 2; ΔR^2 = .01 for Step 3 (all *ns*).			

Table 10
Summary of Hierarchical Regression Analysis Predicting Competent Play from Reported Easy Temperament and Self-Reported Positive Parenting *(N = 84)*

Variable	*B*	*SE B*	β
Easy temperament	-.04	.09	-.01
Positive parenting	-.10	.10	-.11
Temp X Parenting	-.06	.05	-.14
Note. R^2 = .00 for Step 1; ΔR^2 = .01 for Step 2; ΔR^2 = .02 for Step 3 (all *ns*).			

Table 11
Means (and Standard Deviations, and *n*) for Parenting and Temperament variables by Social Competence

	Social Competence		
Outcome Variables	Low	Moderate	High
Observed angry	.33 (1.81, 34)	-.45 (.71, 36)	.17 (1.60, 34)
Observed anxious	.17 (1.63, 34)	-.07 (1.80, 36)	- .06 (1.24, 34)
Easy temperament	-.24 (2.04, 28)	.27 (2.18, 29)	-.01 (2.26, 31)
Difficult temperament	-.24 (1.85, 28)	-.20 (1.76, 29)	.27 (1.50, 31)
Observed pos. parenting	-.07 (1.81, 33)	.26 (1.95, 34)	-.06 (2.29, 32)

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