

PRESCHOOLERS, PARENTS, AND PEERS: CHILD TEMPERAMENT AND  
PARENTING STYLES AS PREDICTORS OF PEER PLAY

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## FOREWORD

This thesis is written in accordance with the style of the *Publication Manual of the American Psychological Association (6<sup>th</sup> Edition)* as required by the Department of Psychology at Appalachian State University.

## ABSTRACT

### PRESCHOOLERS, PARENTS, AND PEERS: CHILD TEMPERAMENT AND PARENTING STYLES AS PREDICTORS OF PEER PLAY. (May 2012)

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The purpose of the current study is to examine the associations among child temperament, parenting styles, and peer interactive play behaviors. Parents of 44 preschoolers provided ratings of their children's temperaments on the Behavioral Style Questionnaire (BSQ; McDevitt & Carey, 1978) and ratings of their children's interactive play behaviors on the Peer Interactive Play Scale (PIPPS; Fantuzzo, Sutton-Smith, Coolahan, Manz, Canning, & Denham, 1995). Parents also rated their perceptions of their own parenting behaviors and their relationships with their children on the Parent-Child Relationship Inventory (PCRI; Gerard, 1994). It was hypothesized that child temperament and parenting styles would predict children's peer play behaviors, such that children with more desirable temperament traits and those whose parents engaged in more authoritative parenting behaviors would exhibit positive behaviors during peer play interactions. In contrast, it was hypothesized that children with more difficult temperaments and parents who engaged in less positive parenting behaviors would exhibit more negative play behaviors. Bivariate correlations and multiple regression analysis were utilized to examine the relationships between the predictors, temperament and parenting styles, and the outcome, peer interactive play quality. Results indicate that aspects of temperament and parenting

styles were associated with negative, but not positive aspects of play. Specifically, personal-social flexibility and parental limit-setting were found to be significantly related to play disconnection and disruption.

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### Preschoolers, Parents, and Peers:

#### Child Temperament and Parenting Styles as Predictors of Peer Play

Enrollment in early childcare centers has been steadily increasing over the past 10 years (U.S. Department of Education, 2011). The influx of three- to five-year old children transitioning from home to community environments, where many have their first opportunities to interact with peers, has led to a broad spectrum of social developmental studies of children within this age range. The goal of most existing studies is to provide information to guide the development of prevention and early intervention strategies, as research suggests that preschoolers' social behaviors predict future behaviors in elementary school and beyond (Eisenberg et al., 1997; Ladd & Price, 1987). Given the established relationship between early social competence and later social-emotional outcomes, it is important to understand the factors related to social functioning during the preschool years.

This study explored factors implicated in differential social developmental pathways among young children. Previous studies have identified intrinsic child characteristics as principal determinants of social outcomes (Martin, 1989; Thomas & Chess, 1977). Additional research in the field of psychology has suggested that social development is inextricably linked to external influences, particularly parenting behaviors. Further, an extensive body of empirical literature has identified the home as a critical setting for children to explore their own social functioning, as it offers the first closed context, or local culture, in which its members can collaboratively determine certain social roles and scripts (Borkowski, Ramey, & Bristol-Power, 2002; Nicolopoulou, 2002). This study contributes to the literature

on early social development by examining the unique contributions of both child and parental factors to children's social competence.

### **Social Competence**

Until more recent decades, the dominating theories among psychologists suggested that young children were primarily self-interested and amoral (Eisenberg, 2006). For example, Sigmund Freud (1923) theorized that infants were born possessing only the id, the impulsive domain of the self that is controlled by self-gratification. He believed that the superego, or conscience, developed only after children were 4 to 6 years of age. Jean Piaget (1932) asserted that children were unable to understand others' perspectives until they were 6 or 7 years of age. More recent empirical work, however, has demonstrated that children develop a rudimentary understanding of others' perspectives during the first few years of life (Eisenberg, 2006).

Though researchers continuously struggle to define and understand it, social competence is now commonly cited as a hallmark of healthy functioning throughout the lifespan. Widespread interest in this construct is the result of many factors, including an increasing understanding of connections between peer difficulties and poor social, emotional, and academic adjustment (Hartup, 1992; Kupersmidt, Burchinal, & Patterson, 1995; Kupersmidt, Coie, & Dodge, 1990). Research suggests that social behaviors presented in early childhood predict both positive and negative outcomes later in life (Eisenberg et al., 1997; Juvonen, 1997). Juvonen (1997) suggested that effective social interactions lead to friendships, which provide emotional support and affiliation in peer groups, subsequently facilitating a sense of belongingness. In contrast, children who fail to develop social competencies prior to school entry may be at increased risk for problems with school

adjustment (Eisenberg, 2006). Many researchers cite insufficient social development as a primary source of academic difficulty (Eme, 1979; Hinshaw, 1992), including low grade point average across time (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000). Peer-related difficulties early in life have been linked longitudinally to school dropout, mental health problems, and participation in criminal activities (Juvonen, 1997). Research suggests that identifying and addressing maladaptive social patterns early in development may prevent those patterns from crystallizing into permanent challenges.

In order to confront such challenges, social competence must first be clearly defined. Recent theories reflect that social competence is multifaceted and characterized by a variety of skills that promote success in a range of settings (Feldman, 2007). As theorists and researchers continue to strive to capture the true essence of social competence, four operational definitions have emerged: a) specific skills, b) sociometric status, c) relationships, and d) functional outcomes (Rose-Krasnor, 1997). The first refers to a conceptualization of social competence based upon a set of desirable skills. Ladd (2005) asserts that the majority of research on social competence in young children has examined specific skills or traits relevant to peer relationships that are derived from the scope of interests of the study coordinator. For example, researchers interested in school readiness may identify skills such as self-regulation and cooperation with adults as indicators of social competence, as these qualities contribute to a child being manageable in the classroom (Eisenberg, Valiente, & Eggum, 2010). However, this approach has resulted in an increasingly broad, yet overlapping depiction of social competence (Vaughn et al., 2009). In addition, the “skills” perspective fails to incorporate developmental considerations. For example, a skill at one developmental stage may be an undesirable trait at another (e.g.,

crying to fulfill a need in infancy versus preschool age). In addition, social skills approaches rely on the notion that a given behavior will be equally effective on all occasions, at least relative to other actions (Dirks, Treat, & Weersing, 2007). Therefore, solely employing this perspective may not fully address growing empirical evidence that social competence is “contextually bound” (Dirks et al., 2007, p. 329).

The sociometric status approach considers how popular or well-liked a child is (i.e., peer status) and utilizes this information as an indicator of social competence (Coie & Dodge, 1988). Sociometric assessments consider judgments of peers, incorporating behavioral and affective elements of social competence (Denham, McKinley, Couchoud, & Holt, 1990). Though these assessments may be useful in identifying a child who lacks social competence, they do little to explain the source of the child’s struggles. In addition, sociometric tools succeed in identifying well-liked individuals, but do little to elucidate the sources of their popularity. Perhaps social competence is among many factors leading to their peer nominations (Rose-Krasnor, 1997). Conversely, popularity may not be a reliable indicator of social competence, especially within a divergent peer group. For example, studies have found that popularity in high-risk aggressive groups was predictive of later social and academic concerns (Cairns & Cairns, 1994; Luthar & McMahon, 1996). In addition to these limitations, researchers have struggled to find a reliable link between sociometric status and specific behaviors, limiting the usefulness of sociometric assessments for informing intervention decisions (Parker & Asher, 1987; Rose-Krasnor, 1997).

The relationship approach to social competence examines the quality of an individual’s relationships with others, which is dependent upon the skills present in both members of the relationship (Rose-Krasnor, 1997). Researchers taking a relationship

orientation have identified secure attachment between caregiver and child as predictive of social competence. Bowlby (1988) suggested that children with histories of secure attachment would be inclined to have close relationships with others and have the capacity to exhibit positive social interactions. During their 30 year longitudinal study of infant attachment and its developmental course, Sroufe, Egeland, Carlson, and Collins (2005) found evidence to support this perspective. These researchers identified significant connections between secure attachment and measures of social competence from early childhood to adulthood. Likewise, peer relationships offer children opportunities to develop social competence.

The relationship model is consistent with Vygotsky's notion of scaffolding, as a child who interacts with a more socially skilled partner is likely to exhibit increases in competent behaviors as a result of a higher relationship quality (Rose-Krasnor, 1997). However, a social relationship with a peer also may reflect the skills of each partner in equal proportion (Hartup, 1989). Although some studies have consistently indicated a correlation between friendship quality and positive outcomes, the causal direction of this relationship is not well established (Hartup, 1996). Also, some children may be negatively influenced by their interactions with friends. Therefore, the nature of the association between friendship and social competence is subject to the quality of the contributions made by each interaction partner (Rose-Krasnor, 1997).

Finally, the functional approach to social competence derives its theoretical basis from ethological, social problem solving, and systems models (Attili, 1989; Rose-Krasnor, 1997; Strayer, 1989). The functional approach explores both the outcomes of social behavior and the processes that lead to these outcomes. Within this framework, an outcome is

considered the result of an individual's action and others' responses to that action (Rose-Krasnor, 1997). This approach to social competence allows for the consideration of context-specific goals or demands associated with situations encountered by the individual. One proposition reflecting that approach is that no behavior will always result in the most effective course of action. Dirks and colleagues (2007) point out that even behaviors typically considered to be prosocial, such as smiling, may be less appropriate in certain contexts (e.g., when a peer is upset). The idea that competence is to some extent bound by context is supported by previous empirical findings (Dirks et al., 2007; Dodge, Laird, Lochman, Zelli, & Conduct Problems Prevention Research Group, 2002).

The functional approach allows for the development of process models of social competence. Many information processing models of social skills have built upon the foundation of the social problem-solving research of Goldfried and D'Zurilla (1969) and Spivack and Shure (1974). These models suggest that social interactions are the result of a series of steps, generally consisting of "selecting a social goal, monitoring the environment, generating and selecting a strategy, implementing the strategy, evaluating its outcome, and deciding on subsequent action" (Rose-Krasnor, 1997, p. 117).

In spite of empirical support, the functional approach to social competence is still limited by methodological and theoretical challenges. Judgments of the outcome of a child's behavior must be made within the context of the goal he or she set out to accomplish. However, an individual may have numerous or conflicting goals in any given situation. For example, if a child tells her teacher when she is teased by a peer, she may achieve the short-term goal of terminating the teasing behavior. However, this action could make her more likely to be teased in the future, interfering with her long-term goal.

An integrative review of these theoretical approaches indicates that researchers have narrowed the scope of social competence study to four primary factors: child, behavior, situation, and judge (Dirks et al., 2007). In other words, previous studies suggest that knowing something about the individual, considering the situation in which behavior occurs, identifying the behavior that was selected, and utilizing an evaluator when interpreting the behavior have each been used to explain the variability in children's social functioning. Many theoretical models have utilized a four-factor model, including a subset of potential predictors and interaction terms. Each resulting model would emphasize some dimensions of competence, or combinations of elements, while omitting others. This body of empirical work is still limited in its ability to clarify which of the four classes of predictors are essential for our understanding of social competence among youth. In addition, researchers have found that incorporating all four dimensions of social competence significantly increases challenges in measurement (Dirks et al., 2007). The difficulty lies in finding "a balance between exploratory power and parsimony" (p. 341). In other words, researchers should not expand the parameters of their study to a degree that does not improve the fit of the measurement model (Dirks et al., 2007). Along with these considerations, a review of empirical literature indicates that considering specific characteristics of the population of interest may be critical to determining which of the four dimensions of social competence to explore (Bost, Vaughn, Washington, Cielinski, & Bradbard, 1998; Coie & Jacobs, 1993; Dodge, Pettit, & Bates, 1994; Hay, Castle, Davies, Demetriou, & Stimson, 1999; Luthar & Burack, 2000; Luthar & McMahon, 1996; Vaughn, 2001). Each of the theoretical dimensions may be more or less relevant among certain groups of youth. One element that is likely to influence the relative importance of each dimension is developmental level (Dirks et

al., 2007). Given the targeted age of participants included in the present study, special attention will be given to developmental considerations.

In order to better understand the attainment of social competence, it is important to do so within a developmental framework. Waters and Sroufe (1983) suggested that social competence be construed as an organizational construct for early childhood, in that it implies an integration of cognitive, social, and emotional domains. This research framework suggests that, in order to gauge social competence in an individual, expectations should be rooted in awareness of corresponding developmental stages. For preschoolers, who are still learning social behaviors and skills, contextual influences and sociometric ratings may be less relevant (Dirks et al., 2007). Understanding the context or situational influences on behavior is likely to become increasingly important with age (Hay et al., 1999), as children become increasingly aware of the situations in which a specific behavior is most appropriate. For example, Hay and colleagues indicated that overall sharing behavior decreases with age, which is likely a result of increasing knowledge about situations in which sharing is most beneficial (e.g., when a friend requests to see a toy; Hay et al., 1999).

Because preschool age children may not have attained knowledge about how situational variability may impact their social effectiveness, studying the behaviors they exhibit in isolation may sufficiently demonstrate differing levels of social functioning. The possibility that fewer dimensions of competence should be considered in examinations of younger children is supported by Vaughn and colleagues (2009), who suggest that knowledge regarding the child's behavior may most appropriately explain variability in social functioning (Bost et al., 1998). Therefore, the present study proposes that behavior

ratings, based upon ongoing observations of a child, will capture preschool social competence most effectively.

Hoffman (1982, 2000) proposed a four-tiered theoretical model to address how social competence develops over time. This model outlines the changing awareness of self and other differentiation throughout child development and the role this awareness plays in prosocial behavior. In the first stage, infants display rudimentary, or global, empathy. For example, they may cry reactively to another's distress, but this response is due to an inability to differentiate from the other (Eisenberg, Fabes, & Spinrad, 2006). The second stage typically takes place by the end of a child's first year of life. At this point children seek comfort for themselves when exposed to another's distress, an experience referred to as *egocentric empathic distress*. At this time, they begin to differentiate the self from other, but this awareness is immature. By the second year of life, children begin to demonstrate efforts to assist a victim of distress. They also may attend to an individual by hugging or asking someone else to help. Hoffman (2000) refers to this level as *quasi-egocentric empathic distress*, as toddlers differentiate between self and other but still struggle to distinguish between their own and others' internal states. Finally, by the end of the second year, children typically reach a stage in which they are more aware of others' feelings and are capable of recognizing that the perspectives and feelings of others may differ from their own. Therefore, prosocial behavior exhibited during this time more fully represents accurate and less egocentric empathic responses to others' needs, a level referred to as *veridical empathic distress*. It is at this point in development that a young child may begin to acquire and organize a more complex set of skills aligning with social competence.

Bowlby (1973) proposed that development is a dynamic and transactional in nature. He suggested that the developmental pathway “turns at each and every stage of the journey on an interaction between the organism as it has developed up to that moment and the environment in which it then finds itself” (p. 412). Over time, children are more likely to have opportunities to observe and interact with others, providing unique pathways for building and demonstrating social competence (Eisenberg et al., 2006).

**Peer play as an indicator of social competence.** Research and theory support the notion that social competence is transactional, emerging from interactions between people, rather than reflecting innate abilities or traits within an individual (Rose-Krasnor, 1997). For preschoolers, an understanding of social skill development would be incomplete without consideration of the role that peers play in influencing their knowledge of the social world. The group childcare setting provides a context in which children have opportunities to develop and understand social concepts and skills collaboratively (Juvonen, 1997; Selman & Schultz, 1990). Preschool-age children are expected to learn how to play cooperatively with others, an activity that requires conflict management skills, assertiveness, sharing, and emotional regulation (Creasey, Jarvis, & Berk, 1998; Piaget, 1932; Semrud-Clikeman, 2007). Understanding the role that peer interactions play in the development of social competence is critical, as these two variables have been linked to many developmental outcomes, including school adjustment and achievement, social-emotional skills, and psychological health (Juvonen, 1997).

Extensive research with preschool-age children supports the notion that the ability to establish peer relationships is an essential competency and indicator of positive adjustment during later developmental stages (Cicchetti, 1990; Coolahan, Fantuzzo, Mendez, &

McDermott, 2000; Ladd, Price, & Hart, 1990). Socially competent preschool children are able to form friendships with peers, demonstrate the ability to solve social problems, convey empathy and sensitivity toward peers, and engage in complex play (Howes, Hamilton, & Matheson, 1994). In their 30-year study of attachment and social adaptation, Sroufe and colleagues (2005) characterized preschool social competence in terms of peer social interaction. Preschool teacher ratings and behavioral observations indicated a clear distinction between varying levels of social performance. Those who initiated and responded to contact with other children, while maintaining positive affect, were seen as “attractive play partners” (Sroufe et al., 2005, p. 135). These researchers found that early play tendencies corresponded with later social outcomes. When previous preschool study participants were observed at the age of 10, prior preschool peer group functioning accounted for more variance in current social competence than attachment or early care.

In contrast, children who have persistent difficulties in social situations are particularly vulnerable to problems with academic and psychological adjustment later in life (Hampton & Fantuzzo, 2003; Rubin, Bukowski, & Parker, 2006). For example, Howes and Phillipsen (1998) found that aggression and social withdrawal during preschool predicted later aggression. In addition, early prosocial behaviors have been linked to greater social competence in childhood and adulthood (Eisenberg & Fabes, 1999; Ladd & Price, 1987). Within the context of school, failure to effectively interact with peers during early childhood is associated with poor academic achievement, truancy, retention, and emotional maladjustment (Hartup & Moore, 1990; Kupersmidt, Coie, & Dodge, 1990; Ladd & Coleman, 1997).

A critical context in which young children develop and demonstrate peer social proficiency is play (Fantuzzo & McWayne, 2002). Play is not only an activity in which preschoolers engage to pass the time, but also an essential context for the development of cognitive, physical, and social competencies (Denham et al., 2001; Lindsey & Colwell, 2003; Tulananda & Roopnarine, 2001). Vygotsky (1978) realized that play was a socially symbolic activity that sets the stage for later development of language acquisition, imaginative processes, and problem solving. An analysis of children's play behaviors can be used to predict future outcomes (Howes, Hamilton, & Matheson, 1994). Results of empirical studies support this notion and indicate that play styles are indicative of social competence and predictive of future relationships with peers (Johnson, Ironsmith, Snow, & Poteat, 2000; Ladd & Price, 1987). Research supports the existence of a positive relationship between children's tendencies to demonstrate constructive play interactions with peers and their levels of academic engagement, motivation, and social competence (Coolahan et al., 2000; Nicolopoulou, 2002).

Children who have friends and feel accepted by their classmates are more likely to engage in school activities and demonstrate achievement-oriented behaviors (Juvonen, 1997). Peer relationships are associated with the development of social skills and psychological well-being (Juvonen, 1997). Conversely, disruption or withdrawal in play predicts negative behavioral and emotional outcomes. Researchers have suggested that withdrawn play behavior, such as watching other children play without making attempts to join in, is an indicator of future anxiety and internalizing problems in familiar and unfamiliar settings (Lagace-Seguin & d'Entremont, 2006). Lack of friends, unpopularity, and negative peer reputation are associated with a range of social and personal adjustment difficulties,

including mental health problems, school drop-out, criminal activities, poor academic achievement, emotional difficulties, and antisocial behavior (Juvonen, 1997).

Clearly, peer play experiences are associated with many developmental outcomes. A desire to understand individual differences associated with peer play behaviors and overall social competence has led many researchers to explore child characteristics, such as temperament, that predict these behaviors. As presented below, more than ample support exists for links between temperament and social outcomes.

### **Child Temperament**

Child temperament is considered an essential component of personality, emotionality, and social behavior (Rothbart, Ahadi & Evans, 2000). The history of temperament as a construct dates back to ancient Greek and Roman times, with its roots in four humors theory (Kagan, 1994; Strelau, 1998). Currently, temperament is most often described as individual traits that appear at birth and remain stable across the lifespan and is most likely derived from genetic or neurobiological factors (Goldsmith, Buss, Plomin, & Rothbart, 1987). For example, Bokhorst et al. (2003) compared temperament in monozygotic and dizygotic twins and found that 77% of the variance in temperamental reactivity could be explained by genetic features.

The fact that temperament serves as an individual difference variable is one of the reasons for its durability as a concept, as it aids in conceptualizing a person's role in his or her own development (Guerin, 2003). Longitudinal studies of children in Europe and the United States have suggested that preschoolers who are either shy or sociable often maintain this disposition throughout adolescence and, in some cases, into adulthood (Kagan 2004). Further, research suggests that, though environmental factors may be a source of

developmental variability among those with similar temperaments, temperament is still likely to predetermine potential outcomes to some extent (Kagan, 2004).

The best known conceptualization of temperament was developed by Thomas, Chess, and Birch (1968), who conducted the New York Longitudinal Study (NYLS) in order to better understand individual differences they were observing among children in their medical practices. They had been educated to believe that the mother's influence was the primary factor that determined her child's behavior. However, they observed that children raised in comparable environments exhibited very different behaviors. In order to address this discrepancy, they attempted to explain the *how*, *what* (abilities and content), and *why* (motivations) of each child's behavior. After analyzing their data, they asserted that the *how* of child behavior represented the child's "behavioral style," or temperament (Thomas & Chess, 1977).

Based on their observations and interviews, Thomas, Chess, and Birch (1968) identified nine dimensions of temperament: activity level, rhythmicity, approach or withdrawal, adaptability, threshold of responsiveness, intensity of reaction, attention span and persistence, distractibility, and quality of mood (see Table A for descriptions of each dimension). Upon further analysis of the behavioral patterns that emerged among children, common constellations of temperament dimensions began to emerge, leading to the creation of the categories *easy*, *difficult*, and *slow to warm up*.

Children were classified as having an *easy* temperament if they typically displayed regularity in physiological functioning (high rhythmicity), an eager approach to new stimuli (high approach), easy adjustment to change (high adaptability), mid-range reactions to stimuli (average intensity), and consistent expression of positive emotionality (high mood).

Approximately 40% of children participating in the New York Longitudinal Study were classified as falling within the *easy* temperament category. Children classified as *difficult* tended to display irregularity in biological functioning (low rhythmicity), withdrawal from stimuli, difficulty with change (low adaptability), strong responses to stimuli (high intensity), and consistent expression of negative affect (low mood). An estimated 10% of the NYLS sample displayed characteristics associated with *difficult* temperament. Research has demonstrated that ratings of difficult temperament are generally stable across childhood (Carnicero, Pérez-Lopez, Salinas, & Martinez-Fuentes, 2000; Dennis, 2006). Children described as *slow to warm up* were distinguished from the general sample based upon characteristically high rhythmicity, positive mood, mild response to new stimuli, and slow adaptability. Approximately 15% of participants in the NYLS were classified as *slow to warm up*.

### **Temperament and Social Competence**

As evidenced by an extensive literature, temperament is strongly linked to children's development and demonstration of social competencies (Rothbart & Bates, 1998; Sanson, Hemphill, & Smart, 2002; Seifer, 2000). Research with preschoolers suggests that specific temperamental attributes predict socially competent behavior (Diener & Kim, 2004; DiLalla, 1998; Sanson, Hemphill, & Smart, 2004). For example, preschoolers with easy-to-soothe, persistent, or flexible temperament qualities are more likely to display adaptive social behavior than their "less easy" peers (Blair, Denham, Kochanoff, & Whipple, 2004, p. 423; Farver & Branstetter, 1994; Kochanska, 1997; Youngblade & Mulvihill, 1998).

Many researchers have shifted away from examinations of temperament as a general construct (e.g., easy or difficult), instead focusing on specific temperamental traits or

dimensions (e.g., activity; Andersson, 1999; Wright Guerin, Gottfried, & Thomas, 1997). However, challenges underlie this approach as well. A review of literature by Sanson, Hemphill, and Smart (2004) indicated that using individual temperament dimensions in research introduces concerns regarding internal consistency among measurement items and conceptual overlap among the dimensions. These limitations have led many researchers to make empirical and theoretical modifications to existing conceptualizations of temperament (Keogh, Pullis, & Cadwell, 1982; Mobley & Pullis 1991; Rothbart & Bates, 1998; Sanson & Rothbart, 1995).

One alternative to Thomas, Chess, and Birch's (1968) well known conceptualization was proposed by Keogh, Pullis, and Cadwell (1982). Their examination of Thomas and Chess' Teacher Temperament Questionnaire (TTQ; 1977) yielded a short-form of the measure with three distinct factors that they named task orientation (high persistence, low distractibility, and low activity level), personal-social flexibility (high adaptability, high approach, and positive mood), and reactivity (high intensity, low threshold of responsiveness, and negative mood). More recent research has utilized these clusters, with results demonstrating links with numerous developmental outcomes among children (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Kagan & Snidman, 1999; Mobley & Pullis, 1991; Pianta, Smith, & Reeve, 1991; Prior, Sanson, Smart, & Oberklaid, 2000; Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009).

Mobley and Pullis (1991) utilized the short form of the Teacher Temperament Questionnaire (TTQ-SF) in order to determine potential relationships between teacher ratings of child temperament and socialization. Of the three temperament factors, reactivity had strongest link with social outcomes, as highly reactive children (those who reacted with high

intensity and negative affect to a range of stimuli) were less cooperative in the classroom and during peer interactions than children with lower reactivity. Specifically, teachers found these more reactive children to have more difficulty with self-control, self-reliance, initiative, and persistence than their less reactive peers.

Other researchers have found infants rated as high in negative reactivity to be more withdrawn and less engaged in social interactions during their early childhood years (Fox et al., 2001; Kagan & Snidman, 1999). Kagan, Reznick, and Snidman (1989) classified a sample of over 400 four-month-old infants as either high or low in reactivity and followed them through seven years of age. As toddlers, the high reactive infant group was more likely to show fear and inhibition to new events than their low reactive peers. By four years of age, the high reactive group was more likely to be inhibited and socially withdrawn. Researchers suggest that highly reactive children may be more likely to experience negative peer interactions throughout development if this temperament profile remains stable (Rubin, Bowker, & Kennedy, 2009). Of particular concern is the possibility that negative experiences with peers may perpetuate a pattern of withdrawn behavior, as children demonstrating high negative reactivity may begin to expect unsuccessful social interactions (Ladd, 2006).

In addition to studies of child reactivity, empirical work also has explored the relationship between personal-social flexibility (high adaptability, high approach, and positive mood) and social outcomes (Mobley & Pullis, 1991; Prior et al., 2000). When compared to children rated low in personal-social flexibility, Mobley and Pullis (1991) found that children high in this type of flexibility had significantly more friends and were more active, less fearful, and less depressed. In addition, data from the Australian Temperament

Project indicated that flexibility was a longitudinal predictor of later social skills among children at five to six and seven to eight years of age (Prior et al., 2000).

Task orientation, which Keogh, Pullis, and Cadwell identified in their 1982 study, also has been linked to social functioning. Mobley and Pullis (1991) found that educators rated children who exhibited high task orientation (high persistence, low distractibility, and low activity) as well-adjusted to their preschool environment, as indicated in part by their cooperation with peers. Among these children, teachers indicated that they observed fewer socialization problems with self-control, persistence, and initiative, when compared to peers rated low in task orientation. Additional studies have supported the positive correlation between task orientation and adaptive behaviors (Dobbs-Oates, Kaderavek, Guo, & Justice, 2011; Pianta, Smith, & Reeve, 1991; Rimm-Kaufman et al., 2009). Results from the Australian Temperament Project (Prior, Sanson, Smart, Oberklaid, 2000) indicated task orientation as a longitudinal predictor of social skill development in early childhood.

The findings reviewed provide strong support for the use of these three temperament clusters as predictors of numerous social developmental outcomes in young children. Therefore, in the current study, these temperament clusters were utilized as predictors of social competence, as observed in peer play interactions. It has been proposed that “temperament conditions a developmental process that determines adjustment” (Blair et al., 2004, p. 423). However, many researchers believe that examining only the relationship between temperament characteristics and social outcomes provides inadequate insight into the complex interactions that take place between children and their environments. An undoubtedly important component of a young child’s social environment is the nature of the parenting experienced by the child.

### Parenting Styles

Family can be described as “the basic unit of social organization throughout human society” (Carey & McDevitt, 1995). Researchers representing a variety of theoretical orientations stress the significance of the family context in child development, recognizing this as a critical sphere of influence (Gagnon, Nagle, & Nickerson, 2007; Nickerson, Duvall, & Gagnon, 2007). The family environment provides children’s first opportunities to practice managing their emotions and social behaviors. Parents represent the most influential agents in a child’s immediate developmental context, and their influence derives from the child’s genetic endowment and the direct effects of experiences provided by parents. Distinct patterns of parenting practices and beliefs have been linked to variation in child psychosocial development (Eisenberg et al., 2006).

Researchers consistently describe parenting practices in terms of two dimensions: support and control (Maccoby & Martin, 1983). The first dimension, *support*, refers to parenting behaviors that foster within the child an internal sense of acceptance and security in his or her relationship with the parent (Paulussen-Hoogeboom, Stams, Hermanns, Peetsma, & van den Wittenboer, 2008). This continuum also can be conceptualized as *warmth* or *responsiveness*. Control, as a dimension of parenting, is “behavior of the parent toward the child with the intent of directing the behavior of the child in a manner desirable to the parents” (Rollins & Thomas, 1979, p. 321). This dimension also may be referred to as the level of *demand* placed on a child. Control strategies may be positive or negative in nature and may vary according to context. Restrictive control is an example of a negative strategy in which the parent exhibits power assertion, intrusiveness, hostility, over-control, or over-involvement (Calkins, 2002). Examples of positive control include reasonable parental limit-

setting intended to protect the child from harm or teach socially appropriate behavior.

Positive control is more often implemented through proactive and verbal means, rather than reactive or physical methods (Santrock, 2007).

In Baumrind's influential article (1968), she presented her theory regarding three distinct parenting styles, based upon varying degrees of parental control: authoritarian, permissive, and authoritative. Her work led to the conclusion that parental control is not invariably good or bad. Instead, its effects are moderated by other variables, such as parental warmth and coldness. After conducting a study that included more than 100 preschool-age children, she pinpointed four distinct dimensions of parenting: disciplinary strategies, warmth and nurturance, communication styles, and expectations of maturity. She defined her parenting styles based on unique combinations of these dimensions.

The authoritarian style is based on a worldview that regards children as innately corrupt. Corresponding with this view, children must be "civilized" by their parents, and they must subordinate to parental rules and demands. An authoritarian parent is punitive and cold when interacting with his or her child, valuing unquestioning obedience. In other words, this parent exerts a high degree of control, without warmth or two-way communication. In contrast, permissive parenting is derived from psychoanalytical theory and the view that parental authority has inhibiting effects, as it limits the freedom of the child. Given this perspective, parents avoid restricting their children's behaviors. The permissive parent is lenient and inconsistent in providing feedback and discipline. Though support may be expressed, little is done to set boundaries or control the child's behavior.

Finally, authoritative parenting incorporates both parental control and child autonomy and embraces a Hegelian notion of freedom (i.e., the appreciation of necessity). Baumrind

(1971) proposed that this approach to parenting would be most efficacious in fostering the development of social competence and independence in children. The authoritative style continues to be regarded as the most positive approach among Baumrind's styles (Rothbart & Bates, 1998). Authoritative parents are flexible but consistent in setting limits, and they offer explanations for desired behaviors and outcomes. These parents convey a high degree of warmth and emotional support and foster autonomy and self-regulation.

### **Parenting Styles and Social Competence**

As previously mentioned, the family environment provides children's first opportunities to practice managing their emotions and social behaviors. Baumrind's (1968, 1971) extensive review of the literature on parenting styles and children's social competence indicated that children of authoritative parents were more capable of positive social interactions than children of permissive and authoritarian parents. Children of authoritarian parents tend to be socially withdrawn and hostile when frustrated with peers. Children of permissive parents are more likely to be demanding and demonstrate little impulse control.

Theoretical and empirical evidence exists to support the critical role parents play in children's social development (Patterson, 1982; Patterson, Griesler, Vaden, & Kupersmidt, 1992). Authoritarian parents often simultaneously model aversive behaviors and fail to teach prosocial skills and their children tend to develop inadequate social competencies and in some cases, master deviant behaviors (Fagot, 1997). When these children enter peer groups they are likely to have difficulty initiating positive interactions and may instead use aversive responses learned at home to attain goals (Patterson, 1982).

Findings from numerous empirical studies conducted in the decades following Baumrind's work support the notion that parenting styles contribute to differences in children's levels of social competence (Collett, Gimpel, Greenson, & Gunderson, 2001; Parke & Buriel, 1998; Patterson et al., 1992; Snyder, Cramer, A Frank, & Patterson, 2005; Steinberg, Lamborn, Darling, & Mounts, 1994). Most studies have focused on the authoritarian parenting style, finding that non-sensitive responses to children's behaviors, coupled with intrusive, harsh, and negative discipline, are related to elevated levels of externalizing behavior among young children (Brenner & Fox, 1998; Carlson, 1998; O'Leary, Smith Slep, & Reid, 1999). Robinson, Zahn-Waxler, and Emde (1994) found that mothers who were somewhat negative and controlling had children whose displays of empathy decreased rather than increased from 14 to 20 months of age. Such findings have been replicated with preschoolers (e.g., Dekovic & Janssens, 1992; Denham et al., 2001; Kochanska, 1991; Pearson & Rao, 2003) and across a variety of cultural and economic groups (Beyers & Goossens, 1999; Chang, Schwartz, Dodge, & McBride-Chang, 2003; Chen, Dong, & Zhou, 1997; Jones, Eisenberg, Fabes, & MacKinnon, 2002).

Alternatively, high levels of warmth coupled with adequate control are associated with socially competent behavior (Putallaz & Heflin, 1990). A number of investigators have explored the relations between parenting styles and children's prosocial behaviors, with findings consistently revealing positive relationships between authoritative parenting practices and children's social competence (Clark & Ladd, 2000; Janssens & Gerris, 1992; Kochanska, Forman, & Coy, 1999). A study in which parenting was evaluated using observations of mothers' interactions with their infants revealed that appropriate and contingent maternal responding at nine months predicted higher levels of prosocial behavior

at 22 months (Kochanska et al., 1999). In addition, Clark and Ladd (2000) found that parental connectedness, including parent-child positive engagement, warmth, and reciprocity, was positively related to kindergarteners' teacher-reported prosocial tendencies. Janssens and Gerris (1992) found that democratic parenting, involving parental warmth and support, as well as inductions, moderate demands, and offering suggestions, information, and positive comments, was associated with Dutch children's prosocial behavior.

Parental induction, such as verbal discipline in which the parent provides explanations for requiring the child to change his or her behavior, is a parenting technique characteristic of the authoritative parenting style (Hoffman, 1970). Empirical evidence supports a relationship between parental utilization of inductions and children's prosocial tendencies when the type of reasoning was not specified (Janssens & Gerris, 1992) and when the inductions pertained to peers' or others' feelings (Karylowski, 1982; Krevans & Gibbs, 1996). Inductions have been found to be most effective in promoting prosocial behavior when power-assertive techniques (characteristic of authoritarian parents) are not utilized (Dlugokinski & Firestone, 1974; Hoffman, 1963) and when democratic practices (as in authoritative parenting) are adopted (Dekovic & Janssens, 1992).

Research suggests that parental control that encourages children's sense of autonomy positively impacts their social competence (Walker & MacPhee, 2011). Children's autonomy is relevant to social competence, as it offers initial experiences in negotiating independence while interacting with peers (Coll et al., 1996; Crockenberg & Litman, 1990). Findings from a longitudinal study by the NICHD Early Child Care Network (2004) indicated that children whose parents fostered their autonomy were the most socially competent and demonstrated fewer behavioral concerns than their less independent peers. In

addition, Fantuzzo, McWayne, Perry, & Childs (2004) found that preschooler's autonomy was predictive of positive peer play interactions.

Clearly, parental influence plays a critical role in the development of social competence. However, as previously described, theoretical and empirical evidence supports the notion that the story is more complex. In other words, both within-child (temperament) and social environmental (parenting) variables contribute to a child's developing social competencies. With this assumption in mind, our study examines the relationships among these variables.

### **Research Questions**

The current study was guided by the theoretical and empirical evidence reviewed as well as a desire to explore the nature of the variables that predict social competence in preschoolers, including both child and parent factors. The following research question was addressed: Do child temperament and parenting styles predict preschool social competence? The current study proposed that significant associations would emerge among the variables, and that child temperament and parenting style would individually predict social competence.

In my study, social competence was reflected in terms of children's play interactions with their peers. I considered both positive and negative play behaviors. Child temperament was measured in terms of Keogh and colleagues' (1982) conceptualization, which includes three combinations: personal-social flexibility (high adaptability and approach/withdrawal and positive mood), task orientation (low levels of persistence and high distractibility and activity level), and reactivity (low threshold of responsiveness, high intensity, and negative mood). Three aspects of parenting styles were examined: limit-setting, communication, and autonomy-granting.

It was hypothesized that, when examining child temperament characteristics, high levels of personal-social flexibility, high levels of task orientation, or low levels of reactivity among children would be found to relate to high levels of interactive play, as well as low levels of disruptive or disconnected play. In addition, high parent ratings of limit-setting, autonomy-granting, and communication were expected to relate to less disruptive or disconnected play, along with more interactive play among their children.

## Method

### Participants

Participants included the parents of 44 preschool-age children (23 girls and 21 boys) attending preschools or daycare centers in urban and rural areas in North Carolina or Tennessee. The majority of children were Caucasian (91%); their mean age was 51.60 months ( $SD = 7.84$ ). A majority of their parents had earned a bachelor's degree or higher (70.5%).

### Materials

**Penn Interactive Peer Play Scale.** The parent version of the Penn Interactive Peer Play Scale (PIPPS; Fantuzzo et al., 1995) was used to evaluate parents' perceptions of their children's play behaviors with peers across settings. This 32-item scale was standardized with a sample of 523 children of African American descent ranging in age from 44.8 to 76 months ( $M = 52.5$  months). Items are intended to differentiate children who exhibit socially competent behaviors during play situations and those who are less adept in their peer play interactions.

To complete the PIPPS, parents rate their child's play behaviors on a 4-point Likert-format scale (1 = *Never* to 4 = *Always*). The PIPPS provides scores on three subscales: Play Interaction, Play Disruption, and Play Disconnection. Play Interaction consists of items that indicate resourceful, cooperative, and caring behaviors that promote success in peer-play interactions. Play Disruption reflects aggressive or inconsiderate play behaviors. Play Disconnection captures children's withdrawn and avoidant behavior, which may prevent active participation in peer play activities.

Concurrent validity of PIPPS data was examined through comparisons with the Social Skills Rating System (Gresham & Elliot, 1990). In addition, the parent version of PIPPS data was validated using a teacher version assessing the same constructs (Fantuzzo, Mendez, & Tighe, 1998). Factor analytic results revealed congruence between the Play Interaction, Disruption, and Disconnection dimensions on the parent and teacher versions of PIPPS. In addition, using canonical correlation analysis, three significant variate pairs emerged, each encompassing the corresponding parent and teacher PIPPS factors. Internal consistency among these data-derived factors was found to be acceptable, with alpha reliability coefficients of .84 (8 items), .81 (11 items), and .74 (11 items) for Play Interaction, Play Disruption, and Play Disconnection, respectively (Fantuzzo et al., 1998). For the current study, raw scores on the Play Interaction scale will be examined.

**Behavioral Style Questionnaire.** The Behavioral Style Questionnaire (BSQ; McDevitt & Carey, 1978) is a parent rating scale of child temperament designed for children ages 3 to 7 years. To complete the BSQ, parents provide ratings on a Likert-type scale (1= *Almost Never* to 6= *Almost Always*). The subscales included in this 110-item questionnaire correspond with the nine dimensions of temperament identified through the New York Longitudinal Study (Activity, Rhythmicity, Approach/Withdrawal, Adaptability, Intensity, Mood, Persistence, Distractibility, and Threshold) (Thomas, Chess, & Birch, 1968). See Table A for descriptions. The standardization sample included 350 children ages 3 to 7 years who were predominantly European-American, of middle socioeconomic status, and resided in the eastern United States.

Test-retest reliabilities among the subdomains of the BSQ range from .94 (Rhythmicity) to .67 (Threshold), with a median coefficient of .81. Alpha reliabilities range from .47 to .80, with a median coefficient of .70 (McDevitt & Carey, 1978). Studies linking the dimensions of temperament measured by the BSQ and children's peer interactions provide evidence for the clinical validity of these scales (Billman & McDevitt, 1980).

For the current study, I combined subscale scores to create composites based on Keogh, Pullis, and Cadwell's (1982) three constellations: personal-social flexibility (adaptability, approach/withdrawal, and mood), task orientation (persistence, distractibility, and activity), and reactivity (threshold of responsiveness, intensity, and mood).

**Parent-Child Relationship Inventory.** The Parent-Child Relationship Inventory (PCRI; Gerard, 1994) is a self-report measure designed to assess parents' perceptions of the relationships they experience with their children. The 78-item scale provides scores on 8 subscales: Support, Satisfaction with Parenting, Involvement, Communication, Limit Setting, Autonomy, Role Orientation, and Social Desirability. The standardization sample included over 1,100 parents who were primarily Caucasian (85.7%), relatively highly educated, and lived in the four major geographical regions of the United States. To complete the PSDQ, parents provide ratings on a Likert-type scale (1=*Strongly Agree* to 4=*Strongly Disagree*).

Overall, internal consistency estimates derived from PCRI data are good. Among the scales, all alpha coefficients were found to be at or above .70, and the median value was .82 (Gerard, 1994). Test-retest reliability estimates also were within the acceptable range for attitude measures. In order to ensure content validity, a panel of experts rated items in the preliminary PCRI set for cultural fairness, simplicity, and relevance.

For the current study, raw scores from the Autonomy, Limit Setting, and Communication subscales will be utilized. The Autonomy scale reflects parents' willingness to accept and promote their children's developmentally-appropriate expressions of independence. The Limit Setting scale measures parents' effectiveness in establishing consistent boundaries. High scores on this scale reflect a balance between harmony and control within the home. The Communication subscale provides information about how effectively parents are able to communicate with their children in a range of situations. High scores on this scale are also suggestive of parent empathy.

### **Procedure**

Twelve preschools or daycare centers in Tennessee and North Carolina were recruited for participation. Though some geographical areas were targeted due to logistical considerations, both urban and rural populations were sampled. No individuals were excluded on the basis of cultural characteristics. Eleven of the 12 early childhood centers chose to participate. A portion of the sample was identified utilizing a search tool provided by the NC Division of Child Development website (<http://ncchildcar.dhhs.state.nc.us/general/home.asp>). The remaining participants were recruited from centers in Tennessee in which one of the researchers had existing relationships with the center directors. Written consent was obtained from directors to recruit parents and teachers. Informed consent letters were then mailed to these centers in order to be distributed to teachers of children ages 3 to 5. Once teachers sent the forms home to parents, those interested returned the forms directly to the researchers in self-addressed, stamped envelopes. When consent letters were received, packets containing questionnaires were compiled in counterbalanced order using a Latin Square algorithm and mailed to the preschool centers.

Parents returned their completed packets in self-addressed, stamped envelopes. Participants were provided a small monetary compensation (between \$10 and \$15) per child from funds granted by Appalachian State University's Research Council. This research was conducted in accord with the ethical standards set forth by the University's Institutional Review Board and the American Psychological Association's Ethical Principles of Psychologist and Code of Conduct.

## Results

### Descriptive Statistics

Descriptive statistics and Pearson product-moment correlation coefficients for all study variables appear in Table 2. Several internal consistency reliability coefficients are rather low (Autonomy,  $\alpha = .60$ ; Play Disruption,  $\alpha = .62$ ; Play Disconnection,  $\alpha = .55$ ) relative to generally-accepted standards (Salvia, Ysseldyke, & Bolt, 2009).

### Correlations

An examination of the correlations between the predictor variables found three that were statistically significant. Limit-setting was significantly correlated with personal-social flexibility ( $r = .32, p < .01$ ) and task orientation ( $r = .27, p < .01$ ). In addition, autonomy-granting was significantly correlated with reactivity ( $r = -.32, p < .01$ ).

When exploring the correlations between the predictor and outcome variables, significant relationships emerged between two of the play variables and two of the predictors. Statistically significant correlations were found between personal-social flexibility and play disruption ( $r = -.25, p < .01$ ) and play disconnection ( $r = -.69, p < .001$ ). Parental limit-setting also was significantly correlated with play disruption ( $r = -.32, p < .05$ ) and play disconnection ( $r = -.31, p < .05$ ).

### Standard Multiple Regression Analyses

Standard multiple regression analyses were performed to examine whether play could be predicted from temperament and parenting behaviors. In separate analyses, a single play variable (interaction, disruption, or disconnection) was regressed on temperament (personal-social flexibility, task orientation, or reactivity) and parenting behaviors (autonomy, limit

setting, or communication). Thus, three multiple regressions were performed. The results of these analyses appear in Table 3.

The multiple regressions revealed that the predictors accounted for a statistically significant portion of the variance for play disconnection only ( $R^2 = .53$ ,  $F_{6,37} = 6.81$ ,  $p < .001$ ), with personal-social flexibility ( $\beta = -.695$ ,  $t = -5.63$ ,  $p < .001$ ) the only predictor that made a statistically significant unique contribution.

## **Discussion**

The purpose of this study was to examine the relationships between child temperament, parenting behaviors, and child social competence. Using peer play behaviors as an indicator of social competence, I hypothesized that child temperament and parenting behaviors would predict children's play behavior with peers. I examined three different play behaviors: positive involvement (interaction), withdrawal (disconnection), and maladaptive play (disruption). As predictors of peer play I examined three different constellations of temperament that have been validated by previous researchers—personal-social flexibility, task orientation, and reactivity (Fox et al., 2001; Kagan & Snidman, 1999; Keogh et al., 1982; Mobley & Pullis, 1991; Pianta et al., 1991; Prior et al., 2000; Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009)—and three parenting behaviors—autonomy granting, limit setting, and communication. In general, I expected to find that children characterized by more positive temperament traits would exhibit more positive, or interactive, play behaviors, whereas children described as having more negative characteristics would display more disruption and withdrawal during play interactions. I expected similar findings to emerge with the parenting variables, such that children of parents who displayed more authoritative parenting styles would be better “players.” My results partially supported my hypotheses.

### **Play Interaction**

My findings did not support the hypothesis that child temperament would predict positive aspects of play, as no significant associations emerged between the temperament variables and play interaction. This lack of findings is surprising, given the extant literature

supporting relationships between specific temperament traits and socially competent behaviors in preschoolers (Diener & Kim, 2004; DiLalla, 1998; Sanson et al., 2004). For example, previous studies have found associations between reactivity, personal-social flexibility, and task orientation and positive social behaviors, including initiative, self-control, and cooperation during peer interactions (Mobley & Pullis, 1991). The current study examined the same temperament constellations but found no significant results.

The lack of findings may be attributed to the use of interactive play as an indicator of the positive aspects of play, and more generally, the social competence outcome. Peer play is only one of many aspects of children's social competence. Despite the wealth of support for the critical role of peer play in preschoolers' social development (Creasey, Jarvis, & Berk, 1998; LaFreniere & Dumas, 1996; Raver & Zigler, 1997; Rose-Krasnor, 1997), empirical work utilizing peer play as a specific outcome variable is limited. It is possible that the use of play interaction as an outcome variable may not have allowed for the expected associations to emerge. Another consideration is the fact that most existing research has examined negative or maladaptive play as an outcome variable, with results revealing stronger associations between temperament and problematic behaviors, as compared to prosocial outcomes (Billman & McDevitt, 1980; Blair, Denham, Kochanoff, & Whipple, 2004; Nelson, Martin, Hodge, Havill, & Kamphaus, 1999).

In terms of parenting behaviors, none of the variables examined—autonomy-granting, limit-setting, or communication—were associated with play interaction. These findings were not only inconsistent with my hypotheses but also with the existing literature supporting relationships between these variables. Although I examined specific parenting behaviors, my hypotheses were guided in large part by the parenting styles literature. Parents who exhibit

high levels of the parenting behaviors I assessed would be characterized by Baumrind as authoritative (Baumrind, 1968, 1971; Eisenberg, Fabes, & Spinrad, 2006). Authoritative parents convey a high degree of warmth and emotional support, foster autonomy and self-regulation, offer explanations for desired behaviors and outcomes, and are flexible but consistent when setting limits. Based on the literature supporting links between authoritative parenting and children's positive social interactions (Baumrind, 1968, 1971; Eisenberg, Fabes, & Spinrad, 2006), it is surprising that these relationships did not emerge in the current data.

Similar to the research on temperament, the majority of studies examining parenting and social outcomes have focused on maladaptive outcomes, often targeting elements of the authoritarian parenting approach as potential risk factors (Brenner & Fox, 1998; Carlson, 1998; O'Leary, Smith Slep, & Reid, 1999). It is possible that parenting behaviors have a more robust relationship with maladaptive behaviors than they do with competence.

### **Play Disruption**

When examining play disruption, which reflects aggressive or inconsiderate play behaviors, my hypotheses were partially supported. One of the temperament dimensions, personal-social flexibility, was significantly associated with play disruption, such that children who exhibited higher levels of personal-social flexibility tended to display fewer disruptive behaviors during play interactions. Though this relationship was observed via zero-order correlations, the association diminished during multiple regression analyses. This suggests that the variance that these two variables share is not unique within the context of other predictors included in the regression model. The presence of this correlation is not surprising, given the extant literature linking personal-social flexibility and a variety of

positive social developmental outcomes. For example, preschool children rated as “flexible,” “emotionally mature,” and willing to adapt to social situations are more likely to be deemed socially competent by adult raters (Goncu, 1993; Howes, Matheson, & Hamilton, 1994; LaFrenier & Dumas, 1996, p. 373). As measured in my study, personal-social flexibility represents an inherent ability to regulate emotions, as indicated by quick recovery from setbacks or changes (adaptability) and maintenance of a positive perspective, in spite of challenges. It has been suggested that children receiving low ratings in the dimensions of personal-social flexibility demonstrate a rigid approach to situations, “where one’s affective response to environmental demands lacks breadth and flexibility” (Cole, Michel, & Teti, 1994; Gross & John, 2002; Jaffe, Gullone, & Hughes, 2010, p. 55). Although studies using peer play as an outcome variable are limited, findings suggest that preschool-age children who display higher levels of personal-social flexibility, which is reflected in their positive mood, adaptability, and easy approach to new situations, tend to have more friendships (Mobley & Pullis, 1991). Additionally, research examining the individual temperament dimensions that make up the personal-social flexibility cluster (adaptability, approach, and mood) support my findings, as children characterized by poor emotion-regulation have been found to display disruption during play, whereas those who are adaptive, flexible, and easy in their approach to new situations tend to be effective during peer play interactions (Mendez, Fantuzzo, & Cicchetti, 2002). My findings support the need for further research examining the relationships between personal-social flexibility and peer play behaviors.

Contrary to expectations, my results indicated that neither reactivity nor task orientation was associated with play disruption. These findings are inconsistent with the extant literature supporting links between these temperament traits and play behaviors, such

that children who demonstrate intense affective responses, irritability, and poor self-regulation tend to engage in more antagonistic peer exchanges and are rated by their teachers as less socially competent (Arsenio, Cooperman, & Lover, 2000; Maszk, Eisenberg, & Guthrie, 1999). Mobley and Pullis (1991) found that young children rated high in reactivity and low in task orientation tended to have difficulty with self-control and cooperation during peer interactions. More recent research suggests that the combination of high reactivity and low self-regulation predict disruptive play behaviors (Arsenio et al., 2000). However, in those studies, reactivity is examined in combination with other temperament traits; less evidence is available to support reactivity as a unique predictor of play. Children with characteristically negative mood (specifically anger) and low self-regulation tend to exhibit externalizing behaviors, including aggression or hostility, which are aspects of disruptive play that were measured in my study (Eisenberg & Fabes, 1999). It has been demonstrated that children who generally display negative emotionality, which is similar to reactivity, are not as susceptible to problematic social behaviors unless they also experience poor self-regulation (Diener & Kim, 2004). These findings suggest that the primary aspect of reactivity that may lead to disruptive play is negative mood.

Links between task orientation and peer social behaviors in early childhood have been supported by previous empirical findings (Mobley & Pullis, 1991). Similar to the work regarding reactivity and peer play, more recent findings have addressed the individual temperament attributes that make up the task orientation cluster (persistence, distractibility, and activity level) than the cluster itself. For example, Paterson and Sanson (1999) indicated that toddlers' persistence was strongly related to parent and teacher ratings of social skills during their first year of school. These studies have focused on the school setting, which

makes sense, particularly when considering that attention regulation, an important aspect of task-orientation, appears to be important to social functioning in the school setting (Sanson et al., 2004). These findings suggest that the associations between task orientation and social functioning may be most significant within the context of school. In my study, the ratings of peer play interactions reflected parent observations of play activities that likely were observed outside of the preschool setting. It is likely that parents observe children in a variety of settings, both structured and relaxed, while teachers only observe them at school. Perhaps task orientation is more relevant to play interactions in specific settings than across a range of contexts. In review of their findings, Mobley and Pullis (1991) asserted that while task orientation “was positively related to many aspects of positive socialization toward teachers and the classroom setting,” personal-social flexibility “seemed more closely related to peer social outcomes” (p. 584).

In terms of the parenting variables, only limit-setting was associated with play disruption (again, present in the zero-order correlations but not in the multiple regression analysis), suggesting that children whose parents more consistently set reasonable boundaries displayed lower levels of self-centered and aggressive play with peers. As previously described, effective limit-setting is one characteristic of the authoritative parenting style (Baumrind, 1968; 1971) that has demonstrated associations with positive social developmental outcomes (Clark & Ladd, 2000; Janssens & Gerris, 1992; Kochanska et al., 1999). My results are consistent with existing findings demonstrating that poor limit-setting is associated with difficulty in peer interactions (Denham, Renwick, & Holt, 1991). Baumrind (1996) offers a potential explanation for the relationship, as she asserts that “during the preschool years, adult constraint—expressed as consistent contingent

reinforcement and regularity—helps promote the child’s sense of security and her belief that the world can be a safe, predictable place” (p. 407). My findings support Baumrind’s notion and extend empirical study beyond examinations of general social competence to include disruptive play behaviors. However, despite our knowledge of the important links between limit-setting and social outcomes, research examining the relationship between limit-setting and disruptive play is quite limited.

Neither communication nor autonomy-granting demonstrated significant associations with play disruption. To better understand the lack of expected associations with communication, I examined the way in which it was operationalized in my study. Here, communication was defined within the framework of person-centered discourse described by Baumrind (1996), which is effective with children because it is less coercive than other forms of communication and promotes reciprocal contributions by both children and adults (Applegate, Burke, Burlison, Delia, & Kline, 1985), and it has predicted future prosocial behavior (Zahn-Waxler, Radke-Yarrow, & King, 1979). The failure of my data to capture this relationship may have resulted from the use of disruptive peer play as an indicator of social competence. Variation in levels of disruptive play among young children may not reflect parenting effects in the manner that prosocial behavior does. It is important to note that a lack of maladaptive play behaviors, such as those observed in disruptive play, may not necessarily indicate the presence of adaptive play behavior.

Theoretical support for the important role of autonomy-granting dates back to Baumrind’s early studies (1968, 1971). Denham and colleagues (1991) found that maternal autonomy-granting predicted teachers’ ratings of preschoolers’ social-emotional competence, and they proposed that the support adults provide for children’s early attempts at autonomy

can be thought of as “the preschooler’s equivalent of a ‘secure base’” (p. 243). My results did not support their findings, but more recent research provides a possible explanation. Lengua, Honorado, and Bush (2007) composed a predictor variable called “scaffolding,” which was a combination of parental responsiveness and respect for autonomy. Despite their expectations, they found that scaffolding was negatively associated with early social competence. However, they proposed that perhaps the relationship between autonomy-granting and play outcomes would become positive as children age, as this parenting approach has predicted positive peer relationships in school-age children (Fagot, 1997). Additional research may be needed to clarify the associations between these constructs during the preschool years.

### **Play Disconnection**

The results for play disconnection partially supported my hypotheses and were quite similar to those for play disruption, with personal-social flexibility emerging as a significant predictor. However, the strength of the relationship between these variables was substantially greater for this outcome, and multiple regression analyses indicated that personal-social flexibility was a statistically significant unique predictor of play disconnection. These results suggest that children who tended to display positive mood, adaptability, and a confident and willing approach to novel situations were less likely to avoid play situations with peers.

Empirical evidence supports relationships between personal-social flexibility and social disconnection (Prior et al., 2000). For example, children characteristically low in terms of personal-social flexibility have been found to be the most socially timid among children whose temperament characteristics were identified within the preschool setting

(Mobley & Pullis, 1991). Similar to the body of literature used to support the relationship between personal-social flexibility and play disruption, researchers have typically indicated that the individual temperament dimensions contributing to personal-social flexibility lead to effective peer interactions, but they have done little to expand on negative outcomes in the context of play. For example, approach/withdrawal, an element of personal-social flexibility, has been linked to the disconnected social response style, with lower scores on approach longitudinally associated with social withdrawal (Root & Stifter, 2010).

The lack of support for the hypothesized relationship between task orientation and play disconnection may again be explained by the fact that studies have largely attended to school-based social interactions. Thus, the role of task orientation may vary across contexts. The fact that reactivity did not demonstrate associations with play disconnection is inconsistent with previous research. For example, high reactivity during infancy has predicted social reticence at age four (Fox et al., 2001). An examination of the various predictors of a disconnected play style may help explain why my data did not support this hypothesis. There are a number of pathways leading to a tendency toward a withdrawn social interaction style (Olweus, 1993). Some children may be introverted and prefer solitary play, some may be unaccepted by peers, and others may be fearful of engaging other children in play. Though the observed outcome is similar, these children may be fundamentally different.

Limit-setting was the only parenting behavior that was associated with play disconnection. Though this relationship was observed through zero-order correlations, the association was not significant during multiple regression analyses, indicating that the variance these two variables share is not unique within the context of other predictors

included in this study. The presence of a correlation here suggests that parents who set clear, consistent limits tended to report that their children did not avoid or withdraw from play interactions. Research explicitly exploring the connection between limit-setting and play disconnection is sparse. Pettit and Bates (1989) and Rothbaum and Weisz (1994) proposed that, despite the fact that authoritarian and authoritative parenting approaches are high on the control dimension, parental influence should be exercised in a sensitive way to effectively impact child behavior. For example, withdrawal of loving behaviors and assertion of power are control-based strategies that are not found to decrease problem behavior. Empirical findings support the relationship between a negative or hostile approach to providing boundaries (which would be characteristic of a low rating on limit-setting in the present study) and higher degrees of social withdrawal in early childhood (Hane, Cheah, Rubin, & Fox, 2008).

My findings were inconsistent with previous research suggesting that autonomy-granting positively impacts children's social competence (Walker & MacPhee, 2011), in terms of their ability to effectively assert themselves socially (Denham et al., 1991) and experience social self-reliance and confidence when approaching peers (Coll et al., 1996; Crockenberg & Litman, 1990). In contrast, children whose parents impede their independence have been observed to be socially withdrawn (Mills & Rubin, 1998).

### **Summary of Findings**

Overall, my findings revealed a pattern in which the specific temperament and parenting behaviors I examined did not “work” when examining *positive* play behaviors. However, when I examined the *less optimal* play behaviors (disruption and disconnection), personal-social flexibility and parental limit-setting stood out as important correlates. The

relationship between personal-social flexibility and play disconnection was particularly strong, with this combination of temperament traits serving as a significant predictor of a withdrawn play style. These patterns suggest the possibility that these aspects of temperament and parenting may be important when working with children who may be vulnerable to negative experiences during peer interactions. Furthermore, the findings suggest that for children who may be at risk for problems with social competence because of their low levels of personal-social flexibility and lack of effective parental limit-setting, parents (and teachers) might try to focus on modifying those temperament traits that are characteristic of personal-social flexibility (approach, adaptability, and mood). Additionally, parent and teacher training in effective and reasonable limit-setting may help reduce these children's susceptibility to peer-related social difficulties.

### **Practical Relevance**

Previous empirical findings convey the resounding message that early identification of children at risk for less than optimal developmental outcomes is a critical element in the prevention of persistent behavior problems (Brotman et al., 2003; Lynch, Geller, & Schmidt, 2004; Miller-Heyl, MacPhee, & Fritz, 1998; Reynolds, Temple, Ou, Arteaga, & White, 2011). In fact, interventions targeted toward younger children are more efficacious than those targeting older children (Reid, 1993). Acquiring the skills needed to interact effectively with peers is regarded as a fundamental developmental milestone for preschoolers. Researchers have suggested that withdrawn play behavior is a predictor of future anxiety and internalizing problems in familiar and unfamiliar settings (Lagace-Seguin & d'Entremont, 2006). Early indicators of difficulty with play interactions predict a range of

future social and personal adjustment concerns, including mental health problems, poor academic achievement, and antisocial behavior (Juvonen, 1997).

My findings regarding preschoolers' personal-social flexibility and peer play may aid in identifying critical personal characteristics that lead to effective social interactions among young children. Though temperament is thought to be a predominantly stable trait, research suggests that environmental influences may have some impact on individual qualities across the lifespan (Kagan, 2004; Zentner & Bates, 2008). In keeping with that notion, it is possible that interventions that focus on child temperament may be effective in promoting positive developmental outcomes. Perhaps programming could be developed for children who are found to be low in personal-social flexibility, with the goal of increasing their display of prosocial behaviors during play interactions.

The effectiveness of temperament-based interventions (e.g., educational programs and support groups; Kristal, 2005) in promoting various positive outcomes has been demonstrated in a growing body of empirical work (Franyo & Hyson, 1999; McClowry, Snow, Tamis-LeMonda, & Rodriguez, 2010; McClowry, Snow, Tamis-LeMonda, 2005; Rapee, Kennedy, Ingram, Edwards, & Sweeny, 2005; Sheeber & Johnson, 1994; Turecki, 1989). These interventions often focus on increasing caregivers' understanding of temperament as an individual trait and teaching them how to use this knowledge to better understand and appreciate their children better. Building such competencies can help parents and child care providers anticipate times or situations in which children may experience difficulties and provide them strategies to respond effectively to their individual needs. In addition to promoting understanding among parents and childcare providers, temperament information can be incorporated into classroom management strategies (Keogh, 2003).

Results of the present study suggest that parents who self-report difficulty with limit-setting are more likely to indicate that their children withdraw from play interactions. In addition, self-reports of limit-setting were associated with disruptive play. These relationships provide insight into a potential opportunity for intervention, such that parents of preschool-age children could be trained in effective limit-setting strategies in order to positively contribute to their children's social development. Findings from my study indicate that effective and reasonable limit setting by parents is associated with a decreased chance of engaging in ineffective social behaviors.

### **Limitations**

Several limitations in the present study are worth noting. The sample was relatively small, which may have limited statistical power. For example, the correlations between personal-social flexibility and play interaction and between reactivity and play interaction approached significance ( $p < .10$ ). Additional participants would have provided additional statistical power to facilitate examinations of these relationships.

Though it included families from both rural and urban settings, my sample was relatively homogeneous and included respondents who generally were of moderate to high socioeconomic status, relatively highly educated, and primarily Caucasian. This homogeneity may limit the generalizability of the results. In addition, peer play ratings demonstrated that our sample included children who tended to be "good players." The limited variability in play behaviors may have attenuated the associations that were predicted, obscuring relationships that may exist within a more diverse pool of participants.

The reliance on parent ratings also may have compromised the results, given the limited perspective provided by a single rater. Situation specificity, which assumes that

behavior varies as a function of the setting in which it occurs, is an important issue to consider when assessing children's behaviors (Kazdin, 1979). Therefore, parent reports may reflect a limited behavioral sample. The use of third party ratings (e.g., teachers) or live observations in multiple settings would have provided a broader picture of the children's play behaviors and may have increased the validity of the measurement of the constructs.

Another limitation posed by the use of behavior rating scales as the sole method of data collection is the possibility of a mono-method bias. Best practice in preschool assessment assumes a multi-faceted approach that includes multiple methods, informants, and settings (Neisworth & Bagnato, 2005). It is possible that the inclusion of additional assessment methods (e.g., observations) and other raters in different settings (e.g., preschool or daycare teachers/caregivers) would have provided more data and enhanced measurement validity.

Despite these limitations, the present study expands existing knowledge of specific aspects of parenting in predicting toddlers' social behaviors, as well as the relationship between child temperament and peer play. The strengths of this study include its focus on young children, its examination of empirically-constructed temperament constellations, its emphasis on specific attributes of authoritative parenting, and its use of peer play interactions as an indicator of social competence.

### **Future Research Directions**

There are several theoretical and methodological issues that have arisen from the present study that warrant further interpretation and exploration in future studies. Related studies should incorporate a broader sample that represents families from a variety of economic, ethnic, geographic, and educational backgrounds. In addition, incorporating additional reports of child temperament and play behaviors may provide a broader picture of

the constructs. For example, direct observation and teacher reports of child behavior may best indicate functioning across settings. Incorporating third-party observations and ratings also may reduce rater bias (Neisworth & Bagnato, 2005).

Given the lack of findings involving the temperament clusters of reactivity and task orientation in relation to peer play, further investigation is warranted. Regarding task orientation, research indicates that the temperament attributes therein are relevant to school-based interactions with peers but may be less influential in other contexts (Mobley & Pullis, 1991). Perhaps studies comparing the role of task orientation in peer play behavior across home and school settings would aid in identifying the potential impact of this construct across settings. It also is possible that examining individual temperament attributes within task orientation may reveal a variable that significantly relates to social functioning. For example, researchers have demonstrated associations between persistence and social competence, according to both parent and teacher report (Paterson & Sanson, 1999). Likewise, a component of reactivity most closely associated with social difficulty among young children is negative mood (Diener & Kim, 2004). Perhaps the reactivity cluster, as well as the individual temperament dimensions that it contains, should each be examined in relation to peer play outcomes in order to elucidate the associations between these variables.

The current lack of significant findings for some variables may also support the need for additional research pertaining to effective parental communication and autonomy-granting as they relate to peer play. Though positive communication has been linked to children's prosocial behaviors (Zahn-Waxler, Radke-Yarrow, & King, 1979), it is possible that the use of peer play as an outcome measure did not capture the elements of social functioning reflected in previous studies. Perhaps another indicator of social competence,

such as behavior ratings or peer nominations, would aid in exploring the relationship between these factors. Further investigation of problematic parent-child communication may aid in understanding risk factors associated with maladaptive play behaviors. In addition, research has not demonstrated a consistent relationship between autonomy-granting and peer social functioning among preschool-age children. Fagot (1997) suggested that the association between autonomy granting and play outcomes may become more positive over the course of development. Therefore, longitudinal research exploring the role of autonomy-granting in children's developing social competence may be warranted.

Future studies might explore potential differences between the parenting approaches espoused by mothers and fathers. Given my findings, it may be beneficial to distinguish how maternal and paternal limit-setting each relate to social outcomes among preschoolers. Research exploring the relationship between temperament and peer play as it relates to a child's gender also may extend the present body of research. Determining whether the association between temperament and social competence differs as a function of gender would likely enhance the efficacy of targeted interventions.

In addition, an exploration of the longitudinal impact of parental limit-setting on later social outcomes would allow the proposed regression model to be tested in the most robust way. That approach may provide the opportunity to reach conclusions regarding the lasting influences of this aspect of parenting on children's social development. Longitudinal studies also may allow for an examination of the ongoing relationship between personal-social flexibility and social behavior.

**Conclusion**

In sum, the results of this study have provided unique insights into the associations among parenting styles, child temperament, and peer play behaviors. Particularly noteworthy are the findings regarding the role of personal-social flexibility, given the associations that emerged between this temperament constellation and negative play tendencies. The role of parental-limit setting in children's play competencies also is important to note. Researchers and practitioners who study and/or assess preschoolers can benefit from these findings, both in terms of gaining an increased understanding of the constructs and the ability to utilize the findings to inform assessment procedures and interventions.

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Appendix A

**APPALACHIAN STATE UNIVERSITY**  
**Informed Consent for Participants in Research Projects Involving Human Subjects**

Title of Project: Ecological Correlates of Child Temperament Investigators: Sandra Glover Gagnon, Marissa Swaim

**I. Purpose of this Research/Project**

The purpose of this research is to study how preschool children’s temperaments, or their individual ways of responding emotionally to their environments, relate to different social and behavioral characteristics. Previous research indicates that child temperament affects the ways in which they get along with their parents, teachers, and friends, and that these individuals play important roles in the development of young children’s thinking abilities, social skills, and readiness for school. We are interested in learning more about the relationships between these aspects of early child development and in developing strategies for promoting positive experiences for children in preschool and future school settings.

In order to carry out this study, we need to collect information from parents about their own children and from teachers regarding their students. Any child between the ages of 3 and 5 years is eligible to participate in the study. We need to collect information for at least 100 students so that our results will be meaningful.

**II. Procedures**

If you, as a parent or teacher, would like to participate, please sign this form, keep one copy for your records, and return a signed copy to us in the self addressed, stamped envelope provided. Once we receive your signed consent form, teachers will receive packets of questionnaires to complete for participating children in their classes. For parents, we will ask your child’s teacher to send a packet of questionnaires home. Upon completion of the questionnaires, we ask that you return the packet to your child’s teacher, who will then return, along with their own completed packets, to us in a self-addressed, stamped envelope that we will provide. Following is a list of the questionnaires we will be asking you to fill out:

<b>TEACHER QUESTIONNAIRES</b>	<b>TIME REQUIRED</b>	<b>PARENT QUESTIONNAIRES</b>	<b>TIME REQUIRED</b>
Behavior Assessment Scale for Children	10-20 mins	Behavior Assessment Scale for Children	10-20 mins
Penn Interactive Peer Play Scale	10 mins	Penn Interactive Peer Play Scale	10 mins
Student-Teacher Relationship Scale	10-15 mins	Behavioral Style Questionnaire	20-30 mins
Index of Teaching Stress	20-25 mins	Parent-Child Relationship Inventory	15-20 mins
Adult Temperament Questionnaire	15-20 mins	Parenting Stress Index	20-30 mins
<b><u>ESTIMATED TIME FOR TEACHER MEASURES</u></b>	<b>65-90 minutes per child</b>	<b><u>ESTIMATED TIME FOR PARENT MEASURES</u></b>	<b>75-90 minutes per child</b>

**III. Risks**

To the best of our knowledge, you should experience no more risk of harm than you would in everyday life.

**IV. Benefits**

You will not receive any more benefit from participating in this study than you would experience from your regular involvement with the daycare or preschool. However, participation in the study will help us understand more about relationships between young children and their parents, teachers, and friends, which may in turn inform us about how to promote healthy school adjustment. You may also find it interesting to think about your child or the children with whom and how you relate to one another.

**V. Extent of Anonymity and Confidentiality**

Participation in this study is confidential; *no one but the members of the research team will have access to the information you provide*. In order to maintain the confidentiality of responses, names of children will be used on the questionnaires only for initial identification purposes. Once the forms are completed, children’s names will be converted to identification numbers and the information will be entered into a computer database according to the numbers. The computer files will be password protected and will be available only to members of the research team. The actual questionnaires and Informed Consent forms will be kept in a locked file cabinet in the office of the primary researcher.

*It is important to note that neither parents nor teachers will have access to the information provided by one another about the children.* The purpose of this level of confidentiality is to ensure participants' comfort in their ability to responding honestly and without concerns that their responses will be viewed by anyone else involved with the child. In addition, any information published or presented from this research will contain no reference to any names or other identifiable information of children, parents or teachers. Questionnaires and informed consent forms will be shredded 5 years after the conclusion of the study. Computer files will be maintained by the primary researchers for 8 years and will be destroyed after that time has elapsed.

Information gained from the study will be used and reported only for the purposes described in this Informed Consent form. At no time will the researchers release the results of the study to anyone other than the individuals working on the project (*listed above*) without your written consent.

**VI. Compensation**

We realize that your time is very valuable and plan to provide a small monetary reimbursement for your time and energy. The first 80 parents and teachers to return their packets will each receive \$10 (teachers will receive \$10 per packet completed). Pending continued availability of funds, parents and teachers beyond the first 80 will also be reimbursed.

**VII. Freedom to Withdraw**

Permission to participate in this study is completely voluntary. If you should decide that you do not want to have your child's information included in the study or decide to withdraw your consent at any time during the course of the study, no penalty will be involved.

**VIII. Approval of Research**

This research project has been approved, as required, by the Institutional Review Board of Appalachian State (IRB Protocol #05-40; Approval Date: December 1, 2004 / Expiration Date June 1, 2008) and the daycare center or preschool listed below.

**IX. Parent / Teacher Responsibilities**

I voluntarily agree to participate in this study. I have the following responsibilities: *I agree to complete the requested questionnaires and return them to the research team as soon as possible.*

**X. Parent / Teacher Permission**

I have read and understand the Informed Consent form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent. I understand that the information I provide will not be shared with anyone outside of the research team. In addition, I understand that I will not have access to the information provided by someone else about my own child (*parents*) or about students in my class (*teachers*).

Parent / Teacher signature ( <i>circle one</i> )		Printed Name		Date	
Child's Name	Age	Date of Birth		Parent's Name(s)	
Name of preschool/daycare center			Child's Teacher		
Home or Work Address	City	State	Zip	Phone	email
Best times to contact you			Special Comments		

Should I have any questions about this research or its conduct, I may contact:

Sandra Glover Gagnon, Primary Investigator, Assistant Professor, Department of Psychology, Appalachian State University, Boone, NC 28608, 828-262-8683 / [gagnonsg@appstate.edu](mailto:gagnonsg@appstate.edu)

Robert L. Johnson, Administrator, IRB, Graduate Studies and Research, Appalachian State University, Boone, NC, 28608, 828-262-2692 / [johnsonrl@appstate.edu](mailto:johnsonrl@appstate.edu)

## Appendix B

**To:** Sandra Gagnon  
Psychology  
CAMPUS MAIL

**From:** Julie Taubman, Institutional Review Board

**RE:** Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)

**Date:** 5/20/2011

**Study #:** 09-0247 **Study Title:** Ecological Correlates of Child Temperament (old 05-40)

**Submission Type:** Renewal

**Expedited Category:** (7) Research on Group Characteristics or Behavior, or Surveys, Interviews, etc.

**Renewal Date:** 5/20/2011

**Expiration Date of Approval:** 5/18/2012

This request for renewal has been approved by the above Institutional Review Board for the period indicated.

**Investigator's Responsibilities:**

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects occur it must be reported immediately to the IRB.

Best wishes with your research!

*Temperament Dimensions Identified by Thomas et al. (1968)*

<b>Dimension</b>	<b>Description</b>
Activity level	Level, pace, and frequency of motor behaviors
Adaptability	Ease in responding to new stimuli, or changes in stimuli
Approach/withdrawal	Nature of initial response to new stimuli
Biological rhythmicity	Regularity of biological functions
Distractibility	Extent to which external stimuli alter ongoing behavior
Intensity of reaction	Energy level present in responding (from mild to strong)
Persistence	Extent to which an activity is resumed in spite of obstacles and the length of time an activity is pursued
Quality of mood	Balance of pleasant behavior compared to unpleasant behavior
Threshold of responsiveness	Intensity of stimulation required to induce a response

Table 2

*Descriptive Statistics and Correlations among Study Variables*

	1	2	3	4	5	6	7	8	9
1. Play Interaction	.74								
2. Play Disruption	-.17	.60							
3. Play Disconnection	-.28*	.21†	.62						
4. Personal-Social Flexibility	.20†	-.25*	-.69***	-- <sup>a</sup>					
5. Task Orientation	.13	-.07	.00	.18	-- <sup>a</sup>				
6. Reactivity	.21†	-.04	-.01	.09	-.14	-- <sup>a</sup>			
7. Autonomy	-.17	.11	-.12	-.01	-.05	-.32*	.55		
8. Limit Setting	.06	-.32*	-.31*	.32*	.27*	.07	.17	.78	
9. Communication	.00	-.20†	.07	-.18	-.06	-.02	-.07	.08	.88
Mean	24.45	20.70	17.20	3.81	3.59	3.98	28.70	36.07	28.66
SD	2.72	2.77	2.87	.29	.31	.31	2.78	3.29	5.21

*Note.* Main diagonal contains Cronbach's coefficient alpha. The data above represent individuals for whom all data are present;  $N = 44$ .

<sup>a</sup>Cronbach's coefficient alpha was not calculated because this is a composite scale comprising three separate temperament scales.

† $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 3

*Hierarchical Multiple Regressions of Play Behaviors on Temperament (Personal-Social Flexibility, Task Orientation, and Reactivity) and Parenting (Autonomy, Limit Setting, and Communication)*

Predictor	Play Criterion					
	Interaction		Disruption		Disconnection	
	$R^2$	B	$R^2$	B	$R^2$	B
	.105		.199		.525***	
Constant		10.59		32.18		42.59
P-S Flexibility		1.64		-2.01		-6.80***
Task Orientation		1.13		.45		1.51
Reactivity		1.61		.44		.52
Autonomy		-.09		.16		-.08
Limit Setting		-.02		-.24		-.11
Communication		.02		-.11		-.02

\*\*\* $p < .001$

## VITA

Jessica Struby was born in Little Rock, Arkansas. She graduated Conway High School in Conway, Arkansas, in May of 2001. She soon moved to Memphis, Tennessee and entered Rhodes College, where she studied Psychology and earned her Bachelor of Arts degree in 2005. In July of 2005, she accepted a position as Research and Database Analyst at St. Jude Children's Research Hospital. In order to be closer to her family, including a brother 14 years her junior, Jessica moved to North Carolina in November 2006. The following month, she accepted a position as a project manager for a private marketing research firm in Chapel Hill, called Innovation Management. In the fall of 2009, she accepted a research assistantship in Psychology at Appalachian State University and began a course of study leading to the Master of Arts and Specialist degrees in School Psychology, which she completed in May 2012. She is a member of Phi Kappa Phi. Jessica will transition from graduate training toward a full-time career as a school psychologist in the public education sector.