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Predicting preschool effortful control from toddler temperament and parenting behavior

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Abstract

This longitudinal study assessed whether maternal behavior and emotional tone moderated the relationship between toddler temperament and preschooler's effortful control. Maternal behavior and emotional tone were observed during a parent-child competing demands task when children were 2 years of age. Child temperament was also assessed at 2 years of age, and three temperament groups were formed: inhibited, exuberant, and low reactive. At 4.5 years of age, children's effortful control was measured from parent-report and observational measures. Results indicated that parental behavior and emotional tone appear to be especially influential on exuberant children's effortful control development. Exuberant children whose mothers used commands and prohibitive statements with a positive emotional tone were more likely to be rated higher on parent-reported effortful control 2.5 years later. When mothers conveyed redirections and reasoning-explanations in a neutral tone, their exuberant children showed poorer effortful control at 4.5 years.

Keywords

temperament; parenting; effortful control; cluster analysis; longitudinal study; early childhood

Introduction

One of the most crucial tasks children must learn is the ability to self-regulate their behavior (Kopp, 1982, 1989). An important aspect of self-regulation, effortful control, is essential to children's development because of its influence in multiple domains of children's functioning. According to Rothbart (Rothbart & Bates, 2006), effortful control reflects the child's ability to inhibit a prepotent behavioral response and to respond with a more appropriate, subdominant behavior. Despite the assertion that the child's ability to effortfully regulate his/her own behavior is an important developmental milestone and the evidence demonstrating that its development can be independently influenced by both parenting and characteristics of the child (e.g., Garstein & Fagot, 2003; Kochanska, Murray, & Harlan, 2000; Olson, Bates, & Bayles, 1990), little is known about how child temperament and parenting behaviors interact to influence the development of this ability. Belsky (Belsky, 1997, 2005; Belsky, Bakermans-Kranenburg, & van Ijzendoorn, 2007; Belsky, Hsieh, & Crnic, 1998) has proposed that children of different temperaments may be differentially susceptible to the effects of caregiving behaviors, and that the interaction between children's

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temperament and parenting behaviors can positively or negatively impact a variety of child outcomes including those related to children's self-regulatory capacities. Hence, children with certain temperamental characteristics may be more affected by caregiver behaviors which, in turn, could influence children's ability to effortfully control their behavior.

Recent research has explored this concept of differential susceptibility by focusing on how children's level of fearfulness moderates parenting behaviors to predict developmental outcomes that require effortful control including compliance, conscience, and behavioral adjustment (e.g., Kochanska, 1995, 1997). However, few studies have examined effortful control specifically and more importantly, how parenting and temperament interact to predict effortful control. The goal of the present study is to examine how parental behavior and emotional tone moderate the relation between toddler temperament and effortful control in preschool.

As noted by Belsky (Belsky, 1997, 2005; Belsky et al., 2007; Belsky et al., 1998), temperament, or biologically based differences in an individual's reactivity and regulation (Rothbart, 1986; Rothbart & Bates, 2006; Rothbart & Derryberry, 1981), is proposed to interact with parenting to influence children's behavior and subsequent development. Approach-inhibition to novelty or unfamiliar situations is one temperamental characteristic that has been the focus of research because of the impact it has on children's behavioral adjustment. Individual differences in approach-inhibition emerge during the second half the of the first year of life (Goldsmith et al., 1987; Kagan, Reznick, & Snidman, 1990; Rothbart, 1988; Rothbart & Derryberry, 1981), and children continue to show variations in the ways in which they modulate their behavior when presented with unfamiliarity or novelty (Garcia-Coll, Kagan & Reznick, 1984; Kagan, 1997; Rothbart & Bates, 1998, 2006). Children who are high in inhibition, or behaviorally inhibited, are biologically predisposed to show wariness, fear, and distress when exposed to unfamiliar or novel situations, people, places, or objects (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Garcia-Coll et al., 1984; Kagan, 1997; Kagan, Reznick, Clark, Snidman, & Garcia-Coll, 1984; Putnam & Stifter, 2005) and avoid or withdraw from novelty so as to regulate the level of their distress. On the other hand, uninhibited or exuberant children show little to no distress when presented with novelty but rather seek out and oft-times exhibit positive affect when encountering unfamiliar people or situations (Garcia-Coll et al., 1984; Kagan, 1997; Kagan, Snidman, & Arcus, 1998; Kagan et al., 1984).

Research has shown that these early temperamental propensities are associated with different patterns of adjustment in later childhood. For example, inhibited children were more likely to display internalizing problems (Lemery, Essex, & Smider, 2002; Patterson & Sanson, 1999) and anxiety disorders (Prior, Smart, Sanson, & Oberklaid, 2000; Putnam & Stifter, 2005), whereas approach-oriented children were more likely to display externalizing problems (Eisenberg et al., 2001; Stifter, Putnam, & Jahromi, 2008), aggression (Rothbart, Ahadi, & Hershey, 1994) and conduct disorder (Lengua, Wolchik, Sandler, & West, 2000).

In contrast to behavioral inhibition, which is considered to be a passive form of regulation (Rothbart & Bates, 1998, 2006), effortful control is voluntary and involves the child's ability to inhibit prepotent cognitive, motor, or vocal behavioral responses and to respond with a more appropriate, subdominant behavior (Kochanska et al., 2000; Murray & Kochanska, 2002; Rothbart & Bates, 1998, 2006). Examples of how children effortfully control their behavior include delaying gratification, slowing down motor behavior, complying with parental requests, resisting temptations, or modulating vocal volume. With the maturation of early attentional networks, temperamental effortful control is believed to emerge by 12 months and continues to develop rapidly, with individual differences in this ability becoming more detectable throughout the toddler and preschool years (Kochanska et al.,

2000; Kopp, 1982; Rothbart, Derryberry, & Posner, 1994; Rothbart & Posner, 2000). Effortful control is central to positive development because voluntarily inhibiting behavior underlies children's ability to behave in socially desirable ways (Eisenberg et al., 2005; Kochanska & Knaack, 2003; Mischel, Shoda, & Rodriguez, 1989; Murray & Kochanska, 2002; Olson, Sameroff, Kerr, Lopez, & Wellman, 2005). For example, children with greater effortful control have been found to exhibit more compliance and better conscience development (Kochanska & Knaack, 2003) and fewer externalizing behavior problems (Olson et al., 2005).

Recently, research has explored the direct linkage between children's early inhibition, or fearful temperament, with later effortful control. In particular, Aksan and Kochanska (2004) proposed that children's fearfulness would decrease children's speed of approach, or impulsivity, and this, in turn, would facilitate children's effortful control development. Direct and indirect linkages were found between children's fearfulness and effortful control. Infants and toddlers who were low in fear demonstrated lower effortful control in preschool, but this relation was mediated by children's high impulsivity. They also found high fearful toddlers to demonstrate more effortful control as preschoolers. As illustrated in this study, the relationship between children's fearfulness and effortful control is complex and appears to be influenced by other factors intrinsic to the child, such as impulsivity. However, the relationship between children's inhibition and later effortful control may also be influenced by environmental factors. Therefore, it is important to understand the interplay between children's temperament and environmental factors, especially parenting behavior, when investigating children's development of effortful control.

While some research has shown that children's own characteristics are related to effortful control, other research has demonstrated that parenting can also have a direct impact on this outcome. Studies have consistently found that children of parents who displayed negative behaviors such as low sensitivity, warmth, and responsiveness or high control and coercion were more likely to demonstrate low levels of effortful control (Eisenberg et al., 2003; Garstein & Fagot, 2003; Kochanska et al., 2000; Olson et al., 1990). Interestingly, although parental behavior that was controlling was associated with more negative child outcomes, when combined with warmth, such parenting was associated with improved effortful control (Feldman & Klein, 2003).

Some research has explored the impact that both child characteristics and parenting have on children's effortful control development. In particular, temperamental aspects of the child, such as negative affect, emotion regulation, and emotional expressivity, may further enhance or exacerbate the relations between parent behaviors and children's later effortful control outcomes (Eisenberg et al., 2003; Feldman & Klein, 2003). For example, when parents displayed more warm and controlling discipline during their interactions with their well-regulated children their children demonstrated more compliant behavior (Feldman & Klein, 2003). Likewise, when mothers used behaviors high in control, such as direct demands made to the child in a negative or neutral tone, and exhibited low positive affect or used less reasoning with their highly negative children, then their children displayed more noncompliance (Braungart-Rieker, Garwood, & Stifter, 1997). Whereas these findings have demonstrated the importance of considering both the characteristics of the child and the behaviors of the parent in predicting developmental outcomes, more research is needed, particularly with temperament types that may require more persistent, controlling behavior. In the present study we extend previous research by examining the effects of parenting on children's effortful control development for temperamentally inhibited and exuberant children.

There has been some research which has shown that children exposed to the same parenting behavior can have different self-regulatory outcomes depending on their level of inhibition (Dennis, 2006; Kochanska, 1991, 1995, 1997; Kochanska, Aksan, & Joy, 2007). For example, inhibited children were found to show more compliance and conscience development when their parents used gentle discipline techniques during parent-child interactions, whereas for uninhibited or fearless children, positive interactions with their mothers was more likely to lead to behavioral and moral self-regulation (Kochanska, 1991, 1995, 1997; Kochanska et al., 2007). These studies demonstrate that parenting behaviors can have a differential influence on a children's effortful control-like development depending on children's approach-inhibition behavior and thus support the concept of differential susceptibility (Belsky, 1997, 2005; Belsky et al., 2007; Belsky et al., 1998). However, no studies have specifically examined effortful control as an outcome which is the process underlying the compliance and moral behavior examined in these studies.

Although some research has explored the effects of parenting in different contexts on children's effortful control development (Lengua, Honorado, & Bush, 2006), the majority of studies investigating how children's self-regulation development is differentially influenced by parenting behaviors depending on children's temperament has examined parental behavior within less demanding contexts such as free-play or cleanup situations (Kochanska, 1995; Rubin, Burgess, & Hastings, 2002). Such contexts are generally less challenging for parents and children, eliciting low levels of negative affect and/or parent-child conflicts. To determine whether children are differentially impacted by parenting behaviors depending on the temperament of their children, contexts that elicit children's behavioral and emotional propensities would be more appropriate. Although the goals that parents have for their children are not always in line with their behavior, it is reasonable to assume that they may engage in behaviors that are in part in response to their children's temperamental characteristics. For example, because inhibited children are less likely to approach novel people and situations, it may be important for parents of these types of children to encourage them to explore new environments and engage in social activities with unfamiliar peers and adults when they encounter such situations. According to Fox and colleagues (2005), parent behaviors that encourage exploration in their inhibited children are "sensitive" because exploration provides the child with opportunities to master the environment and develop self-regulatory skills. Conversely, because exuberant children are relatively fearless and drawn to approach novelty, these children are more likely to explore without any parental encouragement. However, this eagerness to explore could have negative consequences if the context is unsafe and/or requires controlled behavior. Under these circumstances, exuberant children may need their parents to exercise more restraint and redirect them away from the source of their interest. Such parental restraint may act as a mechanism through which self-regulatory behaviors develop in exuberant children, particularly if delivered in a positive way.

A second component that may be important when parenting children with different temperaments is the emotional tone parents use when trying to guide or control their children's behavior. Parental expression of warmth toward their offspring is critical to the parent-child relationship. Most notably, Baumrind (1971, 1996) proposed that parenting behaviors included components of control and warmth. Authoritative parenting, or a style that is high in both control and warmth, is believed to be the best at promoting development in children whereas authoritarian parenting, which is high on control but lacking in warmth, can hinder children's development. Warmth can serve as a powerful motivation system. When parental control does not pose a threat to children's autonomy, children may be more likely to tolerate it and comply to parental socialization tactics because the control signifies parental love and concern (Grusec & Davidov, 2007; Grusec, Goodnow, & Kuczynski, 2000; MacDonald, 1992). Furthermore, control in the context of shared positivity and secure

attachment may be most effective at promoting positive development in fearless children (Kochanska, 1995). Therefore, the use of control in the context of warmth may be important toward understanding how parenting interacts with child temperament to predict developmental outcomes. In other words, children's development may not only be determined by what parents do or say in interactions with their children, but also by the emotional tone they convey while using a given behavior. In the current study, the emotional tone that accompanied parent behaviors when interacting with their children was observed.

The primary goal of the present study was to investigate whether parenting behaviors and emotional tone moderated the relationship between toddler inhibited and exuberant temperament and preschool effortful control. Because previous research has demonstrated that gentle tactics are best at fostering outcomes reflective of effortful control in fearful children (Kochanska, 1991; Kochanska et al., 2007), it was hypothesized that parent's who used behaviors that redirected their children's behavior and/or explained their reasons for doing so in a positive way would be related to increased effortful control in their inhibited children. Although studies have shown that fearless children whose parents are warm and positive develop greater behavioral and moral self-regulation (e.g., Kochanska, 1997), warmth alone may be insufficient at getting exuberant children to comply in situations that are novel and interesting to the exuberant child. However, when positive emotional tone is combined with parental control behaviors, compliance and future effortful control development in exuberant children may be more readily elicited. In the present study, parental commands or prohibitive statements were hypothesized to be related to better effortful control in exuberant children, but only when commands or prohibitive statements were conveyed in a positive way. Toward this end, we assessed temperament and parenting behaviors at 2 years of age and parent-reported and observed effortful control 2.5 years later. To examine parenting in a context that pulled for the child's temperament, parenting behaviors were observed during a competing demands task in which the child was asked to play with toys while the parent was asked to complete a questionnaire. This context gave us the opportunity to observe parenting behaviors that may be more or less beneficial to children's effortful control development depending on their temperament (e.g., exploration in inhibited children, reign in exuberant children's off-task behavior).

Method

Participants

The sample used for this study was drawn from a larger longitudinal study examining the development of emotion regulation from 2 weeks to 7 years of age. One hundred and fifty infants were enrolled at 2 weeks (78 female). When children were 2 years of age ($M = 2.01$ years), 126 toddlers (63 female) and their parents returned to the laboratory for two visits, one with the mother and one with the father. Participants from the original sample were re-recruited at 4.5 years for a preschool follow-up. One hundred and twenty-four participants from the original sample were located, and 72 (34 females; $M = 4.5$ years) of these agreed to participate (25 relocated out of town and 27 declined participation).

Of the 150 families and infants initially recruited, 92.7% were White, 4.6% were African/African American, and approximately 2% were either Asian or American Indian. Maternal average age was 29.7 years (range 16-43) and paternal average age was 31.8 (range 19-46) years. Mother's education level averaged 15.6 years (range 10-26 years) and father's averaged 16.3 years (10-28 years). The majority of families (32%) reported an income between \$50,000 and \$75,000.

A comparison between the children who returned for the 4.5 year follow-up and the children who were unable/chose not to participate on demographic characteristics, parenting

behaviors, and temperament group membership at 2 years were conducted. All of the participants who returned for the 4.5 year visit were White. In addition, parents of inhibited children who returned for the 4.5 year follow-up used more neutral command/prohibitives compared to those who did not return, $t(1, 116) = -2.399, p < .05$. No other differences were found.

Procedures

2-Year Protocol

Procedures: Toddlers came to the laboratory with their mothers at 24 months and with their fathers at 25 months of age. At both visits the toddler participated in a series of tasks to assess the child's approach/inhibition behavior (e.g., Fox et al., 2001; Kagan et al., 1984). Briefly, in the high intensity tasks the toddler was 1) invited to play "ring-around-the-rosie" with the parent and a stranger, 2) asked to have electrodes placed on his/her chest, 3) shown a champagne popper, 4) exposed to a running vacuum cleaner, 5) asked to look in a black box, 6) asked to jump off a set of stairs, and 7) given a choice between high and low intensity toys. The low intensity tasks the toddler participated in were 1) introduction to the laboratory, 2) approach by a female stranger, and 3) playing with a "boring" toy. For more details of these tasks, refer to Putnam & Stifter (2005).

As parenting behavior during the Boring Toy task, which was administered during the mother's lab visit, was the focus of the present study, it is described in more detail. During the Boring Toy task, the child was given a set of five unrelated items (a wooden block, plastic bowling pin, cloth form, rattle, and plastic fish) and the mother was asked to complete a questionnaire (boring episode). The experimenter left the room for two minutes and then returned with a basket of interesting toys and placed them in the view of the child but somewhat out of reach. The experimenter told the child the basket of toys was for later but s/he could play with the uninteresting toys. The experimenter left the room for another two minutes (prohibition episode).

Child temperament coding: To assess temperamental inhibition and exuberance, similar measures used in previous studies were adopted (Fox et al., 2001; Kagan et al., 1984). Proximity to the parent was coded continuously on a scale from 1 (*clinging to the parent*) to 5 (*two or more steps away from the parent*) during all tasks. Reliability was calculated on 13% of the sample at a .78 Cohen's Kappa. The number of nondistressed vocalizations was coded in all situations when the stranger was present. Reliability was calculated on 13% of the sample at an 83% agreement. Activity level was coded in 5 second intervals on a scale from 0 (*completely still*) to 4 (*running or vigorous movements*) during all tasks. Scores were averaged across tasks to create a single activity level score. A .78 Kappa was calculated on 14% of the sample.

There were also episode specific ratings. Willingness to put on electrodes was rated on a scale from 1 (*strongly avoids electrode placement*) to 5 (*no avoidance of electrode placement*), and ratings were made based on the consensus of the team leader and two assistants. Willingness to play "ring around the rosie" was rated three times for each of the three rounds on a scale from 1 (*child actively refuses to play*) to 5 (*child immediately and enthusiastically plays*). Degree of exploration of the black box was rated on a scale from 1 (*no approach to box*) to 6 (*places entire head in box*). Willingness to jump from the steps was rated on a scale from 1 (*no approach to steps*) to 7 (*jumps off prior to prompts*). Latency to choose the toys in the toy preference task was coded in seconds for each of the three sets of toys, and a latency score of 20 (seconds) was given if the child did not choose a toy. Off task behavior in the boring toy task was coded in 5 second segments as 0 (*not engaging in off-task behavior*), 1 (*passive engagement with off-task behavior*), or 2 (*active engagement*

in off-task behavior). Reliability was assessed in 14% of the sample and Kappas ranged from .80 and .85 for the above rating. Latency scores had 95% agreement.

Additionally, each task was rated globally on positive and negative affect. The scale ranged from 0 (*no affect*) to 5 (*continuous, high intensity affect*). Interrater reliability was assessed using Cohen's Kappa on 11% of the sample and was .71 for positive affect and .73 for negative affect. More detailed information on all the codes can be found in Putnam & Stifter (2005).

Group formation: All the measures from the 24/25 month visit (33 total behaviors) were subjected to a Confirmatory Factor Analysis which supported a three factor model (Putnam & Stifter, 2005) consisting of positive affect, negative affect, and approach/inhibition. A hierarchical cluster analysis (Ward's method) suggested a 4-cluster solution and K-means were calculated to assign children to groups. The four groups consisted of: 1) a group that was extremely high in negativity and low in approach (extremely inhibited), 2) a group that was high in positive affect and approach (exuberant), 3) a group that was low on both positive and negative affect and moderate on approach/inhibition (low reactive) and 4) a group similar to Cluster 1 but less extreme (inhibited). Due to the low number in the extremely inhibited group ($n = 3$), it was combined with the inhibited group to become the new inhibited temperament group. At 4.5 years of age, 15 inhibited children, 22 low reactive children, and 33 exuberant children completed the follow-up visit.

Coding of parenting behaviors: Mother's parenting behaviors during the 24 month boring toy task were video-taped and coded by trained research assistants blind to the temperament status of the children. The parenting behaviors selected to be coded were chosen because they reflected those behaviors believed to facilitate better effortful control outcomes in temperamentally different children. The parenting behaviors were redirection, commands, prohibitive statements, ignoring, social exchange, reasoning/explanation, granting a wish, and physical redirection and the positive, negative, and neutral emotional tone that accompanied these behaviors were coded (refer to Table 1 for a detailed description of the behaviors).

Parenting behaviors were coded in 5 second intervals. Behaviors were not mutually exclusive, and therefore, more than one behavior could occur in any given interval. These codes were applied to the boring and prohibition episodes of the task. Proportion scores were calculated for each behavior by dividing the number of intervals the behavior occurred by the total number of intervals in the episode. Reliability was assessed on 22% of the sample. Kappas were .77 for redirection, .89 for command, .92 for prohibitive statement, .76 for ignoring, .92 for reasoning/explanation, .82 for social exchange, .98 for physical redirection, and .86 for granting of wish.

The mother's positive, negative, and neutral affect was independently coded in each of the intervals when mother's used redirection, reasoning/explanation, commands, prohibitive statements, and social exchanges. Reliability was calculated on 17% of the sample and Kappas for positive and neutral were .88 and .83, respectively. Inter-rater reliability for negative was not able to be calculated because of its extremely low occurrence (1 occurrence out of 67 subjects).

24-month parent behavior data reduction: As physical redirection and granting of wish occurred less than 1% of the time, these codes were dropped from consideration. Social exchange was also not used in the analyses as it was not relevant to the study's hypotheses. Commands and prohibitive statements were moderately correlated, $r = .49$, $p < .001$, and thus were combined to create a composite variable. Likewise, there was a significant

correlation between redirection and reasoning/explanation ($r = .37, p < .01$) suggesting combining the data to limit the number of analyses. Because it was believed that the two separate episodes of the Boring Toy task would pull for different parenting behaviors, paired t-tests were conducted comparing parenting behaviors in the boring and prohibition episodes. No episodic differences were revealed for command/prohibitive and redirection/reason-explanation. Therefore, the boring and prohibition episode scores for these two variables were collapsed, and this summed score was used in the primary analyses. There was a significant episodic difference for the parenting behavior of ignore, $t(1, 63) = -4.78, p < .001$. Mothers were more likely to ignore their children during the prohibition episode, $M = .31, SD = .24$, than the boring episode, $M = .18, SD = .17$. As ignoring during the boring episode was significantly correlated with ignoring during the prohibition episode ($r = .47, p < .01$), the scores during each episode were averaged to create a composite ignore variable. Finally, the intervals during which the mother's emotional tone when displaying either redirection/reason-explanation or command/prohibitive parenting behaviors were identified. This resulted in four new parent behavior variables: positive redirection/reason-explanation, neutral redirection/reason-explanation, positive command/prohibitive, and neutral command/prohibitive. Proportion scores for the new variables were created by first totaling the number of intervals when an emotional tone was displayed and then dividing by the number of times a specific parenting behavior and emotional tone combination occurred. These four variables, in addition to ignore, were the parenting variables used in the analyses.

4.5-Year Protocol—Participants returned to the laboratory twice at 4.5 years of age, and participated in several tasks to assess emotion regulation, receptive language, effortful control, parent-child interaction, and executive function. Only the effortful control tasks and receptive language ability were used in the present study. Additionally, parents completed several questionnaires including parent-rated effortful control from a temperament instrument. Finally, children's temperament was assessed from observer ratings.

4.5 year effortful control procedures and coding: Three effortful control tasks were administered. In the Walk a Line Slowly task (Murray & Kochanska, 2002), children were asked to walk along a thick white line in the room four separate times. In the first trial, the child was asked to walk the line like s/he normally would, trying not to step off the line. For the next two trials the child was asked to walk as slowly as s/he could. On the fourth trial, the child was instructed to walk as fast as s/he could. A bell was placed at the end of the line, and the child was asked to ring the bell when s/he reached the end of the line.

In the Delay of Gratification task (Mischel & Ebbsen, 1970), the experimenter presented the child with two rewards, a small cup with one chocolate candy and another with two chocolate candies. The experimenter told the child that she had to leave the room for a little bit, but if the child waited until she came back then s/he could have the two chocolate candies. If the child was unable to wait then s/he could ring the bell and eat the one chocolate candy. The task ended when the child rang the bell or after 15 minutes of waiting.

In the Dinky Toys task (Goldsmith & Rothbart, 1991), the experimenter presented the child with a container full of small, inexpensive toys. The experimenter told the child that s/he could select one toy, but whatever toy the child touched first was the one s/he could keep. The experimenter told the child s/he could have as much time as s/he wanted to look at the toys before choosing one. The experimenter left the container of toys in front of the child and ended the task when the child chose a toy.

The three effortful control tasks were videotaped and coded by trained research assistants blind to the child's temperament group status. Latency until the child rang the bell in the Delay of Gratification task was coded in seconds with longer latency scores reflecting better

effortful control. The latency (in seconds) to chose a toy was also coded in the Dinky Toys task. In the Walk a Line Slowly task, the duration (in seconds) of the second and third slow trial times were timed and averaged. Higher scores reflected more effortful control. An overall effortful control composite was computed by summing the times from the three scores on each task.

4.5 year parent-rated temperament: The Child Behavior Questionnaire Short Form Version 1 (CBQ; Rothbart, Ahadi, Hershey, & Fisher 2001) was sent to the homes of the participants and completed by the mother and father. The CBQ is a child temperament questionnaire that consists of items asking parents to respond to statements describing their child's reactions to a number of situations. Mothers and fathers rated their child on a 7 point scale for each statement (*1=extremely unlike your child* to *7=extremely true of your child*). The effortful control superfactor was composed of the following subscales (alphas for mother, father): inhibitory control (alpha = .60, .60), attentional focusing (alpha = .67, .54), smiling and laughter, (alpha = .78, .82), perceptual sensitivity (alpha = .77, .68), low intensity pleasure (alpha = .73, .79), and attention shifting (alpha = .72, .69). As parent ratings were strongly related, $r = .51$, $p < .001$, an overall effortful control score was computed by averaging the subscale scores for the mothers and fathers (alpha = .66).

4.5 year temperament: Preschooler's temperament was assessed to control for changes in temperament from 2 years to 4.5 years of age because previous research has found that children's level of inhibition or exuberance can experience change over time, especially for more inhibited children (e.g., Fox et al., 2001). The Observed Child Temperament Scale (OCTS; Stifter, Willoughby, & Towe-Goodman, 2008) was used to globally rate the preschooler's temperament observed across the visit. The scales (description; scoring range) included: Activity level (amount of gross body movement; 1-9), Reaction to novel persons (social responsiveness to examiners; 1-5), Positive affect (level of happiness/positive mood; 1-9), and Shyness/fearfulness (degree of fear of persons, situation; 1-9). Two observers who had different roles during the lab visit conferred at the end of the visit, came to consensus, and then scored the child on each of the above scales. To simulate conditions under which parents rate their children, observers were minimally trained on the application of the scale prior to its use (for details see Stifter et al., 2008). For the purposes of the present study, the reaction to novel persons, positive affect, activity level, and the reverse score of the shyness/fearfulness scales were standardized and summed to represent preschool temperament.

4.5 year receptive language ability: The Peabody Picture Vocabulary Test-Third Edition (PPVT; Dunn & Dunn, 1981) was used to measure the child's receptive language ability because it was believed that children's understanding of the experimenter's instructions for certain tasks may affect their performance on those tasks. The PPVT was administered according to standardized procedures. The child was presented with four pictures and the experimenter told the child to point to the picture that matched the word that the experimenter said. Raw scores were converted to age-adjusted standardized scores from published norms.

Results

Preliminary analyses were conducted to test for gender and temperament group differences. Results revealed no significant differences between gender or the three temperament groups (exuberant, low reactive, and inhibited) on parenting behaviors, PPVT scores, 4.5 year inhibition, parent-reported effortful control, and observed effortful control. Means and standard deviations for all study variables can be found in Table 2.

Interrelations among the covariates (PPVT, 4.5 year temperament), moderator (ignore, positive redirection/reason, neutral redirection/reason, positive command/prohibitive, and neutral command/prohibitive), and outcome variables (parent-reported effortful control and observed effortful control) were computed. Some significant relationships were revealed. PPVT scores were negatively correlated with positive command/prohibitive ($r = -.27, p < .05$) and neutral command/prohibitive ($r = -.28, p < .05$). Children with higher PPVT scores had mother's who used less commands and prohibitive statements in a positive or neutral emotional tone. Additionally, mothers who used more positive redirection/reason were more likely to use positive command/prohibitive behaviors ($r = .49, p < .01$).

To examine whether parents of children with different temperaments varied in their use of parenting behaviors, a repeated measures ANOVA with temperament as the grouping variable and the parenting behaviors of ignore, positive redirection/reason, neutral redirection/reason, positive command/prohibitive, neutral command/prohibitive as the repeated measures was conducted. A main effect for parenting behavior was revealed, $F(4, 60) = 10.64, p < .01$ (η_p^2 effect size = .43). Follow-up contrasts indicated that parents used positive redirection/reason more than neutral redirection/reason, $t(1, 65) = 2.54, p < .01$, positive command/prohibitive, $t(1, 65) = 3.74, p < .001$, and neutral command/prohibitive, $t(1, 65) = 2.52, p < .01$. Additionally, ignore was found to be used more often than neutral redirection/reason, $t(1, 62) = -4.72, p < .001$, positive command/prohibitive, $t(1, 62) = -5.37, p < .001$, and neutral command/prohibitive, $t(1, 62) = -3.97, p < .001$. The interaction between parenting and temperament group was nonsignificant. Thus, mothers were more likely to display redirection and reasoning with their children using a positive tone than any other behavior, regardless of the temperament of their children.

Parenting Behaviors as Moderators of Parent-Reported Effortful Control

To test the hypothesis that parenting behaviors would moderate the relations between temperamental style and observed effortful control, multiple regression analyses were performed. In each model, the covariate variables of PPVT scores and 4.5 year temperament were entered in the first step. The predictor variables of temperament group and the parenting behavior were entered in the second step. In the final step, the interaction between the parenting behavior and temperament group was entered. Dummy variables were created for the temperament groups with the exuberant group as the reference. Interaction terms were created by centering the parenting variables and then multiplying them by the dummy variables. Separate regressions were conducted for each of the parenting behaviors (ignore, positive redirection/reason, neutral redirection/reason, positive command/prohibitive, and neutral command/prohibitive) in predicting parent-reported effortful control.

The results of the multiple regression analyses with 4.5 year parent-reported effortful control as the outcome variable are reported in Table 3. A significant main effect was revealed for positive redirection/reason in predicting parent-reported effortful control, $B = .88, p < .05$. Mothers who used more positive redirection/reason while interacting with their toddlers rated them higher on effortful control at 4.5 years regardless of their temperament.

Regression analyses with positive command/prohibitive as the moderator revealed a significant interaction with the exuberant temperament group, $t(1, 58) = 2.35, p < .05$. Following procedures recommended by Aiken and West (1991), we examined the simple effects of positive command/prohibitive separately in the three temperament groups at 1 *SD* above and 1 *SD* below the mean of positive command/prohibitive. As can be seen in Figure 1, mothers who used more positive command/prohibitive statements with their exuberant toddlers rated their children as having greater effortful control ($B = .57, p < .05$). The simple slopes were nonsignificant for the inhibited ($B = -.20, p < \text{n.s.}$) and low reactive ($B = -.86, p < \text{n.s.}$) groups. No other significant interaction effects were found.

Parenting Behaviors as Moderators of Observed Effortful Control

A second set of regression analyses were conducted to test for temperament by parenting behavior interactions in predicting observed effortful control. Analyses were conducted similar to those for parent-rated effortful control: PPVT and 4.5 year temperament were entered in the first step, the predictor variables in the second step, and the interaction between the parenting variables and temperament groups in the final step.

The results of the multiple regression analyses in which 4.5 year observed effortful control was the outcome variable are presented in Table 4. Regression analyses with neutral redirection/reason as the moderator revealed a significant interaction for the exuberant group, $t(1, 58) = -2.35, p < .05$. The simple effects of neutral redirection/reason was examined separately in the three temperament groups at 1 *SD* above and 1 *SD* below the mean of neutral redirection/reason following the procedures by Aiken and West (1991). As can be seen in Figure 2, when mothers used more neutral redirection/reason with their exuberant toddlers their children exhibited poorer observed effortful control two and half years later ($B = -306.43, p < .05$). The simple slopes were nonsignificant for the inhibited ($B = 122.42, p < \text{n.s.}$) and low reactive ($B = 208.34, p < \text{n.s.}$) groups. No other significant interaction effects were found.

Discussion

Effortful control is a key developmental task and the development of this ability is hypothesized to be influenced by both children's early temperamental characteristics and their parent's regulatory behaviors (Kochanska, 1995, 1997; Rothbart & Bates, 2006). Previous research has demonstrated that parenting behaviors differentially influence children's abilities that require effortful control, such as compliance and conscience development, depending on children's temperament (Kochanska, 1995, 1997). However, no study has examined the interaction of parenting and child temperament to predict effortful control, specifically. The present study contributes to this growing literature by specifically measuring children's effortful control and assessing parents' behavioral and emotional responses to their children's behavior by placing them in a unique situation to evoke their temperamental propensities. The primary goal of the present study was to examine whether parenting behavior and emotional tone moderated the relations between toddler inhibited and exuberant temperament and preschooler's effortful control. Perhaps, not surprisingly, our findings suggest that the behaviors and emotional tone used by parents in a demanding task appear to be especially influential on exuberant children's effortful control development. Mothers who used more command/prohibitive behavior with their exuberant children rated their children as having more effortful control as preschoolers, but only when the behavior was accompanied with a positive emotional tone. Further, when mothers of exuberant children used redirection/reason with a neutral tone, their children displayed poorer observed effortful control as preschoolers.

Research has demonstrated that positive child outcomes in fearless or uninhibited children are more likely when parents are positive and warm in their interactions with their children (Kochanska, 1997). Exuberant children, who are characterized by fearlessness, tend to show eager, oft-times impulsive, behavior when exploring novel situations, and these types of behaviors may result in misbehavior or engagement in behavior that could be potentially harmful to them in certain situations. Previous studies have primarily observed parent-child interactions in free play or clean-up contexts. In the present study, children and parents were observed in a competing demands context where children were given some toys to play with while their mother completed a questionnaire. This context may have pulled for exuberant children's impulsive, novelty-seeking behavior which, in turn, elicited the mother's use of more commanding and prohibitive behaviors in an effort to stop their children's behavior.

Our results indicate that it may be necessary for parents of exuberant children in such provocative conditions to use controlling behaviors, such as commands or prohibitions. The use of these behaviors by parents might better capture their children's attention, and thus function to immediately stop their children's impulsive or potentially harmful behavior. Importantly, our findings suggest that when delivered with a positive emotional tone, parenting behaviors that are more controlling appear to foster better self-regulation in exuberant children. We know from prior studies that children are more likely to comply with parental request when parents use short, clear commands (Wiersen & Forehand, 1994; Williams & Forehand, 1984). However, accompanying these behaviors with warmth may further motivate the child to change his or her behavior to meet parent's standards (Grusec & Davidov, 2007; Grusec et al., 2000; MacDonald, 1992).

Interestingly, the use of commands or prohibitions, even when accompanied with a positive emotional tone, did not affect the development of effortful control for inhibited children. Inhibited children possess greater reactive inhibition which can decrease their approach behaviors, and thus increases their ability to voluntarily, or effortfully, control their behavior (Aksan & Kochanska, 2004). Therefore, because of this reactive inhibition, these children may already be predisposed to display greater effortful control, and hence, the use of these parental behaviors do not have as much of an influence on inhibited children's effortful control development. Considered together, these findings provide further support that because of their temperamental characteristics, certain children are differentially susceptible to caregiver influences (Belsky, 1997; Belsky, 2005; Belsky et al., 2007; Belsky et al., 1998), and in the case of the current study, exuberant, and not inhibited, children's effortful control was more influenced by mother's use of positive commands and prohibitions.

The present study also demonstrated that mother's use of redirection/reason behavior was detrimental to exuberant children's effortful control development when it was used with a neutral tone. Because redirection/reasons were not conveyed to exuberant children in a positive way, these children may have been less likely to internalize their parent's requests because they lacked the message of warmth and love that appears to be critical at fostering self-regulation development in exuberant children. Thus, our findings suggest that when parents deliver redirection and reasoning in a neutral tone with their exuberant children they may be missing opportunities to develop their children's effortful control.

We had expected that mothers' use of redirection and reasoning behavior when delivered in a positive way would be related to better effortful control in inhibited children. This hypothesis was partially supported. Our findings showed that when mothers used more redirection or reasons and explanations with a positive tone, they rated their children as showing more effortful control as preschoolers regardless of their children's temperament. This finding is similar to previous research which has found sensitive and gentle behaviors to be related to better effortful control development in children (Eisenberg et al., 2003; Olson et al., 1990) and extends it to situations that are more demanding to both the parent and child. However, these studies also showed that the use of gentle discipline deemphasizing power was associated with better compliance and internalization in fearful, or inhibited, children but was unrelated to fearless children's compliance and internalization (Kochanska, 1997; Kochanska et al., 2007). As in previous studies (e.g., Kochanska, 1995, 1997), the present study used redirection and reasoning behavior to reflect parental attempts to gently guide their children's behavior in a positive way. However, unlike these studies which aggregated parental use of gentle guidance across different contexts (e.g., free play, clean up) (Kochanska, 1995, 1997), the current study specifically observed parental behaviors during a more demanding situation that was designed to be more likely to elicit children's temperamental propensities. For inhibited children, mothers may have used redirecting and reasoning behaviors in a positive tone as a way to encourage children's

exploration of the novel situation. For exuberant children, mothers may have used this behavior in order to get their children away from toys that were off-limits or from potentially dangerous situations. Because parental warmth and positivity is critical to the parent child relationship, when redirection and reasoning are delivered in a positive way, it may contribute to children's internalization of parental messages and thus positively influence their future effortful control abilities. However, when this behavior was used in a neutral tone, it was related to poorer effortful control in exuberant children and was unrelated to inhibited children's effortful control development. Therefore, children were not differentially susceptible to mother's use of positive redirection/reason when used during a demanding situation, and it appears to contribute to both inhibited and exuberant children's effortful control development.

It is interesting to note that parent-reported effortful control and observed effortful control were differentially predicted by parenting and temperament. Importantly, these measures were not significantly related. One possible explanation for the differences in these findings is that our measures of observed effortful control were limited in the sense that they only assessed children's ability to delay and slow down their motor activity and neglected to include other observational measures of effortful control, such as those that require suppressing/initiating activity to a signal or effortful attention (Kochanska et al., 2000). Furthermore, parental ratings of children's temperament may capture broader aspects of effortful control than our laboratory procedures did making parent reports a more comprehensive measure of effortful control. Future researchers may want to use laboratory procedures that observationally assess several aspects of effortful control, including delay, slowing of motor activity, suppressing/initiating activity to a signal, resisting temptation, and effortful attention, in order to confirm the relation between positive parental control and effortful control in exuberant children.

In sum, the findings from the present study suggest that exuberant children have better outcomes when their parents use more regulatory behaviors, and this contributes the development of better effortful control in these children as preschoolers. Specifically, when exuberant children are in a situation that is potentially unsafe or requires controlled behavior, parenting behaviors that were firm and controlling but delivered in a positive way appear to lead to better effortful control development. However, when parents delivered redirection or reasoning in a neutral manner, then the development of effortful control for exuberant children may be negatively impacted. Finally, preschoolers had better effortful control when parents used redirection or reasoning in a positive tone regardless of their temperament. The present study was unique because 1) parent-child interactions were observed in a context that pulled for children's temperamental propensities allowing for the assessment of parenting that may be specific to certain temperaments, 2) the emotional tone that accompanied the parenting behavior was observed, and 3) it was one of the first studies to examine the moderating role of parenting on the relation between children's exuberant temperament and effortful control. The findings from this study contribute to the growing literature on the role of temperament in the development of children's self-regulation and underscore the importance of investigating the moderating role of parenting on relations between temperament and developmental outcomes.

Study Limitations and Directions for Future Research

There are some limitations of the present study and thus the findings should be interpreted with caution. One limitation of the study was the sample size and the limited number of subjects within each temperament group. Although the longitudinal design contributes to our understanding of the precursors to children's effortful control development, the attrition due to the length of time between temperament assessments and outcomes (2.5 years) limits our ability to confidently conclude that temperament interacts with parenting behavior to

influence the development of children's effortful control. Secondly, the sample in this study was primarily white, educated, and middle-class thus generalizing the results to the general population is limited. It may be that parenting behaviors will prove to be more influential on certain temperament types depending on socio-economic background. Future researchers should explore these relationships in more diverse and at-risk populations because understanding which parenting behaviors are associated with positive self-regulation outcomes in children with different temperaments could also be informative to parent-child prevention and intervention programs.

A third limitation of the study was that we were unable to examine the effects of negative emotional tone on later effortful control due to its low occurrence. Previous research has shown that power assertive parenting (presumably accompanied by negative affect) had a detrimental effect on fearful, or inhibited children's, internalization (Kochanska et al., 2007). Contexts that evoke more negativity from parents may further explain children's effortful control development, especially for inhibited children.

Developmental Implications

The findings from this study have implications for parent-child prevention/intervention programs that focus on helping children to develop self-regulatory skills and, more specifically, their effortful control abilities. Understanding which parenting behaviors work best for temperamentally different children could be integrated into future or existing prevention and intervention programs as a way to promote effortful control skills in children and increase the effectiveness of programs. Although parent-child intervention and prevention programs note that children's temperament can influence the behaviors parents use while interacting with their children (e.g., Webster-Stratton et al., 2001), few of these programs actually instruct parents on how to manage their children's behavior depending on their children's temperament. This is unfortunate given that interventions which attempted to increase the interactional sensitivity of mothers of temperamentally irritable infants have proven to have a beneficial impact on their children's subsequent development (van den Boom, 1994, 1995).

Additionally, the results from this study provide support for Belsky's (Belsky, 1997, 2005; Belsky et al., 2007; Belsky, et al., 1998) concept of differential susceptibility. Therefore, the findings from this study could be incorporated into general parent education programs by highlighting that each child has individual characteristics that can influence how the child responds to parenting behaviors, and that parenting behavior which might work for one child may not be as effective for another child at promoting effortful control development. Instruction on children's temperamental differences could also alleviate some frustration parents experience when their strategies at managing their children's behavior are ineffective thereby fostering a more positive parent-child relationship.

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Figure 1.
Mother's use of positive command/prohibitive moderates the relation between exuberant and parent-reported effortful control.

Figure 2.
Mother's use of neutral redirection/reason moderates the relation between exuberant and observed effortful control.

Table 1

24-month parenting behavior codes and descriptions.

Code	Description
Redirection	<p>Gentle guidance and suggestions given to the child often phrased in the form of a question (e.g., "Why don't you go play with the toys?").</p> <p>The child is looking at objects not related to the boring toys or is engaging in off-task behavior and the mother says something to redirect the child's attention back to the toys (e.g., "What are you doing? You want to go play with the toys?").</p> <p>Comments that function the same way as a question to get the child's attention back to the boring toys and to change or stop the child's current behavior (e.g., "The man said you're not supposed to play with those.").</p>
Command	The mother tells the child to engage in a certain behavior by starting her statement with a verb (e.g., "Go play with the toys." or "Pick that up.").
Prohibitive Statement	The mother tells the child not to do a certain behavior. These phrases generally start with "don't" or "no" (e.g., "Don't touch that." or "No, honey.").
Ignoring	<p>The parent does not verbally or behaviorally respond or acknowledge the child when s/he is trying to get the mother's attention.</p> <p>The child is engaged in off-task behavior (e.g., opening cabinets or drawers, climbing up the camera pole, trying to get the off-limits toys) and the mother does nothing to stop the child's potentially harmful, risky, or destructive behavior.</p>
Reasoning/Explanation	The mother gives an explanation of why or why not the child can or cannot engage in a given behavior (e.g., "You can play with the other toys in just a minute" or "Mommy has to do this right now. We can play with the toys later.")
Social Exchange	The mother and child are engaged in conversation that is to be unrelated to the task (e.g., Child: Pointing and says "butterfly." Mother: "Yes, that's a butterfly.")
Physical Redirection	The mother physically removes the child by picking him/her up or pushing him/her away. This behavior can occur when the child is trying to sit on the mother's lap or the child is engaging in off-task or off-limits behavior. This behavior is generally harsh.
Granting of Wish	The mother concedes to the child's bids for attention and meets the child's needs or requests (e.g., letting the child sit on her lap, getting the off-limits toys for the child).
Positive	The mother's tone of voice is pleasant, cheerful, warm, and higher in pitch from her normal voice. The mother smiles or laughs. Positive is also coded when the mother uses terms of endearments such as "sweetie" or "honey."
Negative	The mother speaks to the child in a loud, hostile, or short and abrupt manner. The mother's voice could suggest annoyance and is coded when the mother yells at the child.
Neutral	This is coded when there was no indication of positive or negative affect in the mother's voice.

Table 2

Descriptive statistics for the study variables.

	N	Mean	SD	Range
Covariates				
PPVT ^a	68	110.41	12.52	70 - 139
4.5 yr. Temperament ^b	70	- .15	3.10	- 8.22 - 4.52
Moderators				
Ignore ^c	64	.43	.17	0.0 - .84
Positive Redirection/Reason ^c	66	.21	.26	0.0 - 1.0
Neutral Redirection/Reason ^c	66	.11	.16	0.0 - .6
Positive Command/Prohibitive ^c	66	.10	.17	0.0 - .75
Neutral Command/Prohibitive ^c	66	.10	.19	0.0 - .75
Outcomes				
Parent-Reported Effortful Control ^d	66	5.03	.49	3.88 - 5.89
Observed Effortful Control ^e	70	231.16	126.25	5.11 - 454.39

^a age-adjusted standardized score;^b sum of *reactions to novel persons*, *activity level*, *positive affect*, and reverse scored *fearfulness/shyness*;^c proportion scores;^d 7-point scale;^e sum of latency/duration scores in seconds.

Table 3

Multiple regression analyses for parent-reported effortful control.

	B	SE (B)	β	F	R ²
I. Ignore				0.57	0.07
PPVT	0.01	0.01	0.16		
4.5 Year Temperament	0.01	0.02	0.07		
Low Reactive	0.26	0.20	0.21		
Inhibited	0.13	0.16	0.12		
Ignore	-0.29	0.62	-0.09		
Low Reactive $\times$ Ignore	0.93	1.10	0.15		
Inhibited $\times$ Ignore	-0.18	1.04	-0.03		
II. Positive Redirection/Reason				1.36	0.16
PPVT	0.01	0.01	0.15		
4.5 Year Temperament	0.01	0.02	0.07		
Low Reactive	0.19	0.17	0.15		
Inhibited	0.11	0.15	0.11		
Positive Redirection/Reason	0.88*	0.35	0.47		
Low Reactive $\times$ Positive Redirection/Reason	-0.64	0.67	-0.15		
Inhibited $\times$ Positive Redirection/Reason	-0.80	0.56	-0.26		
III. Neutral Redirection/Reason				0.76	0.09
PPVT	0.01	0.01	0.19		
4.5 Year Temperament	0.01	0.02	0.09		
Low Reactive	0.24	0.18	0.18		
Inhibited	0.14	0.15	0.14		
Neutral Redirection/Reason	-0.79	0.51	-0.27		
Low Reactive $\times$ Neutral Redirection/Reason	0.74	1.36	0.08		
Inhibited $\times$ Neutral Redirection/Reason	0.49	0.90	0.09		
IV. Positive Command/Prohibitive				1.33	0.15
PPVT	0.01	0.01	0.14		
4.5 Year Temperament	0.01	0.02	0.09		

	B	SE (B)	β	F	R ²
Low Reactive	0.15	0.18	0.13		
Inhibited	0.12	0.16	0.12		
Positive Command/Prohibitive	1.51 *	0.64	0.57		
Low Reactive $\times$ Positive Command/Prohibitive	-2.36	1.50	-0.25		
Inhibited $\times$ Positive Command/Prohibitive	-1.70 *	0.79	-0.50		
V. Neutral Command/Prohibitive				0.56	0.07
PPVT	0.01	0.01	0.16		
4.5 Year Temperament	0.01	0.02	0.08		
Low Reactive	0.22	0.19	0.18		
Inhibited	0.12	0.16	0.12		
Neutral Command/Prohibitive	0.35	0.53	0.13		
Low Reactive $\times$ Neutral Command/Prohibitive	-0.56	1.07	-0.09		
Inhibited $\times$ Neutral Command/Prohibitive	-0.83	0.77	-0.20		

* $p < .05$

Table 4

Multiple regression analyses for observed effortful control.

	B	SE (B)	β	F	R ²
I. Ignore				1.44	0.16
PPVT	1.78	1.30	0.18		
4.5 Year Temperament	- 4.59	5.57	- 0.12		
Low Reactive	53.30	43.38	0.17		
Inhibited	- 15.03	39.66	- 0.06		
Ignore	- 70.80	152.41	- 0.09		
Low Reactive $\times$ Ignore	273.86	243.92	0.19		
Inhibited $\times$ Ignore	- 215.98	255.54	- 0.13		
II. Positive Redirection/Reason				0.97	0.11
PPVT	1.84	1.32	0.19		
4.5 Year Temperament	- 1.83	6.12	- 0.05		
Low Reactive	42.62	43.82	0.14		
Inhibited	15.48	41.02	0.06		
Positive Redirection/Reason	- 22.75	96.35	- 0.05		
Low Reactive $\times$ Positive Redirection/Reason	156.14	152.12	0.17		
Inhibited $\times$ Positive Redirection/Reason	135.06	151.44	0.16		
III. Neutral Redirection/Reason				1.62	0.17
PPVT	2.15	1.37	0.22		
4.5 Year Temperament	- 0.70	5.69	- 0.02		
Low Reactive	53.53	41.64	0.18		
Inhibited	21.76	39.07	0.08		
Neutral Redirection/Reason	- 306.43 [*]	130.42	- 0.38		
Low Reactive $\times$ Neutral Redirection/Reason	515.27	331.82	0.23		
Inhibited $\times$ Neutral Redirection/Reason	428.85 ⁺	226.80	0.29		
IV. Positive Command/Prohibitive				1.10	0.12
PPVT	2.53	1.36	0.26		
4.5 Year Temperament	- 3.25	5.97	- 0.08		
Low Reactive	64.88	44.01	0.21		

	B	SE (B)	β	F	R ²
Inhibited	8.44	41.91	0.03		
Positive Command/Prohibitive	- 125.09	172.77	- 0.17		
Low Reactive $\times$ Positive Command/Prohibitive	524.33	372.42	0.22		
Inhibited $\times$ Positive Command/Prohibitive	274.01	212.36	0.29		
V. Neutral Command/Prohibitive				0.94	0.11
PPVT	1.79	1.38	0.18		
4.5 Year Temperament	0.05	6.04	0.00		
Low Reactive	60.15	44.64	0.20		
Inhibited	23.70	40.71	0.09		
Neutral Command/Prohibitive	- 160.94	138.59	- 0.23		
Low Reactive $\times$ Neutral Command/Prohibitive	137.32	264.26	0.08		
Inhibited $\times$ Neutral Command/Prohibitive	283.97	197.07	0.25		

[†] $p < .10$,

* $p < .05$