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## Match Between Parent and Child Temperament: Implications for Parenting Behaviors and Children's Behavior Problems

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MATCH BETWEEN PARENT AND CHILD TEMPERAMENT:  
IMPLICATIONS FOR PARENTING BEHAVIORS AND  
CHILDREN'S BEHAVIOR PROBLEMS

by

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M.S. University of Central Florida, 2009

A dissertation submitted in partial fulfillment of the requirements  
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## ABSTRACT

To examine the relationships among the match between parent and child temperament, parenting behaviors, parenting stress, and young children's behavior problems, the current study investigated the responses of mothers who are raising children between the ages of 3- and 5- years. Mothers completed the *Dimensions of Temperament Scale-Revised for Children* (Windle & Learner, 1986), the *Dimensions of Temperament Scale-Revised for Adults* (Windle & Learner, 1986), the *Alabama Parenting Questionnaire-Preschool Revision* (Clerkin, Marks, Policaro, & Halperin, 2007), the *Maternal Emotional Styles Questionnaire* (Lagacé-Séguin & Coplan, 2005), the *Parenting Stress Index-Short Form* (Abidin, 1995), and the *Child Behavior Checklist* (Achenbach & Rescorla, 2000, 2001). Using cluster analyses, results of this study revealed two temperament clusters (i.e., *Difficult Temperament* and *Easy Temperament*) between mothers and their young children. Results revealed that mothers in the difficult temperament cluster report using less positive parenting, less emotion-coaching parenting, and more negative/inconsistent parenting. They also report a higher level of parenting stress. Additionally, results indicated that, when all variables were examined together, only mothers' ratings of parenting stress contribute significantly to their young children's internalizing behavior problems and only mothers' ratings of parenting stress and punitive parenting behavior contribute to their young children's externalizing behavior problems. Further, results also revealed that parenting stress fully mediates the relationship between the mother-child temperament match and young children's behavior problems. Such findings suggested that interventions would benefit from targeting parents' own temperamental characteristics and how these characteristics fit with the characteristics of their young children as well as from addressing the role that this match plays in predicting parenting stress and young children's emotional and behavioral problems.

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## CHAPTER ONE: INTRODUCTION

In parent-child relationships, the goodness-of fit concept suggests that adaptive outcomes are likely to result when children's characteristics fit with the expectations or attributes of their caregivers (Lerner & Lerner, 1987; Thomas & Chess, 1977). Accordingly, the match between parents' temperament and that of their young children has important implications for parent-child relationships and young children's emotional and behavioral outcomes. In general, temperament is conceptualized as being a behavioral style or emotional disposition that is innate, relatively consistent over time, and present across different contexts (Bates, 2001; Calkins, Hungerford, & Dedmon, 2004; Goldsmith et al., 1987; Sanson, Hemphill, & Smart, 2004; Zeanah & Fox, 2004). Although children's temperament is viewed as critical in understanding parent-child interactions and children's emotional and behavioral outcomes, the match between parents' temperament and that of their children also may be of great importance. In particular, after controlling for the individual effects of children's temperament on children's emotional and behavioral outcomes, the interaction between the temperaments of parents and their children appears to be a significant additional predictor of children's emotional and behavioral outcomes (Rettew, Stanger, McKee, Doyle, & Hudziak, 2006). Little is known, however, about the match between parents' temperament and that of their children and the way in which such a match may be related to parenting behaviors and children's emotional and behavioral outcomes. Accordingly, there is a need for further examination of the role that a match (or mismatch) between parents' temperament and that of their children may play in the context of parent-child relationships.

Additionally, the stress that is experienced by parents is related to their parenting behaviors and parent-child interactions. For example, empirical studies link high parenting stress to problematic functioning for parents and their children (Deater-Deckard, 2005). Few

studies, however, examine parenting stress in conjunction with parents' temperament, young children's temperament, and specific parenting behaviors in an effort to predict young children's emotional and behavioral outcomes. This dearth of research suggested that there is a need for the examination of the relationships among these variables. Given the documented individual relationships among these variables, this study sought to extend the research literature by examining the match between the temperaments of parents and their young children, associated parenting behaviors, parenting stress, and young children's internalizing and externalizing behavior problems. The following sections will give an overview of the relevant literature regarding children's temperament, the match between parents' temperament and that of their children, parenting behaviors, parenting stress, and young children's internalizing and externalizing behavior problems as they relate to the parent-child relationship.



## CHAPTER TWO: LITERATURE REVIEW

### *Children's Temperament*

As already noted, children's temperament is believed to play an important role in children's emotional and behavioral development (Bates, 1989). As already noted, temperament is conceptualized as being a behavioral style or emotional disposition that is innate, relatively consistent over time, and present across different contexts (Bates, 2001; Calkins et al., 2004; Goldsmith et al., 1987; Sanson et al., 2004; Zeanah & Fox, 2004). Although there are several approaches to conceptualizing temperament (for a review, see Zetner & Bates, 2008), children's temperament generally is believed to be associated with individual differences in children's emotional, motor, and attentional reactivity as well as their self-regulation (Bates, Maslin, & Frankel, 1985; Rothbart & Bates, 1998). Moreover, given that temperament is conceptualized in a variety of ways, it also is studied in various ways (for a review, see Zetner & Bates, 2008). Specifically, temperament can be studied as a general construct (e.g., Thomas, Chess, & Birch, 1968) and/or as a variety of temperamental traits (e.g., Wright, Guerin, Gottfried, & Thomas, 1997).

Further, previous research often discusses children's temperament in terms of two main categories: difficult temperament and easy temperament. Children who are prone to rigidity, high activity, and negative emotional expression are considered to have a difficult temperament style (Billman & McDevitt, 1980; Chess & Thomas, 1989). In addition, irritability, impulsivity, and aggression are distinct behavioral characteristics that are exhibited typically by children who are temperamentally difficult (Bates, Dodge, Pettit, & Ridge, 1998). Conversely, flexibility,

positive mood qualities, and being affectionate are behaviors that are exhibited typically by children who are considered to have an easy temperament style (Billman & McDevitt, 1980). Additionally, children categorized as being temperamentally easy are more likely to display these positive characteristics throughout infancy and childhood (Putnam & Stifter, 2005). Thus, children who are temperamentally easy are more likely to relate to others in a positive way by exhibiting behaviors such as smiling, laughing, and clapping during playful interactions relative to children who are temperamentally difficult (Kochanska, Coy, Tjebkes, & Husarek, 1998). Thus, children who are temperamentally difficult are thought to evoke different reactions from their parents relative to children who are temperamentally easy. These reactions are thought to vary as a result of children's positive emotional and behavioral expressions of their temperament.

Given the above-mentioned definitions and the findings of previous research, the ways in which children respond to others and, in turn, the ways in which others respond to the children themselves are linked to differences in children's temperament (Bates et al., 1985; Bowlby, 1982; Shaw et al., 1998; van den Boom & Hoeksma, 1994). Overall, research suggests that, when compared to children who are temperamentally easy, children who are temperamentally difficult are more likely to have adverse interactions with others due to the way in which they respond to others and, in turn, the way in which others respond to them (Billman & McDevitt, 1980; Webster-Stratton & Eyberg, 1982). Thus, children's temperament is thought to have both a direct and an indirect influence on the quality of the parent-child relationship (Rothbart & Bates, 1998). Consequently, the characteristics of children's temperament are an important context for understanding the interactions that transpire between parents and their children.

When examining the relationship between children's temperament and the parent-child relationship, several studies linked children's temperament characteristics and mothers'

parenting behaviors (Billman & McDevitt, 1980; Calkins et al., 2004; Webster-Stratton & Eyberg, 1982). Overall, results of these studies suggested that children who are categorized as temperamentally difficult are more likely to elicit negative and less responsive parenting behaviors (van den Boom & Hoeksma, 1994), whereas children who are temperamentally easy are more likely to elicit positive and responsive parenting behaviors (Kyrios & Prior, 1990). Research suggested further that children who are temperamentally difficult also tend to have mothers who are more negative in affect and who hold more maladaptive attitudes toward their children (Webster-Stratton & Eyberg, 1982). These negative attitudes may be a result of the low levels of positive reinforcement that children who are temperamentally difficult provide their mothers (Webster-Stratton & Eyberg, 1982). For instance, research indicated that children who are temperamentally difficult display significantly less positive affect when interacting with their mothers than do children who are temperamentally easy (Calkins et al., 2004). In addition, research suggested that, when compared to mothers of infants who are temperamentally easy, mothers of infants who are temperamentally difficult engage in less affectionate physical contact with their infants. Moreover, the physical contact that the mothers do use is based on attempts to relieve their infants' distress; otherwise, these mothers are generally less responsive to their infants who are temperamentally difficult (van den Boom & Hoeksma, 1994). Taken together, children who are temperamentally difficult may be at risk for more negative interactions and less positive contact with their parents.

Overall, the above-mentioned studies suggested that children who are temperamentally difficult have mothers who are more likely to respond negatively to them, thus increasing the risk for negative parent-child interactions. Additionally, children's difficult temperament characteristics may predict parenting behaviors that reinforce the problems associated with these

difficult temperaments (Rubin, Burgess, Dwyer, & Hastings, 2003). Thus, the combination of children's temperament, their environment, and the parenting behaviors that they experience appear to act together in predicting children's emotional and behavioral outcomes (Zucker et al., 2000). In fact, research found that there is a direct link between children's temperament and their experience of behavior problems (Mun, Fitzgerald, Von Eye, Puttler, & Zucker, 2001). For example, research findings suggested that 2- to 5-year old children who are temperamentally difficult have significantly more instances of internalizing and externalizing behavior problems when rated by their teachers relative to children who are temperamentally easy (Tschann, Kaiser, Chesney, Alkon, & Boyce, 1996). Additionally, in a study examining mothers and their 3- to 5-year old children, Webster-Stratton and Eyberg (1982) suggested that, relative to all children in their study's sample, the highest level of behavior problems are exhibited by children who are temperamentally difficult. Specifically, children who are temperamentally difficult are both highly aggressive and highly noncompliant. Such behaviors may be related further to the interactions that transpire between these children and their parents. Accordingly, this study sought to examine the variables that are related most closely to adaptive and maladaptive parent-child interactions in conjunction with young children's temperament.

Interestingly, Belsky's (1997, 2005) differential susceptibility hypothesis suggested that children may differ in the extent to which parenting behaviors affect their emotional and behavioral functioning. Specifically, Belsky (1997, 2005) proposed that children who are temperamentally difficult are more sensitive to environmental stimuli. As a result, when they are exposed to negative parenting behaviors, children who are temperamentally difficult may have worse emotional and behavioral outcomes relative to children who are temperamentally easy. When they are exposed to positive parenting behaviors, however, children who are

temperamentally difficult may have better emotional and behavioral outcomes relative to children who are temperamentally easy. Thus, this hypothesis suggested that children who are temperamentally difficult are especially susceptible to parenting influences with respect to their development of self-control and behavioral problems (Belsky, 2005). There is some research to support this hypothesis, in that there is a stronger relationship between parenting quality and children's internalizing and externalizing behavior problems for children who are temperamentally difficult relative to children who are temperamentally easy (Belsky, 2005; Morris et al., 2002). Thus, children who are temperamentally difficult appear to be particularly susceptible to the effects of both positive and negative parenting behaviors.

In summary, although children who are temperamentally easy seem to contribute more positively to parent-child interactions and children who are temperamentally difficult seem to make a negative contribution to parent-child interactions, there is likely a complex interplay between children's characteristics, their parents' characteristics, and the parenting behaviors being used in the context of the parent-child relationship (Billman & McDevitt, 1980). Accordingly, it should be remembered that it is not only the children, but also their parents, who contribute to parent-child interactions. For example, research demonstrated that 5-year olds with identifiable oppositional defiant behaviors and conduct problems likely had difficult temperaments at 18- and 24-months. These children also experience significantly more maternal rejection at 18- and 24-months (Shaw, Owens, Giovannelli, & Winslow, 2001). As a result, it may be that parents' contribution to the parent-child relationship is related to both children's temperament characteristics as well as parents' own characteristics. Given these potential relationships, it is important to examine the relationships among children's characteristics, parents' characteristics, and subsequent parenting behaviors. Accordingly, the present study

sought to examine how young children's temperament, in conjunction with their parents' temperament, is related to parenting behaviors.

*The Match Between Parents' Temperament and That of Their Children*

Although young children's temperament is of importance in and of itself, young children's temperament in conjunction with the temperament characteristics that are exhibited by their parents is also of importance. With regard to the parent-child relationship, the goodness-of-fit concept suggested that adaptive outcomes are likely to result when the characteristics of children fit with the characteristics or expectations of their caregivers (Lerner & Lerner, 1987; Thomas & Chess, 1977). Accordingly, a 'good fit' occurs when parents' characteristics and their children's characteristics are matched well. Further, problems that arise within the context of the parent-child relationship may be a result of the lack of fit between parents' temperament characteristics and those of their children (McClowry, Rodriguez, & Koslowitz, 2008). This fit may be related subsequently to the specific parenting behaviors that parents use.

In an attempt to understand the goodness-of-fit hypothesis, research examined the relationship between parents' and teachers' expectations for children and children's temperament. For example, in the classroom setting, research indicated that a good fit between children's temperament and teachers' expectations is related to teachers' positive ratings of children's competence and achievement test scores (Lerner & Lerner, 1987; Talwar, Nitz, & Lerner, 1990). Additionally, research suggested that, in the school setting, children's social and cognitive outcomes are associated positively with the fit between their teachers' expectations regarding children's characteristics as well as with the fit between teachers' expectations and parents' expectations regarding children's characteristics (Churchill, 2003). Thus, a good fit

between expectations and actual behavior is related positively to children's cognitive and social outcomes.

In addition to examining expectations, the relationship between children's temperament and parents' personality characteristics is documented in the literature. In particular, studies examined parents' personality as it relates to all or some of the Big Five personality trait dimensions (i.e., Extraversion, Neuroticism, Agreeableness, Openness to Experience, and Conscientiousness). For example, research demonstrated that the interaction between children's temperament and parents' personality explains a significant portion of the variance accounting for positive parent-child interactions and parents' responsiveness to their children's cues (Kochanska, Friesenborg, Lange, & Martel, 2004). Further, the relationship between parents' personality and parenting behaviors when children are 1-year of age predicts the quality of the parent-child relationship when the children are in their preschool years. Overall, parents' personality characteristics are related to children's temperament characteristics and the behaviors exhibited by the parents themselves.

Although research indicated that there is a relationship between children's temperament and parents' personality, less is known about parents' temperament as it relates to their children's temperament characteristics. Accordingly, this study sought to fill this gap in the current literature regarding the relationship between parents' temperament and young children's temperament. In an attempt to make the distinction between personality and temperament, Thomas and Chess (1977) stated that temperament can be equated to a behavioral style, referring to the 'how' (i.e., the content of behaviors) rather than the 'what' or the 'why' (i.e., abilities and motivation, respectively). Thus, temperament is an innate behavioral style rather than the subsequently developed abilities or motivation that influence behavior. Additionally, Buss and

Plomin (1984) suggested that, because temperament is present within the first years of life, temperament traits are those with particularly strong links to biological processes and are the constitutional part of personality. Temperament traits are those that have “residuals for later personality development” (Buss & Plomin, 1984, p. 85).

Accordingly, many temperament researchers suggested that temperament traits likely influence personality development by shaping the ways in which individuals relate to their environment. Specifically, the basic biological temperament traits remain present throughout childhood and into adulthood. Further, the interaction between temperament traits and environmental factors may restrict personality development in various ways throughout life (e.g., Buss & Plomin, 1984; Kagan & Snidman, 2004; Thomas & Chess, 1977). As a result, temperament can be considered as being basic behavioral traits, whereas personality can be considered late-emerging, more complex behavioral styles. Given the differences between personality and temperament, it is important to examine the relationship between young children’s temperament, parents’ temperament, and subsequent parent-child interactions as an addition to the current literature, as only a small number of studies examine the interplay between the temperaments of children and their parents. For example, Rettew and colleagues (2006) reported that, after controlling for the individual effects of children’s temperament on children’s emotional and behavioral outcomes, the interaction between the temperament dimensions exhibited by children and their parents is a significant additional predictor of children’s internalizing and externalizing behavior problems. Thus, this finding provided evidence for the idea that, although certain temperament characteristics in young children may not be problematic in and of themselves, they may lead to or exacerbate young children’s



emotional and behavioral problems when they are paired with certain temperament characteristics in parents.

The match between the characteristics of parents and their children was examined further within the context of parenting behaviors and the attachment that develops between children and their parents. Parents who are sensitive and responsive to their children's needs, regardless of their children's temperament, are more likely to have children who are attached securely and who are better able to cope effectively with their emotional responses and distress (Bowlby, 1982; Calkins et al., 2004; Egeland, Pianta, & O'Brien, 1993). The match between the temperaments of children and their parents also may be related to parents' caregiving behaviors. For example, van den Boom and Hoeksma (1994) suggested that, when a 'good fit' is not achieved, mothers are less likely to engage in affectionate physical contact and display fewer positive vocalizations when compared to mothers of infants who are more adaptable. In addition, when examining the match between parents' characteristics and those of their children, Johnson, Floyd, and Isleib (1986) indicated that a 'mismatch' between certain characteristics in parents and their children is highly predictive of abusive and neglectful parenting behavior. Specifically, abusive and neglectful parenting is present in half of the parent-child dyads where parents are having difficulty adapting and are paired with children who are temperamentally difficult (Johnson et al., 1986). Additionally, Doelling and Johnson (1990) examined the success of foster care placements based on the match between children's temperament and foster parents' temperament. Results indicated that the combination of an inflexible foster mother and a child who has a negative mood predicts placement failure in conjunction with the experience of greater conflict, lower maternal satisfaction, and case workers' ratings of placement failure. These

findings suggested that the match between parents' temperament and that of their young children in relation to subsequent parenting behaviors deserves further examination.

Children's developmental outcomes also appear to be based on the match between parents' temperament and that of their children and the manner in which parents respond to this match. For example, harmonious parenting encompasses parenting behaviors that increase the likelihood that parents and their children will experience a 'good fit' (Baumrind, 1971a). In particular, harmonious parents realize that some of their children's behaviors are due to their children's temperament. As a result, they are able to distinguish between their children's behaviors that need to be controlled versus those that can be ignored (Baumrind, 1971a) in the interest of maintaining harmony in their relationship with their children. For example, although many studies indicated that children's difficult temperament is related to negative parenting practices, several studies failed to replicate these results. In fact, some studies suggested an exact opposite pattern of findings (for a review, see Crockenberg & Leerkes, 2003; Putnam, Sanson, & Rothbart, 2002). One explanation for these seemingly contradictory results is that the difference may be accounted for by parents' characteristics and behaviors. Accordingly, research will benefit from examining the match between parents' temperament and that of their young children and how this fit is associated with various parenting behaviors. Overall, however, the match between the temperaments of parents and their young children and the way in which this match (or mismatch) relates to specific parenting behaviors has yet to be examined.

### *Parenting Behaviors*

There is a large body of empirical literature linking parenting behaviors with children's developmental outcomes (e.g., Bugental & Grusec, 2006; Kazdin, 1997). Specifically, empirical

studies repeatedly identified parenting behaviors as having a critical influence on children's emotional and behavioral outcomes (Demo & Cox, 2000; Strand & Wahler, 1996). For young children, parenting behaviors are one of the most crucial mechanisms for shaping their emotional and behavioral functioning in their social environment (Brofenbrenner, 1989; van Aken, Junger, Verhoeven, van Aken, & Dekovic, 2007). As such, parenting behaviors are thought to provide a secure foundation that allows young children to develop trust in their caregivers and their environment (Ainsworth, Blehar, Waters, & Wall, 1978). Accordingly, understanding the factors that are related to positive and negative parenting behaviors is essential to facilitating children's optimal development. Despite being associated constructs, parenting research distinguishes between parenting styles and parenting behaviors. Parenting styles are conceptualized as a collection of parental attitudes and childrearing practices used by parents toward their children to create an environment in which the parents' behaviors are expressed (Baumrind, 1989; Darling & Steinberg, 1993). Baumrind's (1967, 1971b) empirically supported typological description of parenting styles is very influential in the current understanding of parenting. Through her research, Baumrind (1967) identified three primary parenting styles by combining the dimensions of control and warmth. The three resulting parenting styles are authoritative, authoritarian, and permissive parenting.

When describing the characteristics of these three parenting styles, Baumrind (1967, 1971b) suggested that authoritative parents exhibit high levels of warmth and control toward their children while remaining responsive to their children's needs. Further, authoritative parents foster their expectations for their children through monitoring, encouragement, and bidirectional communication. Conversely, Baumrind (1967, 1971b) suggested that authoritarian parents are highly controlling but are neither warm nor responsive to their children's needs. In particular,

authoritarian parents are directive and expect strict compliance with parents' requests. Further, authoritarian parents' expectations are expressed through rules and commands, whereas the rationale behind their expectations is not communicated. Lastly, Baumrind (1971b) suggested that, although they may be warm toward their children, permissive parents are very low on control. Additionally, permissive parents are exceedingly lenient in their expectations for their children and in their tolerance of their children's emotional and behavioral problems. Thus, Baumrind's (1967, 1971b) three parenting styles were differentiated primarily by varying levels of parents' warmth, control, and responsiveness.

Overall, research on authoritative, authoritarian, and permissive parenting styles suggested that authoritative parenting is associated with more favorable outcomes for children when compared to authoritarian and permissive parenting (Baumrind, 1967, 1991). In particular, authoritative parenting is associated with children's development of emotion regulation and social and emotional competency (Baumrind, 1989; Towe-Goodman & Teti, 2008) as well as autonomy, cooperation with adults and other children, and academic success (for reviews, see Baumrind, 1989, 1991). Conversely, authoritarian parenting is associated with children's development of internalizing (e.g., depression; Radziszewska, Richardson, Dent, & Flay, 1996) and externalizing (e.g., aggression and conduct problems) behavior problems as well as with children's low academic performance (Baumrind, 1991; Snyder, Stoolmiller, Wilson, & Yamamoto, 2003). Thus, parenting style is an important component in parent-child interactions and children's developmental, cognitive, emotional, and behavioral outcomes.

Given the significance that parenting styles have for children's outcomes, it is important to examine the specific practices or behaviors that are encompassed by different parenting styles. Although some studies refer to parenting styles and parenting practices interchangeably (for a

review, see Scott-Jones, 1995), parenting styles refer to a configuration of parenting practices, whereas parenting practices refer to more detailed and specific behaviors. Researchers suggested that studying parenting behaviors, as opposed to the broad dimensions of parenting styles, may help to better identify the specific precursors to children's emotional and behavioral outcomes (Darling & Steinberg, 1993). Accordingly, examination of parents' report of specific positive and negative parenting behaviors (e.g., warmth, involvement, emotional expression, monitoring, punitive practices, corporal punishment) that are key predictors in children's emotional and behavioral outcomes (e.g., Frick et al., 1992) will be beneficial in the context of this study.

When examining positive parenting behaviors, parents' warmth, supportive involvement, and positive reinforcement all are associated with children's positive emotional and behavioral outcomes. Although research on children's emotional and behavioral problems tends to emphasize negative parenting practices, the lack of positive parenting behaviors also contributes to the development of children's emotional and behavioral problems (Capaldi, 1991). For example, research suggested that low levels of warmth and involvement in parenting may interfere with children's acquisition of emotion regulation (Tronick, 1989), which ultimately may promote children's externalizing behavior problems (Brody, Dorsey, Forehand, & Armistead, 2002). Moreover, parents' warmth, involvement, and positive reinforcement each have a negative relationship with children's development of internalizing (e.g., withdrawal, anxiety; Cole & Rehm, 1986) and externalizing (e.g., aggression, noncompliance; McMahon & Kotler, 2006) behavior problems. Thus, the presence of positive parenting behaviors may buffer against children's development of emotional and behavioral problems.

When examining the mechanisms by which positive parenting is related to children's emotional and behavioral outcomes, research suggested that high levels of warmth, involvement,

and positive communication in parenting may promote the development of coping and conflict-resolution skills (Kochanska, 1993). For example, Spinrad and colleagues (1999) indicated that parents who are involved in their children's play and respond to their children in a warm manner have children who are more likely to respond appropriately to others' needs and emotions when compared to children of parents who are less involved and who exhibit few to no warm responses to their children. These parents may be exhibiting a positive emotional style or have an awareness of their own emotions, the emotions of their children, and their responses to their children's emotions (Gottman, Fainsilber-Katz, & Hooven, 1996; Ramsden & Hubbard, 2002). Therefore, it appeared as though positive parenting behaviors increase children's ability to regulate and cope with their own emotions and help children to identify and respond to others' emotions.

In line with this hypothesis, Gottman and colleagues (1996) proposed that parents who exhibit 'emotion-coaching' behaviors are aware of emotions within themselves and their children, communicate with their children regarding emotions, and assist their children in managing their emotions. Conversely, parents who exhibit 'emotion-dismissing' behaviors are unaware of emotions within themselves and their children, do not communicate with their children regarding emotions, and have a diminished ability to assist their children in managing their emotions (Gottman et al., 1996). Further, parents who exhibit emotion-coaching behaviors are sensitive to their children's emotions and respond by listening and communicating effective emotion regulation skills to their children, whereas parents who exhibit emotion-dismissing behavior ignore or dismiss emotions (Gottman et al., 1996, 1997). Additionally, research suggested that emotion-coaching is associated with a variety of children's positive outcomes. For example, parents' emotion-coaching behaviors are linked to increased emotion regulation

skills, increased problem-solving skills (Gottman et al., 1997), higher self-esteem, better academic performance, and more positive peer relationships among children (Gottman & Declaire, 1997). As such, it will be beneficial to examine parents' report of their own emotional style in the context of the match between parents' temperament and that of their young children, other parenting behaviors, and young children's emotional and behavioral problems.

In addition to the parenting behaviors mentioned above, parents' monitoring or supervision of their children is another parenting behavior that is associated with children's emotional and behavioral outcomes. Parents' monitoring can be conceptualized as parents' awareness of their children's whereabouts and daily activities (Dishion & McMahon, 1998). Research suggested that young children, in particular, benefit from parents' supervision, including the supervision of children's activity and peer interactions (Ladd, Profilet, & Hart, 1992). It should be noted, however, that parents' monitoring is associated with an increase in internalizing and externalizing behavior problems in adolescents who perceive their parents' monitoring to be restricting and controlling (Fröjd, Kaltiala-Heino, & Rimpelä, 2007). In contrast, in some cases, parents' monitoring may increase the feeling of family connectedness and subsequently increase the likelihood that children will feel as though they are being cared for by their parents (Jacobson & Rowe, 1999). Accordingly, when parents' monitoring or supervision is not restricting or controlling, children appear to benefit from such parenting behaviors (Russell & Finnie, 1990).

In terms of negative parenting behaviors, inconsistent parenting is linked with unfavorable outcomes for children (Wahler & Dumas, 1986). For example, in an observational study, Gardner (1989) reported that mothers who are more inconsistent with the follow-through of their commands have preschool children who exhibit a higher level of behavior problems

relative to mothers who are observed to be consistent with their commands. Additionally, when examining the mechanisms involved in parents' inconsistency, Patterson (1982) suggested that parents' inconsistent expectations and commands are likely to result in the reinforcement of children's noncompliance, thus increasing the likelihood that children's noncompliance will be repeated and will escalate into additional behavior problems. Alternatively, Wahler and Dumas' (1986) predictability hypothesis suggested that children of parents who are inconsistent exhibit behavior problems in order to elicit predictable, often negative, responses from their parents. Thus, parents' inconsistency may sustain and increase children's emotional and behavioral problems.

In addition to parents' inconsistency, punitive parenting behaviors and corporal punishment are linked to children's development of emotional and behavioral problems. Patterson (1986) referred to punitive parenting behaviors as frequent, irritable, and angry exchanges that occur when parents attempt to coerce children's compliance. Punitive parenting behaviors consist of yelling, nagging, or demeaning children and elicit children's active defiance and increased aggression (Patterson, 1986) as well as passive noncompliance (Campbell, 1990). In contrast, corporal punishment is defined as "the use of physical force with the intention of causing the child pain, but not injury, for the purpose of correction or control of the child's behavior" (Straus, 2001, p. 4). Research indicated that there are few, if any, positive developmental outcomes associated with corporal punishment, with the exception of children's immediate compliance (Gershoff, 2002). In fact, corporal punishment is associated with increases in children's aggressive behavior, depression, and low self-esteem (e.g., Strassberg, Dodge, Pettit, & Bates, 1994). Interestingly, when examining the relationship between parenting practices and children's early behavior problems, Stormshak, Bierman, McMahon, Lengua, and



Conduct Problems Prevention Research Group (2000) reported that children who experience punitive discipline (i.e., yelling) in combination with corporal punishment show an increase in problem severity relative to children who experience punitive parenting behaviors without corporal punishment. Accordingly, corporal punishment in combination with punitive parenting behaviors represents an increased risk factor for children's development of unfavorable cognitive, emotional, and behavioral outcomes.

When investigating parenting behaviors, it is important to examine possible precursors to these behaviors. Several studies indicated that children's temperament characteristics are strong predictors of parenting behaviors (e.g., Belsky, 2005; Morris et al., 2002; Rubin et al., 2003; Zucker et al., 2000). In fact, starting in infancy, Bowlby (1982) stated that infants who are temperamentally easy are more likely to have mothers who develop positive and effective parenting behaviors, whereas infants who are temperamentally difficult are more likely to have mothers who develop negative or unfavorable parenting behaviors (Bowlby, 1969). Moreover, children are more likely to gain the ability to trust others and maintain appropriate social and emotional development if their primary caregivers consistently and appropriately respond to their needs (Ainsworth et al., 1978; Bowlby, 1969). Unfortunately, research demonstrated that children who are temperamentally difficult are less likely to receive such positive and appropriate caregiving (Bowlby, 1982; van den Boom & Hoeksma, 1994). Thus, these findings suggested that young children's temperament plays a part in parents' behaviors toward their young children.

In addition, although there are specific characteristics in children that predict parenting behaviors, research also examined the relationship between parents' characteristics and their parenting behaviors. Although less is known about the relationship between parents'

temperament characteristics and their parenting behaviors, several studies examined the relationship between parents' personality and parenting behaviors (e.g., Clark, Kochanska, & Ready, 2000; Kochanska, Clark, & Goldman, 1997; Prinzie et al., 2004). The majority of these studies examined parents' personality in relation to the Big Five (i.e., Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience) personality dimensions (Costa & McCrae, 1997). This research suggested that high parent neuroticism is associated with lower levels of warmth, higher levels of intrusive monitoring, and more punitive parenting behaviors (Clark et al., 2000; Kochanska et al., 1997). Conversely, mothers' agreeableness is associated with increased warmth, supportive involvement, and decreased punitive parenting behaviors (Belsky, Crnic, & Woodworth, 1995; Kochanska et al., 1997).

Studies on the relationships between parenting behaviors and parents' extraversion, conscientiousness, and openness to experience revealed that these characteristics may have multiple connections to different types of parenting behaviors, however. Specifically, mothers' extraversion is associated with positive parenting behaviors (i.e., warmth and supportive involvement; Belsky & Barends, 2002) and with intrusiveness and controlling behavior (Kochanska et al., 1997). Similarly, mothers' conscientiousness is associated with positive parenting behaviors (i.e., mothers' warmth and supportive involvement; Clark et al., 2000) and with intrusiveness and controlling behavior (Belsky & Berands, 2002). Lastly, mothers' openness to experience is related to increased positive parenting (i.e., supportive involvement; Losoya, Callor, Rowe, & Goldsmith, 1997) and to power assertion (Clark et al., 2000). With such findings, it appeared that there may be additional parents' characteristics that play a role in the use of certain parenting behaviors.

Given that the literature on the relationships between parents' personality and parenting behaviors is somewhat inconsistent, examining the relationship between parents' temperament characteristics and parenting behaviors may potentially fill a gap in the existing literature. Further, examining the relationships between the match between parents' temperament and that of their young children and parenting behaviors may explain the existing inconsistencies in the literature. Additionally, the stress experienced by each parent will differ and subsequently may be related to the type of parenting behaviors that parents employ. Accordingly, it is important to examine the role that parenting stress may play in parent-child relationships as well.

### *Parenting Stress*

Parenting stress is conceptualized as a multifaceted concept that involves parents, their children, and the environment in which parents and their children interact with each other (Abidin, 1995). Generally, parenting stress is described as being created by a discrepancy between the demands of being a parent and the resources available to meet those demands (Abidin, 1990, 1992). The examination of parenting stress ranges from assessing daily parenting hassles (Crnic & Greenberg, 1990) to assessing stress as it relates to parents, their children, and general life domains (Abidin, 1990). Accordingly, Abidin (1995) described one model that is very influential in the current understanding of parenting stress. This model suggested that the overall stress that parents experience is a result of their own characteristics, their children's characteristics, and their demographic life stress. This model was used to guide the construction of the Parenting Stress Index (PSI). The PSI is a widely used clinical screening self-report measure that assesses stress derived from the 'Parent Domain' and 'Child Domain' as well as the general 'Life Stress' domain (Abidin, 1995). Research suggested that, in the Parent Domain, low

levels of stress are associated with several positive outcomes, such as parents' feelings of self-confidence, emotionally close relationships with their children, lack of depressive symptoms, and strong self-identity. Additionally, in the Child Domain, low parenting stress is associated with various positive outcomes, such as children's lack of behavioral symptoms, ease in adjustment to environmental change, expression of positive affect, and possessing characteristics that match their parents' expectations (Teti, Nakagawa, Das, & Wirth, 1991). Accordingly, lower levels of stress in each domain are associated with more positive outcomes for parents and their children.

Although some studies provided evidence for a direct relationship between parenting stress and children's developmental outcomes (Crnic, Gaze, & Hoffman, 2005), most studies indicated that there is an indirect effect between parenting stress and children's developmental outcomes (Crnic & Low, 2002). Accordingly, it is necessary to examine parenting stress in association with parents' characteristics, children's characteristics, and parent-child interactions. For example, research suggested that parents' characteristics may make certain parents more susceptible to the negative effects of parenting stress. First, personality factors are related to the way in which parents react to stress. For example, neuroticism is related negatively to the way in which parents experience and handle stressful events (Pulkkinen, 1996). Second, adaptability is a parent characteristic that predicts parents' tendency to appropriately respond to and cope with stressful parent-child interactions (Bates, Freeland, & Lounsbury, 1979; Noppe, Noppe, & Hughes, 1989). Additionally, parents' psychological health is related to the way in which parents experience stress. In particular, mothers' psychological symptoms are related to higher levels of parenting stress (Sheinkopf et al., 2006). For example, research suggested that mothers' anxiety, depression, and low self-esteem (Coyle, Roggman, & Newland, 2002; Östberg, Hagekull, & Wettergren, 1997) are each associated with higher levels of parenting stress. Moreover, parents'

psychological symptoms are a key risk factor for maladaptive parenting (Cummings, Keller, & Davies, 2005). As such, it was suggested that parents' psychological distress may prevent a parent from accessing the cognitive skills required for decreasing parenting stress. In turn, parenting stress may increase the risk for maladaptive parenting behaviors (Webster-Stratton, 1990).

With regard to children's characteristics, empirical studies suggested that a variety of children's characteristics are related to the severity of parenting stress (Hagekull & Bohlin, 1990; Morgan, Robinson, & Aldridge, 2002; Östberg & Hagekull, 2000; Webster-Stratton & Hammond, 1988). In particular, during infancy and the preschool period, parenting demands have the potential to create high levels of stress (Kuczynski & Koeske, 1990). Stressful demands on parents for the care of their children (e.g., with regard to children's problematic feeding, poor sleeping, illness, and crying) are related to increased levels of parenting stress (Hagekull & Dahl, 1987). Further, research findings indicated that parents view their children's health problems and the immediate demands that children make on them (e.g., with problematic sleeping and eating) as more stressful than long-term problems (e.g., financial difficulties; Weinberg & Richardson, 1981). For example, research indicated that, when compared to stressful life events, immediate parenting demands are associated more closely with parents' extreme negative perceptions of and negative interactions with their children (Crnic & Greenberg, 1990). This finding may be the result of immediate parenting demands requiring parents to address the stressor immediately, thereby providing parents with less time to use coping resources and strategies.

Additionally, empirical research documented that children's temperament and emotion regulation has a direct impact on the severity of parenting stress (Thomas et al., 1968). In

particular, children's difficult temperament characteristics are associated with more immediate parenting demands, which, in turn, exacerbate the stress experienced by parents (Chang et al., 2004). Östberg and Hagekull (2000) reported that children's difficult temperament serves as the most consistent predictor of parenting stress. For example, Webster-Stratton and Hammond (1988) indicated that mothers of children who are temperamentally difficult have high levels of parenting stress in direct relation to their children's temperament. Further, research demonstrated that mothers who perceive their children as being temperamentally difficult are more likely to respond negatively to them (Webster-Stratton & Eyberg, 1982). Thus, children's difficult temperament increases parenting stress and the risk for stressful familial interactions.

Given that parenting stress increases the risk for stressful familial interactions, several studies examined parenting stress and the mechanisms by which it relates to parent-child interactions (Abidin, 1992; Belsky, 1984; Östberg & Hagekull, 2000). Research suggested that parenting stress increases the likelihood of negative parent-child interactions and the likelihood that parents will use punitive parenting practices and physical punishment (Coyl et al., 2002). For example, Mash, Johnston, and Kovitz (1983) suggested that mothers who are physically abusive exhibit higher levels of parenting stress when compared to mothers who are not physically abusive. Additionally, research indicated that parenting stress may interfere with parents' ability or willingness to respond to their children in a warm and sensitive manner (Crnic & Low, 2002). For example, Calkins and colleagues (2004) reported that mothers who report experiencing high levels of parenting stress provide low levels of positive physical stimulation whether or not their children exhibit high or low levels of difficult temperament characteristics. Overall, research indicated that parenting stress acts as a precursor for increased negative

parenting behaviors as well as decreased positive parenting behaviors (Deater-Deckard, 2005; for a review, see Kazdin & Whitley, 2003).

Taken together, there is likely a complex relationship between negative parenting practices, parenting stress, and children's emotional and behavioral outcomes. In particular, parenting stress is identified as a key factor in the relationship between parenting behaviors and children's developmental, cognitive, emotional, and behavioral outcomes (Crnic & Low, 2002). Additionally, children's temperament characteristics either may buffer against or increase parenting stress (Thomas et al., 1968). Although parenting stress is associated with children's temperament and negative parenting behaviors, less is known about the specific relationship that parenting stress has with parents' temperament characteristics, children's temperament characteristics, parenting behaviors, and children's emotional and behavioral problems. An examination of these relationships will add to the existing literature regarding the precursors to young children's emotional and behavioral problems.

### *Children's Emotional and Behavioral Problems*

Research focusing on the early development of young children's emotional and behavioral outcomes is essential to understanding the etiology of internalizing and externalizing behavior problems. Importantly, emotional and behavioral problems that develop in early childhood are often stable and predictive of maladaptive psychological outcomes in later years of development (e.g., Denham et al., 2000; Shaw et al., 1998). For instance, as many as 60% of 3-year olds who have serious behavior problems will continue to exhibit these problems throughout their childhoods (Campbell, Shaw, & Gilliom, 2000). Further, research suggested that internalizing behavior problems are moderately stable across childhood, with increases being

typical in adolescence (e.g., see Twenge & Nolen-Hoeksema, 2002). Children who develop externalizing behavior problems during early childhood also are at heightened risk for later academic, psychiatric, and antisocial problems (Reid, 1993). Although previous research individually associates parents' characteristics, children's characteristics, parenting behaviors, and parenting stress with varying levels of children's emotional and behavioral problems, few studies examine these variables collectively in the prediction of children's emotional and behavioral problems. As such, the current study sought to examine the differential relationships that these variables have with young children's internalizing and externalizing behavior problems.

Children with internalizing behavior problems exhibit symptoms such as withdrawal, depression, inhibition, and anxiety (Eisenberg et al., 2001). Conversely, children with externalizing behavior problems exhibit symptoms such as frequent noncompliance, aggression, temper tantrums, impulsivity, hyperactivity, and poor frustration tolerance (Campbell et al., 2000). Although families seek mental health services for children who have internalizing and externalizing behavior problems, externalizing problems are the most common cause of clinical referrals for children (Kazdin, 1985; Renk, 2005) and the most commonly cited mental health concern among parents for their children (Anderson, Williams, McGee, & Silva, 1987). Thus, children who exhibit internalizing behavior problems are less likely to receive treatment, or their treatment may be delayed until late childhood or adolescence (Stormshak et al., 2000). When comparing children's internalizing and externalizing behavior problems, internalizing behavior problems are distressing to the children themselves (Roeser, Eccles, & Strobel, 1998), whereas externalizing behavior problems are distressing to other individuals (Achenbach, 1991). The



manner in which these behavior problems are viewed may be the primary reason for the age difference at which children receive mental health services for each type of problem.

Identifying the precursors for young children's internalizing and externalizing behavior problems is particularly important so that prevention and intervention efforts can be implemented early, before such problems reach clinically concerning proportions. There are several risk factors that can promote the occurrence of children's internalizing and externalizing behavior problems. In particular, the continuity of internalizing and externalizing behavior problems is greater among children who experience an earlier onset to their symptoms, who experience an adverse environment in more than one setting, and who display more than one type of behavior problem (Campbell et al., 2000; Leve, Kim, & Pears, 2005). Further, children's ability to successfully regulate their emotions may be an important precursor to their development of behavior problems, as many of the symptoms of internalizing and externalizing behavior problems involve a difficulty in the self-regulation of emotions (Campbell, 2002; Roeser et al., 1998; Rubin et al., 2003).

Research suggested that children who are temperamentally difficult are less successful at regulating their emotions (Rubin et al., 2003) and are more likely to display behavior problems (Aunola & Nurmi, 2005; Denham et al., 2000). Conversely, children who are temperamentally easy are better able to regulate their emotions and exhibit less problematic behavior (Rubin et al., 2003). In fact, beginning as early as infancy, there is evidence to support the importance of children's individual contributions to their development of internalizing and externalizing behavior problems (Thomas et al., 1968). For example, Keenan, Shaw, Delliquadri, Giovannelli, and Walsh (1998) reported that children's difficult temperament at 18- and 24-months of age is linked to their later diagnosed behavior problems. Moreover, children who are rated by their

teachers as having higher rates of internalizing and externalizing behavior problems are more likely to have had difficult temperaments as infants (Tschann et al., 1996). Accordingly, difficult temperament has a direct link to the internalizing and externalizing behavior problems that children experience throughout early childhood (Thomas et al., 1968).

It also may be important to consider parents' characteristics in conjunction with young children's behavior problems. Although little is known about the link between parents' temperament and children's behavior problems, more is known about the relationship among parents' personality characteristics, subsequent parenting behaviors, and children's development of behavior problems (for a review, see Frick, 1994). Specifically, parents' use of punitive discipline (i.e., yelling, nagging, threatening), poor monitoring and supervision, low involvement, inconsistent discipline, parenting behaviors that are not positive (i.e., a lack of warmth and positive reinforcement), and corporal punishment all are linked to children's internalizing and externalizing behavior problems (e.g., Frick et al., 1992; Patterson, 1986; Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). Given previous research on parents' personality, parenting behaviors, and young children's behavior problems, the relationships among parents' temperament, young children's temperament, parenting behaviors, and young children's behavior problems deserve further examination.

Parenting stress appeared to be an additional precursor to children's emotional and behavioral problems (Creasey & Jarvis, 1994). As mentioned above, parenting stress likely is related to children's emotional and behavioral problems through multiple processes. For example, research indicated that parenting stress contributes to the development and escalation of children's behavior problems above and beyond the effects of children's difficult temperament (Barry, Dunlap, Cotten, Lochman, & Wells, 2005; Webster-Stratton, 1990). Thus, this finding

indicated that parenting stress may have a direct effect on children's emotional and behavioral problems. In addition, stressful parenting circumstances can lead to distress in the parenting role. This relationship is likely to have unfavorable outcomes for both parents and their children. For example, if parents are functioning at a lower level due to high amounts of stress, this poor functioning likely will impact children's emotional and behavioral outcomes negatively. In particular, mothers who are stressed significantly are unable to effectively cope with and handle their children's behavior (Coyle et al., 2002). Further, in a study assessing attachment and parenting stress, researchers reported that high levels of parenting stress are related to children's greater attachment insecurity and lower levels of mothers' involvement (Teti et al., 1991). In addition to the relationship between parenting stress and the quality of parent-child attachment, mothers who are stressed highly are more likely to engage in hostile negative interactions with their children when compared to mothers who report low levels of stress (Forehand, Lautenschlager, Faust, & Graziano, 1986). Given these findings, parenting stress is likely to be related to children's emotional and behavioral outcomes both directly and indirectly through negative parenting behaviors. Taken together, research will benefit from examining collectively the various predictors of young children's internalizing and externalizing behavior problems.

### *The Current Study*

Given that there are a limited number of studies examining the relationship between parents' temperament and young children's temperament, it seems appropriate to focus more attention on this relationship. Further, gaining an understanding of how the match between parents' temperament and that of their young children may be related to parenting behaviors and young children's emotional and behavioral outcomes may provide important information about

precursors to young children's internalizing and externalizing behavior problems. Research suggested that parents' temperament characteristics are related to their parenting behaviors (Doelling & Johnson, 1990; Johnson et al., 1986). Additionally, previous empirical research indicates that children's temperament characteristics may be related closely to parenting behaviors (Billman & McDevitt, 1980; Calkins et al., 2004; Webster-Stratton & Eyberg, 1982). Thus, there is evidence that both parents' temperament and young children's temperament may be related to parenting behaviors. Although these relationships were demonstrated in previous research, the match between parents' temperament and that of their young children also may play a role in predicting parenting behaviors. Consequently, research in this area will benefit from examining the role that parent-child temperament match (or mismatch) plays in parents' use of adaptive and maladaptive parenting behaviors. Thus, this study aimed to provide information regarding the relationships among parents' perceptions of their temperament, their young children's temperament, and their use of parenting behaviors. By identifying the potential links among these variables in conjunction with parenting stress, this study can contribute to our understanding of the variables that are related most closely to parenting behaviors as well as to young children's development of internalizing and externalizing behavior problems.

Thus, the first purpose of the current study was to examine the relationships among parents' perceptions of their own temperament (i.e., low general activity level, flexibility/rigidity, more positive mood quality), their young children's temperament (i.e., low general activity level, flexibility/rigidity, more positive mood quality), their parenting behaviors (i.e., positive parenting, emotional style parenting, negative/inconsistent parenting, punitive parenting), and their parenting stress. Based on findings discussed previously, it was hypothesized that young children's easy temperament characteristics and parents' easy

temperament characteristics (i.e., low general activity, flexibility, more positive mood quality) would be associated positively and significantly with positive parenting behaviors (e.g., emotion coaching). Additionally, it was hypothesized that young children's easy temperament characteristics and parents' easy temperament characteristics would be associated negatively and significantly with negative parenting behaviors (e.g., negative/inconsistent parenting, punitive parenting, emotion dismissive parenting). Finally, the inclusion of a measure of parenting stress provided the opportunity to examine the hypothesis that parents' perceptions of young children's difficult temperament, parents' difficult temperament, and negative parenting behaviors were related positively and significantly to parenting stress.

The second purpose of this study was to examine the match between parents' perceptions of their own temperament characteristics and their young children's temperament characteristics as well as how this match (or mismatch) was related to parents' perceptions of parenting behaviors (i.e., positive parenting, negative/inconsistent parenting, punitive parenting, emotion coaching parenting, and emotion dismissive parenting). It was hypothesized that a match between young children's easy temperament characteristics and parents' easy temperament characteristics (i.e., low activity level, flexibility, and more positive mood quality) would be associated positively and significantly to higher levels of positive parenting behaviors (i.e., positive parenting and emotion coaching parenting) and would be associated negatively and significantly to negative parenting behaviors (i.e., negative/inconsistent parenting, punitive parenting, and emotion dismissive parenting). Further, it was hypothesized that a match between young children's difficult temperament characteristics and parents' difficult temperament characteristics (i.e., high activity level, rigidity, and more negative mood quality) and a mismatch between parents' and young children's temperament (i.e., young children's easy temperament

with parents' difficult temperament and young children's difficult temperament with parents' easy temperament) would be associated positively and significantly to higher levels of negative parenting behaviors (i.e., negative/inconsistent parenting, punitive parenting, and emotion dismissive parenting) and would be associated negatively and significantly to positive parenting behaviors (i.e., positive parenting and emotion coaching parenting). Further, it was expected that parent-child dyads where both parents and young children have easy temperaments would rate themselves as exhibiting the most positive parenting behaviors and the least negative characteristics relative to all other combinations of parents' temperament and young children's temperament.

Finally, this study also aimed to investigate the differential relationships that the match between parents' temperament and that of their young children, perceived parenting behaviors, and parenting stress would have with parents' perceptions of their young children's internalizing and externalizing behavior problems. On the basis of previous research, significant relationships among these variables were hypothesized. Further, the match between parents' temperament and that of their young children was hypothesized to be related to young children's internalizing and externalizing behavior problems, such that parent-child dyads where both parents and their young children have easy temperament characteristics would have young children who exhibit fewer internalizing and externalizing behavior problems. Hierarchical regression analyses were used to determine the comparative contributions that the parent-child temperament match, perceived parenting behaviors, and parenting stress make in predicting parents' perceptions of their young children's internalizing and externalizing behavior problems.

## CHAPTER THREE: METHODOLOGY

### *Participants*

Participants in this study were mothers of young children who range from 3- to 5-years of age. Parents were recruited from several preschools in the Orlando area, from the University of Central Florida community (e.g., via Good Morning UCF announcements and the Sona system extra credit system in the UCF Department of Psychology), and from recruitment announcement postings on Facebook. There were 208 participants who viewed the study. Of those participants who viewed the study, 20 participants partially completed the study questionnaires through the online survey, 2 participants did not return the mailed paper packet of study questionnaires, and 112 participants completed the study questionnaires. It should be noted that two fathers completed the survey online as well. The data from these two surveys were not included in the analyses due to the low number of participating fathers in this study (i.e., these data were not considered further). Thus, the sample size used in this study is 110. The suggested sample size for a multiple regression analysis ( $p < .05$ ) with eight independent variables (i.e., the most complex analysis proposed for this study) and statistical power of .80 is 107 participants in order to detect a medium ( $R = .36$ ) effect size (Cohen, 1992). Thus, the number of participants who participated in the study exceeded the suggested number to insure sufficient power for the analyses proposed. In addition, 25 participants consented for the investigator to contact their children's teacher. Of the 25 teachers that were contacted, 18 teachers completed the teacher questionnaire and returned it to the investigator. (Teachers only provided ratings for the mothers' children in this study. As a result, demographic information for teachers was unavailable.)

Mother participants in this study ranged in age from 18- to 47-years ( $M = 32$ -years,  $SD = 6.1$ -years). The majority of mothers in this study were Caucasian (68.2%). The remainder of this sample of mothers was ethnically diverse, with the remainder of mothers reporting that they were Hispanic American (13.6%), African American (8.2%), Asian American (4.5%), or from some “Other” ethnic background (5.5%). The majority of the mothers in this sample were married (78%), with the remaining mothers varying in their marital status (i.e., 15.6% were single, 4.6% were divorced, .9% were separated, and .9% were widowed). Their level of education also varied (i.e., 3.7% had a high school diploma or less, 33% had some college, 36.7% had a Bachelor’s degree, 22% had a Master’s degree, and 4.6% had a Doctoral degree). In addition, yearly household income for mothers was variable (i.e., 20.1% made less than \$30,000, 20.9% made between \$30,000 and \$50,000, 17.3% made between \$50,000 and \$70,000, and 41.7% made over \$70,000). These mothers provided ratings regarding their children who ranged in age from 3- to 5-years ( $M = 4.05$ -years,  $SD = .62$ -years). Of their young children, 48% were female, and 52% were male.

### *Measures*

The *Dimensions of Temperament Scale-Revised for Children* (DOTS-R Child; Windle & Learner, 1986) was used to assess mothers’ reports of their young children’s temperament. The DOTS-R Child is a 54-item questionnaire that measures nine attributes of temperament (the Cronbach alphas noted are from Windle & Learner, 1986): Activity Level-General ( $\alpha = .84$ ), Activity Level-Sleep ( $\alpha = .87$ ), Approach-Withdrawal ( $\alpha = .84$ ), Flexibility-Rigidity ( $\alpha = .79$ ), Mood Quality ( $\alpha = .91$ ), Rhythmicity-Sleep ( $\alpha = .80$ ), Rhythmicity-Eating ( $\alpha = .80$ ), Rhythmicity-Daily Habits ( $\alpha = .70$ ), and Task Orientation ( $\alpha = .79$ ). Participants rate each item



on the DOTS-R Child along a 4-point continuum from *Usually False* (1) to *Usually True* (4). High scores on the scales reflect greater activity, more adaptability or higher approach, greater flexibility to changes in the environment, higher levels of a more positive quality of mood, highly regular sleep cycles and eating habits, highly regular daily activities, lower distractibility, and a higher persistence for activity, respectively. Test-retest coefficients of .75, .74, .69, .64, .63, .71, .72, .62, and .64, respectively, have been obtained for the subscales of DOTS-R Child (Windle & Learner, 1986). Based on previous literature (e.g., Billman & McDevitt, 1980) and for the purposes of the current study, the temperament dimensions of Activity Level-General, Flexibility/Rigidity, and Mood Quality were used in this study to examine the three temperament dimensions that are likely to distinguish between young children who have difficult versus easy temperaments. The Cronbach alphas of parents' ratings of their young children for this study were: Activity Level ( $\alpha = .85$ ), Flexibility/Rigidity ( $\alpha = .84$ ), and Mood Quality ( $\alpha = .84$ ). Higher scores on these three temperamental dimensions indicate a higher general activity level, a more flexible behavioral style, and a more positive quality of mood, respectively. In addition, this study assessed mothers' perceived importance of each temperamental dimension. Thus, mothers' rated their perceptions of the importance of each temperament question along a 3-point continuum from *not important* (1) to *very important* (3). High scores on the importance ratings reflect a greater level of perceived importance for the temperament dimension.

The *Dimensions of Temperament Scale-Revised for Adults* (DOTS-R Adult; Windle & Learner, 1986) was used to assess parents' reports of their own temperament. The DOTS-R Adult is a 54-item questionnaire that measures ten attributes of temperament (the Cronbach alphas noted are from Windle & Learner, 1986): Activity Level-General ( $\alpha = .84$ ), Activity Level-Sleep ( $\alpha = .89$ ), Approach-Withdrawal ( $\alpha = .85$ ), Flexibility-Rigidity ( $\alpha = .78$ ), Mood

Quality ( $\alpha = .89$ ), Rhythmicity-Sleep ( $\alpha = .78$ ), Rhythmicity-Eating ( $\alpha = .80$ ), Rhythmicity-Daily Habits ( $\alpha = .62$ ), Distractibility ( $\alpha = .81$ ), and Persistence ( $\alpha = .74$ ). Participants rate each of the items on the DOTS-R Adult on a 4-point continuum from *Usually False* (1) to *Usually True* (4). High scores on the scales reflect greater activity, more adaptability or higher approach, greater flexibility to changes in the environment, higher levels of a more positive quality of mood, highly regular sleep cycles and eating habits, highly regular daily activities, lower distractibility, and a higher persistence for activity, respectively. With the exclusion of distractibility and persistence, congruence coefficients of .93, .97, .80, .75, .84, .87, and .60, respectively, were obtained for pairwise factor comparisons between preschool and adult samples (Windle & Learner, 1986). As with the measurement of young children's temperament, the temperament dimensions of Activity Level-General, Flexibility/Rigidity, and Mood Quality were used in this study to examine the three temperament dimensions that may be most likely to distinguish between parents who have difficult versus easy temperament. The Cronbach alphas of parents' ratings of their own temperament for this study were: Activity Level ( $\alpha = .85$ ), Flexibility/Rigidity ( $\alpha = .88$ ), and Mood Quality ( $\alpha = .90$ ). Higher scores on these three temperament dimensions indicate a higher general activity level, a more flexible behavioral style, and a more positive quality of mood, respectively.

The *Alabama Parenting Questionnaire-Preschool Revision* (APQ-PR; Clerkin, Marks, Policaro, & Halperin, 2007) was used to measure parenting behaviors. This questionnaire is a derivative of the original *Alabama Parenting Questionnaire* (APQ; Frick, 1991; Shelton, Frick, Wootton, 1996). The APQ-PR is a 32-item self-report measure of parenting behavior and is divided into three factors. The first factor measures Positive Parenting (i.e., parents' warmth, supportive involvement, and positive reinforcement). The second factor measures

Negative/Inconsistent Parenting (i.e., parents' poor monitoring/supervision and inconsistent discipline). The third factor measures Punitive Parenting (i.e., parents' yelling, ignoring, and corporal punishment). Each item is rated on a 5-point Likert scale ranging from 1 (*Never*) to 5 (*Always*). As a result, higher scores for each of the three factors represent more positive parenting behaviors, more negative/inconsistent parenting behaviors, and more punitive parenting behaviors, respectively. Cronbach alphas for the Positive Parenting, Negative/Inconsistent Parenting, and Punitive Parenting factors were .82, .74, and .63, respectively (Clerkin et al., 2007). In this study, Cronbach alphas for the Positive Parenting, Negative/Inconsistent Parenting, and Punitive Parenting factors were .77, .81, and .61, respectively. The overall Positive Parenting, overall Negative/Inconsistent Parenting, and overall Punitive Parenting composite scores were used in this study.

The *Maternal Emotional Styles Questionnaire* (MESQ; Lagacé-Séguin & Coplan, 2005) was used to measure maternal emotional styles. This questionnaire is a derivative of the Meta-Emotion Interview (Fainsilber-Katz & Gottman, 1999). The MESQ is a 14-item self-report measure of emotional styles. It consists of seven items that assess emotion-coaching parenting and seven items that assess emotion-dismissing parenting. Each item is rated using a 5-point Likert scale that ranges from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Cronbach alphas for the emotion-coaching parenting and emotion-dismissing parenting items in a previous study were .92 and .90, respectively (Lagacé-Séguin & Coplan, 2005). In a previous study, internal consistency for emotion-coaching parenting and emotion-dismissing parenting are .78 and .80, respectively (Lagacé-Séguin & Coplan, 2005). The MESQ also demonstrates construct validity for emotion-coaching parenting ( $r = .73, p < .001$ ) and for emotion-dismissing parenting ( $r = .75, p < .001$ ) with the Meta-Emotion Interview assessment of emotion-coaching and emotion-

dismissing parenting (Lagacé-Séguin & Coplan, 2005). In this study, Cronbach alphas for the emotion-coaching parenting and emotion-dismissing parenting were .66 and .77, respectively. Higher scores on the MESQ indicate more emotion-coaching parenting and more emotion-dismissing parenting. In this study, the overall emotion-coaching behavior and emotion-dismissing behavior composite scores were used.

The *Parenting Stress Index-Short Form* (PSI-SF; Abidin, 1995) was used to measure stress in the parent-child relationship. This index is a derivative of the original, full length Parenting Stress Index (PSI; Abidin, 1990). The PSI-SF is a 36-item self-report measure of parenting stress and is divided into three subscales. The first subscale measures stress in the Parent Domain (PD). This subscale assesses the degree of stress that parents experience in the parent role (i.e., parents' impaired sense of parenting competence, conflict with life roles and the coparent, lack of social support, and symptoms of depression). The second subscale measures stress in the Child Domain (CD) and assesses parents' expectations of their children (i.e., parents' perceptions of whether or not their children are reinforcing to them as parents). The third subscale, Difficult Child, assesses children's behavioral characteristics (i.e., children's demanding behavior). Each item is rated using a 5-point Likert scale. For each of the three subscales, as well as for the Total score of the PSI-SF (i.e., the sum of the scores from the three subscales), higher scores represent more parenting stress. In a previous study, the PSI-SF has reliabilities of .91 for the total scale and .87, .80, and .85, respectively, for the PD, CD, and DC scales (Abidin, 1995). The PSI-SF also shows evidence of concurrent validity ( $r = .94, p < .0001$ ) with the long form of the PSI. Cronbach alpha for the overall Parenting Stress composite score in the current study was .93.

The *Child Behavior Checklist* (CBCL; Achenbach & Rescorla, 2000, 2001) was used to measure children's emotional and behavioral problems. Parents completed the CBCL for 1.5- to 5-year olds, which consists of 100 behavior problem items where parents rate their young children's emotional and behavioral problems using the following scale: 0 = *Not True*, 1 = *Somewhat or Sometimes True*, and 2 = *Very True or Often True*. This measure provides T scores for children's Internalizing, Externalizing, and Total Behavior Problems. This measure demonstrates good test-retest reliability (mean  $r = .85$ ; Achenbach & Rescorla, 2000). Further, the CBCL differentiates between children who are clinically referred and those who are not. Finally, the CBCL is one of the most widely used measures of children's emotional and behavioral outcomes (Achenbach & Rescorla, 2000, 2001).

The *Caregiver-Teacher Report Form* (C-TRF; Achenbach & Rescorla, 2000) was used to assess teachers' perceptions of the emotional and behavioral functioning of students between the ages of 1.5- and 5-years. The C-TRF has 99 behavior problem items, with which teachers rate their students' emotional and behavioral problems using the following scale: 0 = *Not True*, 1 = *Somewhat or Sometimes True*, and 2 = *Very True or Often True*. The C-TRF provides T scores for children's Internalizing, Externalizing, and Total Behavior Problems. This measure demonstrates good test-retest reliability at .77 for Internalizing Behavior Problems, .89 for Externalizing Behavior Problems, and .88 for Total Problems. (Achenbach & Rescorla, 2000). In this study, the C-TRF was used to assess teachers' perceptions of young children's behavior within the school setting and to evaluate the comparative relationships between parent and teacher reports of young children's behaviors in an effort to provide extra validity for the results of this study.

The *Marlowe-Crowne Social Desirability Scale* (MCSDS; Crowne & Marlowe, 1960) was used to assess the potential social desirability of parents' response style in this study. The MCSDS is a 33-item self-report measure of the motivation for participants' need for social approval. Each item is rated using a true or false scale. Cronbach alpha for the MCSDS was reported at a .88 (Crowne & Marlowe, 1960). Cronbach alpha for the MCSDS in this study was .81. Higher scores on the MCSDS indicate a higher motivation for the need for social approval. In this study, the overall Social Desirability Scale composite score is used. Finally, as part of this study, participants complete a brief questionnaire regarding their demographic information. The demographics questionnaire asks participants to provide information about themselves and their young children regarding a variety of variables (e.g., age, occupation, ethnicity).

### *Procedure*

Upon receipt of approval from the Institutional Review Board (IRB) of the University of Central Florida, the directors of several preschools in the central Florida area were contacted (via telephone and/or e-mail) to explain the study and request permission for their schools' participation. Following receipt of permission from preschool directors, recruitment announcements were handed out to each child at the end of the school day. The recruitment announcement provided participants with a link to access the study online and the investigator's contact information. This information gave participants the opportunity to contact the investigators to receive a paper packet if they were unable to access the Internet for completion of the study online. Alternatively, the investigator mailed self-addressed, stamped envelope containing a paper packet to the parents who were unable to access the study online. The

investigator offered compensation in the form of a \$10.00 Target gift card. If participants were students at the University, they could elect to receive course credit for their participation. If not participating for course credit, a \$10.00 Target gift card was granted upon completion of the questionnaires.

In an additional attempt to recruit participants, a recruitment announcement was printed in the University of Central Florida on-line newsletter approximately once per week for 16 weeks. The announcement instructed potential participants to follow the study-link in order to access the study online or contact the investigator in order to obtain a paper packet. Lastly, additional attempts were made to recruit participants through recruitment announcement postings on Facebook. The postings instructed potential participants to follow the posted study-link in order to access the study online or to contact the investigator in order to obtain a paper packet. The questionnaires required approximately one hour for parents to complete.

The survey included the Consent Form, the Demographics Questionnaire, the above mentioned questionnaires, and a Debriefing Form that explained the purpose of the study and provided references to the relevant research literature (should parents want more information about the topic area covered by this study). In addition, parents were presented with the option of consenting for the investigator to collect information from their young child's teacher about their young child's behavior in the school setting. If parents consented to this portion of the study, a consent form, the C-TRF, and a self-addressed stamped envelope were mailed to the teacher by the investigator.

## CHAPTER FOUR: RESULTS

### *Descriptive Statistics*

To provide a measure of participants' standing on each of the measures relative to the potential range of scores for each measure, means and standard deviations were calculated for each measure. These results are presented in Table 1. It should be noted that ANOVAs were used to compare the means of each study measure among the three sites from which data were collected (i.e., preschools/daycares, UCF, and Facebook). Findings revealed that there are no significant differences among the means of the measure collected from participants across the three data collection sites. As a result, all variables were examined collectively across all sites. With regard to temperament, mothers reported that, on average, their young children are moderately active ( $M = 19.63$ ,  $SD = 4.62$ ; possible range = 7-28), have a somewhat flexible behavioral style ( $M = 14.88$ ,  $SD = 3.52$ ; possible range = 5-20), and generally have a more positive quality of mood ( $M = 26.20$ ,  $SD = 3.02$ ; possible range = 7-28). When reporting on the importance of each temperament dimension, on average, mothers rated their young children's quality of mood ( $M = 19.30$ ,  $SD = 3.77$ ; possible range = 7-21) as being highly important, their activity level ( $M = 14.28$ ,  $SD = 3.43$ ; possible range = 7-21) as being moderately important, and their flexible behavioral style ( $M = 10.63$ ,  $SD = 2.45$ ; possible range = 5-15) as being moderately important. With regard to their own temperament, mothers reported that, on average, they themselves are moderately active ( $M = 15.85$ ,  $SD = 4.26$ ; possible range = 7-28), have a somewhat flexible behavioral style ( $M = 14.25$ ,  $SD = 3.53$ ; possible range = 5-20), and generally have a more positive quality of mood ( $M = 23.53$ ,  $SD = 3.58$ ; possible range = 7-28).



When reporting on parents' perceptions of their own parenting behaviors, mothers reported using high levels of positive parenting behaviors ( $M = 51.37$ ,  $SD = 6.32$ ; possible range = 5-70), moderate levels of negative/inconsistent parenting behaviors ( $M = 14.51$ ,  $SD = 4.49$ ; possible range = 5-35), and low levels of punitive parenting behaviors ( $M = 8.95$ ,  $SD = 2.73$ ; possible range = 5-25), on average. Additionally, mothers reported using high levels of emotion-coaching behavior ( $M = 26.26$ ,  $SD = 3.49$ ; possible range = 5-35) and moderate levels of emotion-dismissive behavior ( $M = 18.25$ ,  $SD = 4.13$ ; possible range = 5-35), on average.

Additionally, mothers in this sample reported that, on average, they are experiencing moderate levels of parenting stress ( $M = 72.92$ ,  $SD = 19.24$ ; possible range = 36-180). Further, on average, mothers reported that their young children are experiencing nonclinical levels of internalizing ( $M = 48.72$ ,  $SD = 12.09$ ; actual range of 29-77) and externalizing ( $M = 47.01$ ,  $SD = 10.84$ ; actual range of 28-74) behavior problems. With regard to the internalizing behavior problems  $T$  scores in this study, 78.9% of these young children fell within the Nonclinical range, 5.8% fell within the Borderline range, and 15.3% fell within the Clinical range. With regard to the externalizing behavior problems  $T$  scores in this study, 86.2% of these young children fell within the Nonclinical range, 6.3% fell within the Borderline range, and 7.5% fell within the Clinical range. Lastly, on average, mothers' ratings indicated a moderate level of social desirability ( $M = 18.38$ ,  $SD = 5.69$ ; possible range = 0-33).

### *Correlational Analyses*

To examine the first aim of this study, correlations were examined among mothers' perceptions of their young children's temperament (i.e., general activity level, flexibility/rigidity, and mood quality), the importance of their young children's temperament dimensions (i.e.,

general activity level importance, flexibility/rigidity importance, and mood quality importance), their own temperament (i.e., general activity level, flexibility/rigidity, and mood quality), their own parenting behaviors (i.e., positive parenting, negative/inconsistent parenting, punitive parenting, emotion coaching parenting, and emotion dismissive parenting), their parenting stress, their young children's internalizing and externalizing behavior problems, and their endorsements of social desirability. Correlational analyses are presented in Table 2.

Examination of the correlational analyses regarding the three child temperament dimensions revealed that mothers who endorse higher activity levels for their young children also report that their young children have less flexible behavioral styles ( $r = -.27, p < .01$ ). Additionally, mothers who endorse less flexible behavioral styles for their young children also report that their young children generally display a less positive quality of mood ( $r = .37, p < .001$ ). Thus, a more rigid behavioral style was related to both greater activity levels and a more negative mood quality in young children.

Next, examination of the correlational analyses regarding the relationships between the three child temperament dimensions and the three parent temperament dimensions revealed that mothers who endorse higher activity levels for their young children also report higher activity levels for themselves ( $r = .42, p < .001$ ). Further, mothers who endorse less flexible behavioral styles for their young children also report less flexible behavioral styles for themselves ( $r = .48, p < .001$ ) and rate themselves as having a less positive quality of mood ( $r = .24, p < .01$ ). Lastly, mothers who endorse a less positive quality of mood for their young children also report a less positive quality of mood for themselves ( $r = .41, p < .001$ ) and rate themselves as having a less flexible behavioral style ( $r = .23, p < .01$ ). Thus, mothers who rate their young children as

having more difficult temperament characteristics also rate themselves as having more difficult temperament characteristics.

When examining the correlational analyses regarding mother's perceived importance of each child temperament dimension, the importance of young children's activity level was correlated positively and significantly with the importance of young children's flexibility ( $r = .70, p < .001$ ) and the importance of young children's quality of mood ( $r = .56, p < .001$ ). Similarly, the importance of young children's flexibility was correlated positively and significantly with the importance of young children's quality of mood ( $r = .61, p < .001$ ). Thus, mothers who rated one temperament dimension as being important were more likely to rate the other temperament dimensions as important as well. In addition, mothers who rated their young children's mood quality as important also reported a more positive quality of mood for their young children ( $r = .43, p < .001$ ) and for themselves ( $r = .34, p < .001$ ). Further, mothers who rated their young children's mood quality as important also reported using higher levels of positive parenting behaviors ( $r = .27, p < .01$ ), higher levels of emotion-coaching behaviors ( $r = .28, p < .003$ ), lower levels of punitive parenting behaviors ( $r = -.22, p < .02$ ), and less parenting stress ( $r = -.25, p < .01$ ). Lastly, mothers who rated their young children's activity level as important also reported using higher levels of emotion-coaching behavior ( $r = .22, p < .02$ ). Thus, mothers who rated their young children's mood quality as being important were more likely to rate themselves as using more positive parenting behaviors, less negative parenting behavior, and experiencing less parenting stress, and mothers who rated their young children's activity level as important were more likely to rate themselves as using more positive parenting behavior.

When examining correlational analyses regarding the relationships among mothers' perceptions of their young children's temperament, their own temperament, and their parenting behaviors, mothers' perceptions of having a less flexible behavioral style themselves were related to higher ratings of negative/inconsistent parenting behaviors ( $r = -.35, p < .001$ ), lower positive parenting behaviors ( $r = .32, p < .001$ ), and higher emotion dismissive parenting behaviors ( $r = -.24, p < .01$ ). Further, mothers who reported that their young children have a less flexible behavioral style also reported higher negative/inconsistent parenting behaviors ( $r = -.31, p < .001$ ), higher punitive parenting behaviors ( $r = -.22, p < .02$ ), and lower positive parenting behaviors ( $r = .29, p < .002$ ). When examining quality of mood, mothers' report of having a less positive quality of mood themselves was related to higher ratings of negative/inconsistent parenting behaviors ( $r = -.36, p < .001$ ), higher punitive parenting behaviors ( $r = -.42, p < .001$ ), lower positive parenting behaviors ( $r = .36, p < .001$ ), and lower emotion-coaching behaviors ( $r = .28, p < .003$ ). Further, mothers who reported that their young children have a less positive quality of mood also reported higher negative/inconsistent parenting behaviors ( $r = -.35, p < .001$ ), higher punitive parenting behaviors ( $r = -.44, p < .001$ ), lower positive parenting behaviors ( $r = .43, p < .001$ ), and fewer emotion-coaching behaviors ( $r = .31, p < .001$ ). Lastly, when examining activity level, mothers who reported a higher activity level for themselves also reported using fewer emotion-coaching behaviors ( $r = -.22, p < .02$ ). Thus, mothers' easier temperament characteristics (i.e., low activity level, flexible behavioral style, and a more positive quality of mood) were correlated with mothers' positive parenting behaviors (i.e., positive parenting and emotion-coaching), whereas mothers' more difficult temperament characteristics (i.e., higher activity level, less flexible behavioral style, and a less positive quality of mood) were

correlated with mothers' negative parenting behaviors (i.e., negative/inconsistent parenting and punitive parenting).

Next, when examining correlational analyses regarding mothers' perceptions of their young children's temperament, their own temperament, their parenting behaviors, and their parenting stress, mothers who endorsed a greater general activity level ( $r = .20, p < .03$ ), a less flexible behavioral style ( $r = -.51, p < .001$ ), and a less positive quality of mood ( $r = -.57, p < .001$ ) for their young children also reported higher levels of parenting stress. In addition, mothers who report a less flexible behavioral style ( $r = -.43, p < .001$ ) and a less positive quality of mood ( $r = -.53, p < .001$ ) for themselves also reported experiencing higher levels of parenting stress. Correlational analyses regarding mothers' behaviors and parenting stress revealed that mothers who endorse higher levels of negative parenting ( $r = .61, p < .001$ ), higher levels of punitive parenting ( $r = .52, p < .001$ ), lower levels of positive parenting ( $r = -.44, p < .001$ ), and lower levels of emotion-coaching parenting ( $r = -.21, p < .03$ ) also report a higher level of parenting stress. Thus, mothers who endorse a more difficult temperament for their young children and for themselves report a higher level of parenting stress. Further, mothers who report using more positive parenting behavior and less negative parenting behavior also report lower levels of parenting stress.

When examining correlational analyses regarding mothers' perceptions of their young children's internalizing behavior problems, mothers who reported that their young children have a less flexible behavioral style ( $r = -.43, p < .001$ ), a less positive quality of mood ( $r = -.40, p < .001$ ), and higher activity levels ( $r = .25, p < .01$ ) endorsed higher levels of their young children's internalizing behavior problems. Further, mothers who reported that they have a less flexible behavioral style ( $r = -.31, p < .001$ ), a less positive quality of mood ( $r = -.30, p < .001$ ),

and higher activity levels ( $r = .22, p < .02$ ) themselves endorsed higher levels of their young children's internalizing behavior problems. In addition, mothers who reported using higher levels of negative/inconsistent parenting ( $r = .35, p < .001$ ), higher levels of punitive parenting ( $r = .35, p < .001$ ), and lower levels of positive parenting ( $r = -.32, p < .001$ ) endorsed higher levels of their young children's internalizing behavior problems.

With regard to young children's externalizing behavior problems, mothers who reported that their young children have a less flexible behavioral style ( $r = -.35, p < .001$ ), a less positive quality of mood ( $r = -.23, p < .02$ ), and higher activity levels ( $r = .56, p < .001$ ) endorsed higher levels of young children's externalizing behavior problems. Further, mothers who reported that they have a less flexible behavioral style ( $r = -.22, p < .02$ ), a less positive quality of mood ( $r = -.19, p < .05$ ), and higher activity levels ( $r = .24, p < .01$ ) themselves endorsed higher levels of young children's externalizing behavior problems. In addition, mothers who reported using higher levels of negative/inconsistent parenting ( $r = .37, p < .001$ ), higher levels of punitive parenting ( $r = .44, p < .001$ ), and lower levels of positive parenting ( $r = -.31, p < .002$ ) endorsed higher levels of young children's externalizing behavior problems.

Lastly, when examining the correlational analyses regarding social desirability ratings, mothers who reported that their young children have a less flexible behavioral style ( $r = .26, p < .01$ ), higher levels of internalizing behavior problems ( $r = -.35, p < .001$ ), and higher levels of externalizing behavior problems ( $r = -.33, p < .001$ ) had lower social desirability ratings. Further, mothers who reported having a higher activity level ( $r = -.21, p < .03$ ), a less flexible behavioral style ( $r = .41, p < .001$ ), and a less positive quality of mood ( $r = .24, p < .01$ ) had lower social desirability ratings. In addition, mothers who reported using higher levels of negative/inconsistent parenting behaviors ( $r = -.28, p < .003$ ), higher levels of punitive parenting

behaviors ( $r = -.32, p < .001$ ), and lower levels of positive parenting behaviors ( $r = .32, p < .001$ ) had lower social desirability ratings. Lastly, mothers who reported higher levels of parenting stress ( $r = -.45, p < .001$ ) had lower social desirability ratings.

In addition, correlational analyses were conducted to examine the comparative relationship among mothers' and teachers' reports of young children's internalizing and externalizing behavior problems. These analyses included information derived from the 18 teachers that completed the teacher report portion of this study. Results of the correlational analyses indicated that teachers' ratings of young children's internalizing behavior problems are correlated positively and significantly with mothers' ratings of their young children's internalizing behavior problems ( $r = .51, p < .03$ ) and externalizing behavior problems ( $r = .58, p < .03$ ). Further, results suggested that teachers' ratings of young children's externalizing behavior problems are correlated positively and significantly with mothers' ratings of their young children's internalizing behavior problems ( $r = .52, p < .01$ ) and externalizing behavior problems ( $r = .62, p < .03$ ). Thus, mothers' and teachers' reported corresponded highly, suggesting the validity of mothers' reports.

### *Cluster Analyses*

To examine the second aim of this study (i.e., the match between mothers' temperament characteristics and their young children's temperament characteristics and its relation to mothers' reports of parenting behaviors), cluster analyses were conducted. Specifically, a  $k$  means cluster analysis was conducted to investigate the match between young children's temperament and their mothers' temperament. This procedure is based on an iterative partitioning method where  $k$  groups, or the number of clusters specified, are selected as initial centers. Cases are then

assigned to the nearest cluster center as determined by the squared Euclidean distance between the case and the center. The final cluster centers are the subscale means for the cases included in each of the final clusters. This process formed clusters that maximized intragroup similarities as well as intergroup differences. The exploratory nature of this analysis should be noted because this statistic will always fit the data to the number of clusters specified. Thus, this study used a hierarchical cluster analysis, which produces an agglomeration schedule that provides values to determine the distinctness of the groups.

The hierarchical cluster analysis results revealed two distinct clusters of mother and young child temperament matches, which then were specified in the  $k$  means cluster analysis. Cluster 1 ( $n = 56$ ), labeled *Easy Temperament*, represents mothers and young children who are both rated as having a more flexible behavioral style, a more positive quality of mood, and a lower general activity level. Cluster 2 ( $n = 54$ ), labeled *Difficult Temperament*, represents mothers and young children who are rated as having a less flexible behavioral style, a less positive quality of mood, and a higher general activity level.

#### *MANCOVA Analyses*

To continue with the second aim of this study, the differences among the two cluster groupings were examined in the context of a multivariate analysis of covariance. In this analysis, the cluster grouping serves as the independent variable, and mothers' perceptions of their parenting behaviors and their parenting stress serve as the dependent variables. Mothers' income and social desirability ratings were related significantly to the outcome variables, whereas ethnicity was not related significantly to the outcome variables. Specifically, mothers who reported higher levels of positive parenting behaviors ( $r = .34, p < .001$ ), lower levels of



negative/inconsistent parenting behaviors ( $r = -.26, p < .01$ ), lower levels of punitive parenting behaviors ( $r = -.26, p < .01$ ), and lower levels of parenting stress ( $r = -.33, p < .001$ ) had higher income ratings. In addition, mothers who reported using higher levels of negative/inconsistent parenting behaviors ( $r = -.28, p < .003$ ), higher levels of punitive parenting behaviors ( $r = -.32, p < .001$ ), lower levels of positive parenting behaviors ( $r = .32, p < .001$ ), and higher levels of parenting stress ( $r = -.45, p < .001$ ) had lower social desirability ratings. Accordingly, income and social desirability ratings served as covariates.

Using Wilks's statistic, results indicated that there is a significant main effect of cluster on the outcome variables  $F(6, 101) = 5.38, p < .001$ . Separate univariate ANOVAs on the outcome variables revealed significant cluster effects for mothers' perceptions of positive parenting behaviors  $F(1, 108) = 11.01, p < .001$ , emotion-coaching behaviors  $F(1, 108) = 6.14, p < .02$ , negative/inconsistent parenting behaviors,  $F(1, 108) = 11.84, p < .001$ , and parenting stress  $F(1, 108) = 19.87, p < .001$ . Specifically, mothers in Cluster 1 (Easy Temperament;  $M = 53.89, SD = 4.56$ ) reported higher levels of positive parenting behaviors than did mothers in Cluster 2 (Difficult Temperament;  $M = 48.76, SD = 6.85$ ). Similarly, mothers in Cluster 1 ( $M = 27.09, SD = 3.23$ ) reported higher levels of emotion-coaching parenting behaviors than did mothers in Cluster 2 ( $M = 25.41, SD = 3.58$ ). Further, mothers in Cluster 1 ( $M = 12.75, SD = 3.82$ ) reported lower levels of negative/inconsistent parenting behaviors than did mothers in Cluster 2 ( $M = 16.33, SD = 4.45$ ). Lastly, mothers in Cluster 1 ( $M = 63.64, SD = 16.66$ ) reported lower levels of parenting stress than did mothers in Cluster 2 ( $M = 82.54, SD = 16.07$ ). Thus, mothers in the Easy Temperament cluster reported using more positive parenting behaviors, lower levels of negative parenting behaviors, and experiencing a lower level of parenting stress when compared to mothers in the Difficult Temperament cluster.

### *Hierarchical Regression Analyses*

To examine the final aim of this study, hierarchical regression analyses were used to determine the relative contributions of the mother-child temperament clusters (i.e., Easy Temperament and Difficult Temperament), perceived parenting behaviors (i.e., positive parenting, negative/inconsistent parenting, and punitive parenting), and parenting stress in predicting mothers' reports of their young children's internalizing and externalizing behavior problems. It should be noted that emotion-coaching and emotion-dismissive parenting behaviors were not included in the hierarchical regression analyses due to the lack of a relationship between these variables and young children's internalizing and externalizing behavior problems. The mother-child temperament clusters were entered in Block 1, the remaining perceived parenting behaviors were entered in Block 2 (i.e., positive parenting, negative/inconsistent parenting, and punitive parenting), and parenting stress was entered in Block 3. Results of the hierarchical regression analyses are presented in Tables 3.

First, a hierarchical regression analysis examining mothers' predictors of their young children's internalizing behavior problems indicated that the mother-child temperament match contributes significantly to the prediction of their young children's internalizing behavior problems in Block 1. In particular, the difficult temperament match (i.e., Cluster 2) is related to higher levels of their young children's internalizing behavior problems. In Block 2, the regression equation remained significant when perceived parenting behaviors were added. In this block, the mother-child temperament match remained the only significant predictor. In Block 3, the regression equation remained significant with the addition of parenting stress. In this Block, mothers' rating of parenting stress was the only significant predictor. Thus, parenting

stress was the strongest individual predictor of mothers' ratings of their young children's internalizing behavior problems.

Given this pattern of results, parenting stress was examined as a mediator in the relationship between the mother-child temperament match and young children's internalizing behavior problems using a series of regression analyses consistent with the paradigm proposed by Baron and Kenny (1986). First, the mother-child temperament match predicted significantly mothers' ratings of parenting stress. Next, mothers' ratings of parenting stress predict significantly their ratings of their young children's internalizing behavior problems. Then, collectively, mother-child temperament match and mothers' ratings of parenting stress predict significantly mothers' ratings of their young children's internalizing behavior problems. In particular, when entered first, the mother-child temperament match predicted significantly young children's internalizing behavior problems. When mothers' ratings of parenting stress were added to this equation, however, only their ratings of parenting stress predicted significantly young children's internalizing behavior problems. Thus, mothers' ratings of parenting stress fully mediated the relationship between the mother-child temperament match and young children's internalizing behavior problems. The mediational value of mothers' ratings of parenting stress was confirmed with a significant Sobel Test ( $z = 5.87, p = .01$ ). Mediation results are presented in Table 4.

Next, a hierarchical regression analysis examining mothers' predictors of their young children's externalizing behavior problems suggested that the mother-child temperament match contributed significantly to the prediction of their young children's externalizing behavior problems in Block 1. In particular, the difficult temperament match (i.e., Cluster 2) was related to higher levels of young children's externalizing behavior problems. In Block 2, the regression

equation remained significant with the addition of perceived parenting behaviors. In this Block, the mother-child temperament match remained as a significant predictor. Mothers' report of punitive parenting behavior also was a significant predictor, with higher levels of reported punitive parenting being related to higher levels of young children's externalizing behavior problems. In Block 3, the regression equation remained significant with the addition of parenting stress. In this block, mothers' report of punitive parenting behavior and mothers' ratings of parenting stress were significant predictors. Thus, higher levels of perceived parenting stress and higher levels of reported punitive parenting behaviors were the strongest predictors of mothers' ratings of their young children's externalizing behavior problems.

Given this pattern of results, parenting stress was examined as a mediator in the relationship between the mother-child temperament match and young children's externalizing behavior problems using a series of regression analyses consistent with the paradigm proposed by Baron and Kenny (1986). First, the mother-child temperament match predicted significantly mothers' ratings of parenting stress. Next, mothers' ratings of parenting stress predicted significantly mothers' ratings of their young children's externalizing behavior problems. Then, collectively, mother-child temperament match and mothers' ratings of parenting stress predicted significantly young children's externalizing behavior problems. In particular, when entered first, the parent-child temperament match predicted significantly young children's externalizing behavior problems. When mothers' ratings of parenting stress were added to this equation, however, only their ratings of parenting stress predicted significantly young children's externalizing behavior problems. Thus, mothers' ratings of parenting stress fully mediated the relationship between the parent-child temperament match and young children's externalizing behavior problems. The meditational value of mothers' ratings of parenting stress was

confirmed with a significant Sobel Test ( $z = 4.59, p < .001$ ). Mediation results are presented in Table 4.

Given that punitive parenting also was a significant predictor of mothers' ratings of young children's externalizing behavior problems, punitive parenting was examined as a mediator in the relationship between the mother-child temperament match and young children's externalizing behavior problems. The mediational analysis was conducted using a series of regression analyses consistent with the paradigm proposed by Baron and Kenny (1986). First, the mother-child temperament match predicted significantly mothers' ratings of punitive parenting. Next, mothers' ratings of their punitive parenting predicted significantly their ratings of their young children's externalizing behavior problems. Then, collectively, mother-child temperament match and mothers' ratings of punitive parenting predicted significantly young children's externalizing behavior problems. In particular, when entered first, the mother-child temperament match predicted significantly young children's externalizing behavior problems. When mothers' ratings of punitive parenting were added to this equation, however, both mothers' ratings of the mother-child temperament match and mothers' ratings of punitive parenting predicted significantly young children's externalizing behavior problems. Thus, mothers' ratings of punitive parenting act as individual predictors of young children's externalizing behavior problems. These results are presented in Table 4.

#### *Further Examination of Parent-Child Temperament Matches*

Given the apparent lack of mother-child temperament mismatches, post-hoc analyses were used to examine possible mismatches within each temperament component. Accordingly, a median split was used to examine mother-child dyads on each temperament component (i.e.,

general activity level, flexibility/rigidity, and mood quality) individually. As with the cluster analyses, results revealed that no mother-child dyads were mismatched on all three temperament components. Conversely, when examining each temperament component individually, results revealed matched and mismatched mother-child dyads within each temperament component. For the purposes of the post-hoc analyses, *Group 1* consisted of mothers and children with easy temperament characteristics, *Group 2* consisted of mothers with difficult temperament characteristics and children with easy temperament characteristics, *Group 3* consisted of mothers with easy temperament characteristics and children with difficult temperament characteristics, and *Group 4* consisted of mothers and children with difficult temperament characteristics.

With regard to activity level, results revealed 82 matched mother-child dyads (i.e., 41 mother-child dyads with high activity levels and 41 mother-child dyads with low activity levels) and 28 mismatched mother-child dyads (i.e., 15 mother-child dyads consisting of mothers with high activity levels and children with low activity levels and 13 mother-child dyads consisting of mothers with low activity levels and children with high activity levels). With regard to flexibility/rigidity, results revealed 93 matched mother-child dyads (i.e., 45 mother-child dyads with a more flexible behavioral style and 48 mother-child dyads with a less flexible behavioral style) and 17 mismatched mother-child dyads (i.e., 14 mother-child dyads consisting of mothers with less flexible behavioral styles and children with more flexible behavioral styles and 3 mother-child dyads consisting of mothers with more flexible behavioral styles and children with less flexible behavioral styles). Lastly, with regard to mood quality, results revealed 75 matched mother-child dyads (i.e., 40 mother-child dyads with a more positive quality of mood and 35 mother-child dyads with a less positive quality of mood) and 35 mismatched mother-child dyads (i.e., 19 mother-child dyads consisting of mothers with a less positive quality of mood and

children with a more positive quality of mood and 16 mother-child dyads consisting of mothers with a more positive quality of mood and children with a more positive quality of mood).

#### *MANCOVA Post-Hoc Analyses*

Given the results of the median split, a post-hoc multivariate analysis of covariance was conducted to examine the effect of the four groups (i.e., Group 1, Group 2, Group 3, and Group 4) within each temperament component (i.e., general activity level, flexibility/rigidity, and mood quality) on parenting variables and parenting stress. In this analysis, the individual temperament components served as the independent variable and mothers' perceptions of their parenting behaviors and their parenting stress served as the dependent variables. In addition, mothers' income and social desirability ratings were related significantly to the outcome variables and thus served as covariates. Using Wilks's statistic, results indicated that there was a significant main effect for the flexibility/rigidity temperament component  $F(18, 280) = 2.91, p < .001$  and the mood quality temperament component  $F(18, 280) = 2.75, p < .001$ . Conversely, a significant main effect was not found for the activity level temperament component.

In particular, for the flexibility/rigidity temperament component, results revealed significant effects for mothers' perceptions of positive parenting behavior  $F(3, 110) = 5.05, p < .003$ , negative/inconsistent parenting behavior,  $F(3, 110) = 3.81, p < .01$ , emotion-dismissive parenting behavior,  $F(3, 110) = 2.73, p < .05$ , and parenting stress  $F(3, 108) = 8.65, p < .001$ . First, mothers in Group 3 ( $M = 56.00, SD = 2.71$ ) and mothers in Group 1 ( $M = 55.90, SD = 5.48$ ) endorsed higher levels of positive parenting behavior than mothers in Group 2 ( $M = 50.14, SD = 4.62$ ) and mothers in Group 4 ( $M = 48.60, SD = 6.63$ ). Second, mothers in Group 3 ( $M = 16.50, SD = 4.65$ ) and mothers in Group 4 ( $M = 16.36, SD = 4.84$ ) endorsed higher levels of

negative/inconsistent parenting behaviors than mothers in Group 2 ( $M = 13.71, SD = 4.10$ ) and mothers in Group 1 ( $M = 12.88, SD = 3.60$ ). Further, mothers in Group 2 ( $M = 19.21, SD = 4.68$ ) and mothers in Group 4 ( $M = 19.18, SD = 3.84$ ) endorsed higher levels of emotion-dismissive parenting behaviors than mothers in Group 1 ( $M = 15.42, SD = 4.07$ ) and mothers in Group 3 ( $M = 14.75, SD = 2.98$ ). Lastly, mothers in Group 4 ( $M = 83.73, SD = 19.23$ ) and mothers in Group 3 ( $M = 81.75, SD = 25.29$ ) endorsed higher levels of parenting stress than did mothers in Group 2 ( $M = 63.64, SD = 9.57$ ) and mothers in Group 1 ( $M = 63.88, SD = 15.42$ ).

Further, for the mood temperament component, results revealed significant effects for mothers' perceptions of emotion-coaching parenting behavior  $F(3, 110) = 2.85, p < .04$ , punitive parenting behavior,  $F(3, 110) = 3.25, p < .03$ , and parenting stress  $F(3, 110) = 13.18, p < .001$ . First, mothers in Group 4 ( $M = 24.23, SD = 3.65$ ) endorsed lower level of emotion-coaching parenting behavior than mothers in Group 1 ( $M = 27.40, SD = 3.47$ ), mothers in Group 3 ( $M = 26.25, SD = 2.89$ ), and mothers in Group 2 ( $M = 26.24, SD = 3.13$ ). Second, mothers in Group 4 ( $M = 10.32, SD = 3.32$ ) and mothers in Group 2 ( $M = 9.91, SD = 2.50$ ) endorsed higher levels of punitive parenting behaviors than mothers in Group 1 ( $M = 7.90, SD = 1.91$ ) and mothers in Group 3 ( $M = 7.38, SD = 2.16$ ). Lastly, mothers in Group 4 ( $M = 87.30, SD = 16.85$ ) endorsed higher levels of parenting stress than mothers in Group 1 ( $M = 59.73, SD = 13.65$ ), mothers in Group 2 ( $M = 73.95, SD = 19.94$ ), and mothers in Group 3 ( $M = 74.06, SD = 11.91$ ). Further, mothers in Group 1 endorsed lower levels of parenting stress than mothers in Group 2 and mothers in Group 3.

Overall, mothers in Group 1 (i.e., easy mothers with easy children) reported more positive parenting and less negative parenting as well as less parenting stress, whereas mothers in Group 4 (i.e., difficult mothers with difficult children) reported using less positive parenting and



more negative parenting as well as more parenting stress. Further, mothers in Group 2 (i.e., difficult mothers with easy children) reported using less positive and negative parenting behaviors, lower levels of parenting stress, and higher punitive parenting behaviors, whereas mothers in Group 3 (i.e., easy mothers with difficult children) reported using more positive and negative parenting behaviors and higher levels of parenting stress but less punitive parenting behaviors.

#### *Hierarchical Regression Post-Hoc Analyses*

In addition, to determine the relative contributions of the four mother-child temperament groups within each temperament component (i.e., general activity level, flexibility/rigidity, and mood quality), perceived parenting behaviors (i.e., positive parenting, negative/inconsistent parenting, and punitive parenting), and parenting stress in predicting mothers' reports of their young children's internalizing and externalizing behavior problems, post-hoc hierarchical regression analyses were conducted. Further, emotion-coaching and emotion-dismissive parenting behaviors were not included in the hierarchical regression analyses due to the lack of a relationship between these variables and young children's internalizing and externalizing behavior problems. The mother-child groups within each temperament component were entered in Block 1 (i.e., general activity level, flexibility/rigidity, mood quality), the remaining perceived parenting behaviors were entered in Block 2 (i.e., positive parenting, negative/inconsistent parenting, and punitive parenting), and parenting stress was entered in Block 3. Results of the post-hoc hierarchical regression analyses are presented in Table 5.

First, a hierarchical regression analysis examining mothers' predictors of their young children's internalizing behavior problems indicated that the activity temperament component,

the rigidity/flexibility temperament component, and the mood temperament component contribute significantly to the prediction of young children's internalizing behavior problems in Block 1. In particular, the difficult temperament groups (i.e., Group 4) across the activity level, rigidity/flexibility, and the mood quality temperament components were related to higher levels of young children's internalizing behavior problems. In Block 2, the regression equation remained significant when perceived parenting behaviors were added. In this block, there were no individual significant predictors. In Block 3, the regression equation remained significant with the addition of parenting stress. In this Block, mothers' rating of parenting stress was the only significant predictor. Thus, parenting stress was the strongest individual predictor of mothers' ratings of their young children's internalizing behavior problems.

Next, a hierarchical regression analysis examining mothers' predictors of their young children's externalizing behavior problems suggested that the activity level temperament component contributed significantly to the prediction of young children's externalizing behavior problems in Block 1. In particular, the difficult temperament group (i.e., Group 4) for the activity level temperament component was related to higher levels of young children's externalizing behavior problems. In Block 2, the regression equation remained significant with the addition of perceived parenting behaviors. In this Block, the activity level temperament component remained as a significant predictor. Mothers' report of punitive parenting behavior also was a significant predictor, with higher levels of reported punitive parenting being related to higher levels of young children's externalizing behavior problems. In Block 3, the regression equation remained significant with the addition of parenting stress. In this block, the activity level temperament component, mothers' report of punitive parenting behavior, and mothers' ratings of parenting stress were significant predictors. Thus, the match between mothers' and

children's higher activity levels, higher levels of perceived parenting stress, and higher levels of reported punitive parenting behaviors were the strongest predictors of mothers' ratings of their young children's externalizing behavior problems.

## CHAPTER FIVE: DISCUSSION

The results of this study suggested that it is important to examine the match between parent and young child temperament in the context of the relationships among parenting behaviors, parenting stress, and young children's behavior problems. In this study, as expected, mothers who endorse more difficult temperaments for their young children (i.e., a high activity level, a less flexible behavioral style, and a less positive quality of mood) and for themselves (i.e., a less flexible behavioral style and a less positive quality of mood) also report higher levels of parenting stress. Additionally, mothers who report using more negative (i.e., negative/inconsistent parenting and punitive parenting) and less positive (i.e., positive parenting and emotion-coaching parenting) parenting behaviors also report higher levels of parenting stress. Overall, similar to previous research (e.g., Abidin, 1995; Östberg & Hagekull, 2000), these findings suggested that mothers who perceive their young children as having difficult temperaments are more likely to perceive themselves as having higher levels of parenting stress. Further, mothers who endorse using more negative and less positive parenting behaviors are more likely to perceive themselves as having a higher level of parenting stress. Thus, having a young child with a difficult temperament and using less effective parenting behaviors may increase mothers' parenting stress.

As an addition to previous literature, these results suggested that mothers who endorse having a more difficult temperament themselves are more likely to perceive themselves as having higher levels of parenting stress. It may be the case that mothers with more difficult temperaments are less likely to have emotion regulation skills that assist them in coping with their interactions (particularly those interactions that may be difficult) with their young children. This lack of skills, in turn, may lead to an increase in parenting stress. Such a finding would be

particularly noteworthy given that parenting stress is identified as a key factor in the relationship between parenting behaviors and children's developmental, cognitive, emotional, and behavioral outcomes (Crnic & Low, 2002).

Further, as expected, mothers' easier temperament characteristics (i.e., low activity level, flexible behavioral style, and a more positive quality of mood) and their young children's easier temperament characteristics (i.e., flexible behavioral style and a more positive quality of mood) are correlated with positive parenting behaviors (i.e., positive parenting and emotion-coaching parenting). Further, as expected, mothers' more difficult temperament characteristics (i.e., less flexible behavioral style and a less positive quality of mood) and their young children's more difficult temperament characteristics (i.e., less flexible behavioral style and a less positive quality of mood) are correlated with their ratings of their own negative parenting behaviors (i.e., negative/inconsistent parenting, punitive parenting, and emotion-dismissive parenting). These findings appeared to support previous research noting that children who are categorized as temperamentally difficult are more likely to elicit negative and less responsive parenting behaviors and that children who are temperamentally easy are more likely to elicit positive and responsive parenting behaviors (e.g., Calkins et al., 2004; Webster-Stratton & Eyberg, 1982).

Also adding to the current literature, mothers' reports of their own difficult temperament contribute to the same parenting behavior patterns (i.e., less positive parenting behaviors and more negative parenting behaviors) elicited by their young children's difficult temperament. Thus, it may be that mothers who have more difficult temperaments have a more difficult time regulating their own emotions when parenting their children. Such difficulties may contribute to an increase in negative parenting behaviors and a decrease positive parenting behaviors. Contrary to expectations, however, young children's activity level is unrelated to mothers'

ratings of their use of positive and negative parenting behaviors. Such findings may suggest that mothers have the expectation that their young children will be active, resulting in children's activity level not making a contribution to mothers' parenting behaviors.

When examining the match between mother and young child temperament, this study revealed two distinct clusters of mother and young child temperament matches. These matches consisted of the *Easy Temperament* cluster, which represents mothers and young children who are both rated as having a more flexible behavioral style, a more positive quality of mood, and a lower general activity level, and the *Difficult Temperament* cluster, which represents mothers and young children who are rated as having a less flexible behavioral style, a less positive quality of mood, and a higher general activity level. In other words, mothers with more difficult temperament characteristics also had young children with more difficult temperament characteristics, whereas mothers with easier temperament characteristics also had young children with easier temperament characteristics. Thus, when examining the temperament components together, these findings may indicate that mothers with difficult temperaments are more likely to perceive their young children's temperament as being difficult. Similar to previous research regarding rating bias (e.g., Renk et al., 2007), it may be that mothers who have a difficult temperament are more likely to perceive their young children's temperament as being difficult.

When examining the relationship of the mother-child temperament match to reported parenting behaviors, as hypothesized, mothers in the easy temperament cluster report a higher level of positive parenting, a higher level of emotion-coaching parenting, and a lower level of negative/inconsistent parenting in comparison to mothers in the difficult temperament cluster. In addition, the results of this study add to the existing literature by suggesting that, when matched with young children's difficult temperament, mothers' difficult temperament may decrease the

likelihood that mothers are able to use parenting behaviors that contribute positively to the parent-child relationship. This finding may lend support to the ‘goodness of fit’ theory, which suggested that problems arising within the context of the parent-child relationship may be a result of the lack of fit between parents’ characteristics and those of their children (McClowry, Rodriguez, & Koslowitz, 2008). This lack of fit, in turn, has negative implications for the parent-child relationship (e.g., Calkins et al., 2004) as well as for young children’s emotional and behavioral outcomes (e.g., McClowry, Rodriguez, & Koslowitz, 2008).

Contrary to expectations, despite having a significant relationship to mothers’ report of using negative/inconsistent parenting behaviors, the mother-child temperament match did not have a significant effect on mothers’ report of punitive parenting behavior. This finding may be explained partly by mothers reporting a low level of punitive parenting behavior regardless of the mother-child temperament match. It also may be that punitive parenting behavior may be related more closely to a particular individual temperament component as opposed to being related to all temperament components together. Further, contrary to expectations, the mother-child temperament match was not related to mothers’ report of emotion-dismissive behavior. Given that mothers in the difficult temperament cluster are less likely to use emotion-coaching behavior, this finding may suggest that the difficult temperament match does not necessarily contribute to mothers being less aware and more dismissing of their young children’s emotions (i.e., emotion-dismissive parenting) but that it may decrease mothers’ sensitive responding to their young children’s emotions (i.e., emotion-coaching parenting). It also may be that, like punitive behavior, emotion-dismissive behavior may be related more closely to a particular individual temperament component, as opposed to being related to all temperament components together. For example, mothers in the difficult temperament clusters may lack effective

emotion-regulation skills and, thus, may not be able to communicate effective emotion regulation skills to their similarly tempered young children. These results are particularly notable given that the lack of positive parenting behaviors and the use of negative and inconsistent parenting behaviors have been shown to contribute to the development of children's emotional and behavioral problems (e.g., Bugental & Grusec, 2006; Demo & Cox, 2000; Kazdin, 1997).

In addition to parenting behaviors, when examining the overall temperament match, the match between mothers' and young children's temperament has a significant effect on mothers' report of parenting stress. Specifically, mothers in the difficult temperament cluster report a higher level of parenting stress in comparison to mothers in the easy temperament cluster. Taken together, the results of this study add to the previous literature by suggesting that the match between mothers and young children's temperament is related to increases in negative and inconsistent parenting behaviors and to decreases in positive behaviors with their young children as well as an increase the level of stress that parents experience in the context of the parent-child relationship.

Given the apparent lack of mother-child temperament mismatches, post-hoc analyses were used to examine possible mismatches within each temperament component. As with the cluster analyses, results revealed that no mother-child dyads were mismatched on all three temperament components. Conversely, when examining each temperament component individually, results revealed matched and mismatched mother-child dyads within each temperament component. These findings revealed the importance of examining each temperament component individually. Further post-hoc analyses revealed that there was a significant main effect for the flexibility/rigidity and mood quality temperament components. Conversely, there was not a significant main effect for the activity level temperament



component. Thus, when examined individually, the activity level temperament component for mother-child dyads did not have a significant effect on mothers' report of parenting behavior and mothers' report of parenting stress. Accordingly, it may be that mothers have the expectation that their young children will be active, resulting in young children's activity level not making a contribution to mothers' parenting behaviors and their experience of parenting stress.

When examining the effects of the flexibility/rigidity temperament component on mothers' report of parenting behaviors, results revealed that mothers who endorsed a more flexible behavioral style for themselves also reported higher levels of positive parenting behavior and lower levels of emotion-dismissive parenting behavior regardless of their young children's level of flexibility. Second, mothers who endorsed a more flexible behavioral style for themselves and for their young children and mothers who endorsed a less flexible behavioral style for themselves and a more flexible behavioral style for their young children also reported lower levels of negative parenting behavior when compared to mothers who endorsed a more flexible behavioral for themselves and a less flexible behavioral style for their young children and mothers who endorsed a less flexible behavioral style for themselves and for their young children.

Thus, mothers' less flexible behavioral style may contribute to mothers being less aware and more likely to dismiss their young children's emotions and decrease the likelihood that mothers use positive parenting that contributes positively to the parent-child relationship. Conversely, mothers who endorse a more flexible behavioral style are more likely to acknowledge their young children's emotions and use positive parenting regardless of their young children's level of flexibility. This finding is particularly noteworthy given that the presence of positive parenting behaviors may buffer against children's development of emotional and behavioral

problems (e.g., Bugental & Grusec, 2006; Capaldi, 1991; Demo & Cox, 2000; Kazdin, 1997). In addition, regardless of mothers' level of flexibility, mothers being paired with a less flexible young child may increase the likelihood that mothers will use negative behavior to try and manage their young children's low level of flexibility. This finding may support previous research suggesting that temperamentally difficult children are more likely to elicit negative and less responsive parenting behaviors when compared to temperamentally easy children (e.g., Calkins et al., 2004; Webster-Stratton & Eyberg, 1982).

Next, when examining the effects of the mood quality temperament component on mothers' report of parenting behaviors, results revealed that mothers who endorsed a less positive quality of mood for themselves and for their young children also reported lower levels of emotion-coaching behaviors in comparison to all other mother-child dyads. Second, mothers who endorsed a less positive quality of mood for themselves also reported higher levels of punitive parenting behavior regardless of their young children's quality of mood. These results may indicate that mothers with a less positive mood may lack effective emotion-regulation skills to effectively respond sensitively to their young children's emotions when they are paired with similarly tempered young children who have a less positive quality of mood. Further, mothers with a less positive quality of mood were more likely to use punitive parenting behavior regardless of their young children's quality of mood. This finding was particularly noteworthy given direct link between punitive parenting and young children's externalizing behavior problems (e.g., Gershoff, 2002).

In addition to parenting behaviors, the individual temperament components had a significant effect on mothers' report of parenting stress. Specifically, post-hoc analyses revealed that mothers who endorsed a less flexible behavioral style for their young children also report a

higher level of parenting stress regardless of their young children's level of flexibility. In addition, mothers who endorsed a less positive quality of mood for themselves and for their young children also reported a higher level of parenting stress in comparison to all other mother-child dyads and mothers who endorsed a more positive quality of mood for themselves and for their young children also reported less parenting stress when compared to all other mother-child dyads.

Thus, these results may indicate that mothers with more difficult temperament characteristics (i.e., less flexible behavioral styles and less positive quality of mood) who are paired with young children with more difficult temperament characteristics (i.e., less flexible behavioral styles and less positive quality of mood) experienced higher levels of parenting stress due to the difficult time that they may have in trying to regulate their own emotions when interacting with their young children. Conversely, when paired with young children with easier temperaments (i.e., more flexible behavioral styles and more positive quality of mood), mothers experienced less parenting stress regardless of their own temperamental style, as they were not faced with trying to regulate their young children's "difficult" temperament. Further, given that mothers who endorsed a less flexible behavioral style for themselves also reported using more positive and negative parenting behaviors and reported being more aware of their young children's emotions, it may be that these mothers experienced a greater level of parenting stress in relation to trying to manage their young children's "difficult" behavior. These characteristics, in turn, may have implications for young children's emotional and behavioral functioning.

This study also examined the relative contributions of the mother-child temperament match (i.e., via the easy temperament and difficult temperament clusters), mothers' report of parenting behaviors (i.e., positive parenting, negative/inconsistent parenting, and punitive

parenting), and parenting stress in predicting young children's internalizing and externalizing behavior problems. When examining mothers' ratings of young children's internalizing behavior problems, the mother-child temperament match and mothers' report of higher parenting stress are related to higher ratings of young children's internalizing behavior problems. Mothers' report of parenting behaviors is not a significant predictor of mothers' report of young children's internalizing behavior problems, however.

Further, when examined together, only mothers' ratings of parenting stress contribute significantly to the prediction of young children's internalizing behavior problems. Thus, mothers who report a higher level of parenting stress are more likely to give higher ratings of their young children's internalizing behavior problems. This finding suggested that the parenting stress experienced by mothers in the difficult temperament cluster may contribute to young children's internalizing behavior problems. Accordingly, mediational analyses were conducted to examine this relationship further. Findings revealed that parenting stress fully mediates the relationship between the mother-child temperament match and mothers' ratings of young children's internalizing behavior problems. In other words, mothers who experience a high level of parenting stress in relation to the match between their own difficult temperament and the difficult temperament of their young children also rate their young children as having more internalizing behavior problems. Thus, the stress that mothers' experience as a result of the difficult mother-child temperament match may have significant value when attempting to understand the relationship between mother and young child temperament characteristics and young children's emotional and behavioral difficulties.

Similarly, post-hoc hierarchical regression analyses were conducted to examine the relative contributions of the four mother-child dyad groups within each temperament component

(i.e., general activity level, flexibility/rigidity, and mood quality), perceived parenting behaviors (i.e., positive parenting, negative/inconsistent parenting, and punitive parenting), and parenting stress in predicting mothers' reports of their young children's internalizing behavior problems. Similar to the analysis including all temperament components together, when examined together, only mothers' ratings of parenting stress contributed significantly to the prediction of young children's internalizing behavior problems. Thus, mothers who reported a higher level of parenting stress were more likely to give higher ratings of their young children's internalizing behavior problems. As mentioned above, this finding suggested that the parenting stress experienced by mothers may contribute to young children's internalizing behavior problems.

When examining mothers' ratings of their young children's externalizing behavior problems, the mother-child temperament match, mothers' report of using punitive parenting behavior, and mothers' report of parenting stress are related to higher ratings of young children's externalizing behavior problems. Further, when examined together, mothers' report of punitive parenting and parenting stress contribute significantly to the prediction of young children's externalizing behavior problems. Thus, mothers who report a higher level of punitive parenting and a higher level of parenting stress are more likely to rate their young children more highly on externalizing behavior problems. Accordingly, mediational analyses were conducted to examine the relationship between the mother-child temperament match, parenting stress, and young children's externalizing behavior problems. Findings revealed that parenting stress fully mediates the relationship between the mother-child temperament match and mothers' ratings of their young children's externalizing behavior problems. Similar to mothers' report of young children's internalizing behavior, mothers who experience a high level of parenting stress in relation to the match between their own difficult temperament and the difficult temperament of

their young children also rate their young children as having more externalizing behavior problems. Thus, the stress that mothers' experience as a result of the difficult mother-child temperament match may have significant value when attempting to understand the relationship between mother and young child temperament characteristics and young children's emotional and behavioral difficulties.

Further, mediational analyses were conducted to examine the relationship between the mother-child temperament match, punitive parenting, and young children's externalizing behavior problems. Findings revealed that punitive parenting is not a mediator in the relationship between the mother-child temperament match and mothers' ratings of young children's externalizing behavior problems. Thus, this finding suggested that mothers' report of punitive parenting is a particularly strong predictor of mothers' ratings of young children's externalizing behavior problems despite mothers in this study endorsing low levels of punitive parenting behavior. This finding may lend support to previous research that described a direct link between punitive parenting and children's externalizing behavior problems (e.g., Gershoff, 2002). This relationship speaks to the particularly problematic effect of punitive parenting given that children who develop externalizing behavior problems during early childhood also are at heightened risk for later academic, psychiatric, and antisocial problems (Reid, 1993).

Similarly, post-hoc hierarchical regression analyses were conducted to examine the relative contributions of the four mother-child dyad groups within each temperament component (i.e., general activity level, flexibility/rigidity, and mood quality), perceived parenting behaviors (i.e., positive parenting, negative/inconsistent parenting, and punitive parenting), and parenting stress in predicting mothers' reports of their young children's externalizing behavior problems. When examining mothers' ratings of their young children's externalizing behavior problems, the

activity level temperament component, mothers' report of using punitive parenting behavior, and mothers' report of parenting stress were related to higher ratings of young children's externalizing behavior problems. In particular, the activity level temperament component, mothers' report of punitive parenting, and parenting stress contributed significantly to the prediction of young children's externalizing behavior problems. Thus, mothers who reported having a higher level of activity for themselves and for their children, a higher level of punitive parenting, and a higher level of parenting stress were more likely to rate their young children more highly on externalizing behavior problems.

Thus, these results revealed that only the activity level component contributed significantly to mothers' report of children's externalizing behavior problems. Further, similar to mothers' report of young children's internalizing behavior, mothers who experienced a high level of parenting stress also rated their young children as having more externalizing behavior problems. Further, similar to the results revealed when examining the temperament components together, this finding may lend support to previous research that described a direct link between punitive parenting and children's externalizing behavior problems (e.g., Gershoff, 2002).

Taken together, results of the hierarchical and mediational analyses regarding young children's internalizing and externalizing behavior problems are consistent with previous literature, which suggested that parenting stress is associated with children's emotional and behavioral problems (e.g., Crnic et al., 2005). Further, the results of the current study suggested that mother and young child pairs who exhibit difficult temperament characteristics are likely to have mothers who report a higher level of parenting stress. This parenting stress, in turn, is related to young children's internalizing and externalizing behavior problems. Given that research described parenting stress as being created by a discrepancy between the demands of

being a parent and the resources available to meet those demands (Abidin, 1990, 1992), it may be that mothers with more difficult temperament characteristics already have fewer resources to meet their young children's demands. Further, when paired with a young child who matches their difficult temperament, the increased level of parenting stress may contribute to mothers being unable to effectively manage their young children's emotional and behavioral difficulties. Thus, the parenting stress that mothers experience as a result of the difficult temperament match may account for the parent-child relationship factors that contribute to young children's internalizing and externalizing problems.

Overall, the results of this study lend support to the importance of 'goodness of fit' (Lerner & Lerner, 1987; Thomas & Chess, 1977) and 'harmonious parenting' (Baumrind, 1971a). Specifically, harmonious parenting refers to parents being able to successfully adapt to fit the needs of their children and thus effectively influence children's behavior (Baumrind, 1971a). Such parenting is more likely to happen when parents' characteristics 'fit' with their children's characteristics. Thus, parents with an easier temperament may be able to engage in 'harmonious parenting' more easily. In other words, they may be better able to adapt their parenting to fit the needs of their children's temperament in comparison to parents with more difficult temperament characteristics. Further, it may be a lack of 'harmonious parenting' that increases the level of stress in the parent-child relationship. As hypothesized, it may be that the contribution that parents bring into the parent-child relationship is dependent on their children's temperamental characteristics as well as their own temperament characteristics and how well these characteristics match.

The findings of this study suggested that parenting interventions should include a component addressing parents' own temperament characteristics and how these characteristics fit



with the characteristics of their young children. Such components may be particularly important when considering the effects that the temperament match may have on parenting behaviors and parenting stress. Addressing this component of the parent-child relationship in parenting interventions subsequently may increase the likelihood of parents and their young children experiencing a ‘good fit’, regardless of the temperament characteristics exhibited by parents and their young children. In particular, increasing parents’ awareness of how their temperament fits with that of their children, as well as assisting parents in their own emotion regulation skills, may serve to decrease parenting stress and increase the likelihood that parents will be able to assist their young children in utilizing their emotion-regulation skills and improving their emotional and behavioral functioning.

The results of this study should be viewed within the context of its limitations. First, as noted above, there were a number of parents who did not respond to the study announcements that were distributed to their young children’s preschool. In addition, there were several participants who viewed the study online and decided not to participate. Thus, there may be some extraneous variables that are not controlled in the current study that may be related to participants’ decision to not complete the research study. Additionally, participating parents may not be representative of the general population. Specifically, participating parents are mostly Caucasian, and their children are enrolled mostly in private daycares or preschools. Next, this study ultimately examined the reports of mothers only. Thus, the contributions that the other parents of these young children had to parent-child relationships could not be examined in this study. Lastly, this study relied solely on mothers’ self-reports, as the participants were not observed directly. As a result, it is uncertain how well the reports used in this study reflect the actual behavior of the parents and young children who were examined. Nonetheless, the small

sample of teachers' ratings provided confirmation of the validity of the ratings provided for this study.

Despite the limitations of this study, the findings reported here represent a positive contribution to the literature on the importance of parent-child temperament match, particularly when examining the relationships among the parenting stress experienced by mothers in conjunction with the match between their own temperament and that of their young children. Given the relationships that are documented among young children's temperament, parenting behaviors, and young children's behavior problems, the purpose of this study was to extend the research literature by examining the role that the mother-child temperament match plays in the relationship between parenting behaviors, parenting stress, and young children's behavior problems. This study also examined the comparative contributions made by the mother-child temperament match, parenting behaviors, and parenting stress on young children's internalizing and externalizing behavior problems.

In summary, when examining the temperament components together, the results of this study revealed two temperament clusters for mothers and their young children. Specifically, mothers' easier temperament characteristics matched with their young children's easier temperament characteristics, whereas mothers' more difficult temperament characteristics matched with their young children's more difficult temperament characteristics. Additionally, results revealed that the mother-child temperament match was related significantly to mothers' ratings of parenting behaviors and parenting stress. In particular, mothers in the difficult temperament cluster report using significantly less positive parenting behavior and emotion-coaching behavior, using significantly more negative/ inconsistent parenting behavior, and having significantly higher levels of parenting stress.

Additionally, results revealed that, when examined together, only mothers' ratings of parenting stress contribute significantly to their ratings of their young children's internalizing behavior problems and only mothers' ratings of parenting stress and punitive parenting behavior contribute to their ratings of their young children's externalizing behavior problems. Further, results also revealed that parenting stress fully mediates the relationship between the mother-child temperament match and young children's internalizing and externalizing behavior problems. In contrast, punitive parenting is not a mediator in the relationship between the mother-child temperament match and young children's externalizing behavior problems. Overall, these results suggested that, when paired with a young child who matches their difficult temperament, the increased level of parenting stress may lessen mothers' ability to effectively manage their young children's emotional and behavioral difficulties. Thus, the parenting stress that mothers experience as a result of the difficult temperament match may account for the parent-child relationship factors that contribute to young children's internalizing and externalizing behavior problems.

Further, the post-hoc analyses identified the individual contributions that each temperament dimension had in mothers' report of parenting behaviors, parenting stress, and children's externalizing and internalizing behavior problems. When examining the temperament components individually, the results of this study revealed four temperament groups for mothers and their young children, including mothers and children with easy temperament characteristics, mothers with difficult temperament characteristics and children with easy temperament characteristics, mothers with easy temperament characteristics and children with difficult temperament characteristics, and mothers and children with difficult temperament characteristics. These results revealed that the mother-child temperament groups within the

flexibility/rigidity and mood quality temperament components were related significantly to mothers' ratings of parenting behaviors and parenting stress. Additionally, results revealed that only mothers' ratings of parenting stress contribute significantly to their ratings of their young children's internalizing behavior problems, whereas higher level of mother and child activity levels, a higher level of punitive parenting, and a higher level of parenting stress contributed to mothers' ratings of their young children's externalizing behavior problems.

Taken together, the results of this study suggested further that the mother-child temperament match has important implications for the way in which parents perceive and respond to their young children's behavior. By identifying the potential links among these variables, this study contributed to our understanding of the role that the mother-child temperament match plays in the context of the mother-child relationship as well as the potential variables that are related most closely to maladaptive parenting behaviors and parenting stress. Future research would benefit from studying the directionality of the relationships found among the variables in this study as well as examining a more diverse population. As noted above, interventions would benefit from targeting parents' own temperament characteristics and how these characteristics fit with the characteristics of parents' young children as well as addressing the role that this match plays in predicting parenting stress and young children's emotional and behavioral problems.

## APPENDIX A: TABLES

Table 1. Means and Standard Deviations of Mothers' Ratings

Variables (Range)	<i>M</i>	<i>SD</i>
<i>Temperament</i>		
Child Activity Level (7-28)	19.63	4.62
Child Flexibility (5-20)	14.88	3.52
Child Mood (7-28)	26.20	3.02
Parent Activity Level (7-28)	15.85	4.26
Parent Flexibility (5-20)	14.25	3.53
Parent Mood (7-28)	23.53	3.58
Activity Importance (7-21)	14.28	3.43
Flexibility Importance (5-15)	10.63	2.45
Mood Importance (7-21)	19.30	3.77
<i>Parenting</i>		
Positive (5-70)	51.37	6.32
Negative/Inconsistent (5-35)	14.51	4.49
Punitive (5-25)	8.95	2.73
Emotion-Coaching (5-35)	26.26	3.49
Emotion-Dismissive (5-35)	18.25	4.13
<i>Parenting Stress</i>		
Stress (36-180)	72.92	19.24
<i>Child Behavior Problems</i>		
Internalizing Behavior Problems	48.72	12.09
Externalizing Behavior Problems	47.01	10.84
<i>Social Desirability Scale</i>		
Social Desirability (0-33)	18.38	5.69

Table 2 *Correlations Among Mothers' Ratings of Temperament, Parenting Behavior, Parenting Stress, and Young Child Behavior Problems*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Child Activity Level	-												
2. Child Flexibility	-.27**	-											
3. Child Mood	-.01	.37**	-										
4. Parent Activity Level	.42**	-.10	-.12	-									
5. Parent Flexibility	-.12	.48**	.23*	-.25**	-								
6. Parent Mood	-.01	.24*	.41**	-.06	.48**	-							
7. Activity Importance	.07	-.04	.18	-.03	.08	.14	-						
8. Flexibility Importance	-.08	-.07	.14	-.05	.15	.15	.70**	-					
9. Mood Importance	-.08	.10	.43**	-.07	.06	.34**	.56**	.61**	-				
10. Negative Parenting	.14	-.31**	-.35**	.18	-.35**	-.36**	.04	-.11	-.11	-			
11. Punitive Parenting	.10	-.22*	-.44**	.14	-.19	-.42**	-.03	-.17	-.22*	.44**	-		
12. Positive Parenting	-.17	.29**	.43**	-.16	.32**	.36**	.18	.18	.27**	-.31**	-.42**	-	
13. Emotion-Coaching	-.02	.09	.31**	-.22*	.06	.28**	.22*	.11	.28**	-.11	-.34**	.21*	-
14. Emotion-Dismissive	-.01	-.08	.03	-.08	-.24*	-.03	-.15	-.14	-.03	-.17	-.09	-.11	-.06
15. Parenting Stress	.20*	-.51**	-.57**	.16	-.43**	-.53**	-.08	-.09	-.25**	.61**	.52**	-.44**	-.21*
16. Child Internalizing	.25**	-.43**	-.40**	.22*	-.31**	-.30**	-.07	-.02	-.10	.35**	.35**	-.32**	-.18
17. Child Externalizing	.56**	-.35**	-.23*	.24*	-.22*	-.19*	.04	-.06	-.10	.37**	.44**	-.31**	-.16
18. Social Desirability	-.16	.26**	.19	-.21*	.41**	.24*	-.07	.07	-.03	-.28**	-.32**	.32**	-.03

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

Table 2 *Correlations Among Mothers' Ratings of Temperament, Parenting Behavior, Parenting Stress, and Young Child Behavior Problems*

Variables	14	15	16	17	18
1. Child Activity Level					
2. Child Flexibility					
3. Child Mood					
4. Parent Activity Level					
5. Parent Flexibility					
6. Parent Mood					
7. Activity Importance					
8. Flexibility Importance					
9. Mood Importance					
10. Negative Parenting					
11. Punitive Parenting					
12. Positive Parenting					
13. Emotion-Coaching					
14. Emotion-Dismissive	-				
15. Parenting Stress	-.10	-			
16. Child Internalizing	-.04	.61**	-		
17. Child Externalizing	-.09	.57**	.69**	-	
18. Social Desirability	-.03	-.45**	-.35**	-.33**	-

Note. \*  $p < .05$  \*\*  $p < .0$



Table 3. Hierarchical Regression Analyses

Variables	B	SE B	$\beta$
<b>Externalizing Behavior Problems</b>			
<i>Mothers' Ratings</i>			
Block 1. $F(1, 108) = 20.01, p < .001, r^2 = .15$			
Cluster	8.5	1.9	.41***
Block 2. $F(6, 103) = 7.04, p < .001, r^2 = .25$			
Cluster	5.55	2.10	.26**
Positive Parenting	-.07	.17	-.04
Negative Parenting	.28	.24	.12
Punitive Parenting	1.21	.41	.30**
Block 3. $F(7, 102) = 8.78, p < .001, r^2 = .33$			
Cluster	3.52	2.05	.16
Positive Parenting	.04	.16	.02
Negative Parenting	-.11	.25	-.04
Punitive Parenting	.84	.41	.21*
Parenting Stress	.24	.06	.42***
<b>Internalizing Behavior Problems</b>			
<i>Mothers' Ratings</i>			
Block 1. $F(1, 108) = 17.67, p < .001, r^2 = .13$			
Cluster	9.03	2.15	.38***
Block 2. $F(6, 103) = 5.20, p < .001, r^2 = .19$			
Cluster	5.21	2.44	.22*
Positive Parenting	-.21	.21	-.11
Negative Parenting	.41	.28	.15
Punitive Parenting	.70	.48	.16
Block 3. $F(7, 102) = 9.15, p < .001, r^2 = .34$			
Cluster	2.17	2.23	.09
Positive Parenting	-.06	.18	-.03
Negative Parenting	-.15	.28	-.05
Punitive Parenting	.15	.44	.03
Parenting Stress	.34	.07	.56***

Note. \*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Table 4. *Mediational Regression Analyses for Mothers' Ratings*

<b>Regression/Variables</b>	<b>Beta</b>	<b>t</b>	<b>p</b>
<i>Mediator: Parenting Stress</i>			
Temperament Match and Parenting Stress: $F(1, 108) = 17.67, p < .001, r^2 = .13$			
Temperament Match	.38	4.20	.001
Temperament Match, Parenting Stress, and Internalizing Behavior: $F(2, 108) = 32.93, p < .001, r^2 = .37$			
Temperament Match	.09	1.11	.27
Parenting Stress	.56	6.45	.001
<b>Regression/Variables</b>	<b>Beta</b>	<b>t</b>	<b>p</b>
<i>Mediator: Parenting Stress</i>			
Temperament Match and Parenting Stress: $F(1, 109) = 34.71, p < .001, r^2 = .24$			
Temperament Match	.49	5.89	.001
Temperament Match, Parenting Stress, and Externalizing Behavior: $F(2, 109) = 28.29, p < .001, r^2 = .35$			
Temperament Match	.15	1.65	.10
Parenting Stress	.50	5.57	.001
<b>Regression/Variables</b>	<b>Beta</b>	<b>t</b>	<b>p</b>
<i>Mediator: Punitive Parenting</i>			
Temperament Match and Punitive Parenting: $F(1, 109) = 60.98, p = .04, r^2 = .08$			
Temperament Match	.27	2.97	.004
Temperament Match, Punitive Parenting, and Externalizing Behavior: $F(2, 109) = 20.23, p < .001, r^2 = .27$			
Temperament Match	.36	4.12	.001
Punitive Parenting	.29	3.47	.001

Table 5. *Post-hoc Hierarchical Regression Analyses*

Variables	<i>B</i>	SE <i>B</i>	$\beta$
<b>Externalizing Behavior Problems</b>			
<i>Mothers' Ratings</i>			
Block 1. $F(3, 109) = 12.78, p < .001, r^2 = .24$			
Activity	3.4	.70	.42***
Flexibility/Rigidity	1.1	.71	.14
Mood	1.1	.77	.13
Block 2. $F(6, 109) = 10.81, p < .001, r^2 = .35$			
Activity	3.1	.66	.38***
Flexibility/Rigidity	.59	.70	.08
Mood	.08	.75	.01
Positive Parenting	-.06	.16	-.04
Negative Parenting	.25	.22	.10
Punitive Parenting	1.23	.37	.31**
Block 3. $F(7, 109) = 13.90, p < .001, r^2 = .45$			
Activity	2.91	.61	.36***
Flexibility/Rigidity	-.14	.67	-.02
Mood	-1.34	.76	-.16
Positive Parenting	.01	.14	.01
Negative Parenting	-.17	.22	-.07
Punitive Parenting	.85	.35	.21*
Parenting Stress	.29	.06	.52***
<b>Internalizing Behavior Problems</b>			
<i>Mothers' Ratings</i>			
Block 1. $F(3, 109) = 9.72, p < .001, r^2 = .19$			
Activity	1.90	.81	.21*
Flexibility/Rigidity	1.67	.82	.19*
Mood	2.46	.88	.26*
Block 2. $F(6, 109) = 6.53, p < .05, r^2 = .23$			
Activity	1.57	.80	.17
Flexibility/Rigidity	1.09	.85	.13
Mood	1.66	.91	.17
Positive Parenting	-.16	.19	-.08
Negative Parenting	.33	.27	.12
Punitive Parenting	.67	.45	.15
Block 3. $F(7, 109) = 9.68, p < .001, r^2 = .36$			

Table 5. *Post-hoc Hierarchical Regression Analyses*

Variables	<i>B</i>	<i>SE B</i>	$\beta$
Activity	1.34	.74	.15
Flexibility/Rigidity	.18	.80	.02
Mood	-.09	.91	-.01
Positive Parenting	-.07	.17	-.04
Negative Parenting	-.18	.27	-.07
Punitive Parenting	.20	.42	.05
Parenting Stress	.36	.08	.60***

*Note.* \*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

## APPENDIX B: IRB APPROVAL FORM



University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

## Approval of Exempt Human Research

From: **UCF Institutional Review Board #1  
FWA00000351, IRB00001138**

To: **Melissa Middleton**

Date: **October 13, 2010**

Dear Researcher:

On 10/13/2010, the IRB approved the following minor modification to human participant research that is exempt from regulation:

Type of Review: Exempt Determination  
Modification Type: Revised consent document and recruiting flyer approved for use;  
changed from \$5.00 to \$10 gift card for participants.  
Project Title: Match Between Parent and Child Temperament: Implications for  
Parenting Behaviors and Children's Behavior Problems  
Investigator: Melissa Middleton  
IRB Number: SBE-10-06865  
Funding Agency:  
Grant Title:  
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Joseph Bielitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 10/13/2010 02:34:23 PM EDT

A handwritten signature in black ink that reads "Joanne Muratori".

IRB Coordinator

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