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MEDIATING EFFECTS OF PARENTS' ATTRIBUTIONS IN THE RELATIONSHIP  
BETWEEN CHILDREN'S TEMPERAMENT AND PARENTING STRESS

by

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

To examine the relationships among children's temperament, parents' attributions, parenting stress, and children's behavior problems, the current study investigates the responses of parents who are raising children between the ages of 3- and 6-years. Each parent completed the *Dimensions of Temperament Scale-Revised for Children* (Windle & Learner, 1986), the *Parenting Locus of Control Scale – Short Form* (Rayfield, Eyberg, Boggs, & Roberts, 1995a), the *Parent Attribution Test* (Bugental, 1998), the *Child Trait Rating Scale* (Sacco, Johnson, & Tenzer, 1993), the *Parenting Stress Index-Short Form* (Abidin, 1995), and the *Child Behavior Checklist* (Achenbach & Rescorla, 2000, 2001). Using correlational and regression analyses, results of this study suggest that difficult child temperament is related positively and significantly to an external locus of parental control, less positive child trait attributions, and higher levels of parenting stress, whereas easier child temperament is related to an internal locus of parental control, more positive child trait attributions, and lower levels of parenting stress. Although different patterns of findings occur for mothers and fathers, regression results indicate generally that parents' attributions mediate the relationship between children's temperament and parenting stress. Such findings suggest that interventions would benefit from targeting parents' attributions of their children as well as the relationships among parents' attributions, parenting stress, other parenting characteristics, and children's behavior problems.

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## CHAPTER ONE: INTRODUCTION

An extensive body of research is dedicated to the comparative contributions made by parents and children to the parent-child relationship as well as to children's emotional and behavioral outcomes (Calkins, Hungerford, & Dedmon, 2004). In this body of work, parents' attributions have important implications for the way in which parents perceive and respond to their children's behavior (e.g., Bugental, Blue, & Cruzcosa, 1989). In particular, parents' dysfunctional attributions are related to more problematic parental discipline practices (Dix & Grusec, 1985), harsh/aggressive parental reactions (Bugental et al., 1989), and children's experience of emotional and behavioral problems (Bugental & Shennum, 1984). Attributions, however, can be defined and measured differentially. The use of such differential definitions and measures suggests that there is a need for further examination of the role that attributions play in the context of the parent-child relationship. Other parenting variables, such as parenting stress, also are related to parent-child interactions. For example, a number of empirical studies suggest that high parenting stress is related to problematic functioning for parents and their children, including harsh reactive parenting (Deater-Deckard, 2005), maladaptive parental perceptions (Johnston, 1996), and children's behavior problems (Forehand, Lautenschlager, Faust, & Graziano, 1996). Few studies, however, examine parenting stress in conjunction with parents' attributions to predict outcomes for children, suggesting a need for the examination of the relationships among these variables.

In addition to examining parental variables, there is now an increased interest in children's contributions to their own behavioral outcomes and to the quality of the parent-child relationship (Webster-Stratton & Eyberg, 1982). Specifically, children's temperament is



connected both directly and indirectly to parents' behavior as well as to children's behavior outcomes (e.g., Calkins et al., 2004; Rubin, Burgess, Dwyer, & Hastings, 2003). Given the relationships that are documented among children's temperament, parents' attributions, and children's behavior problems, this study seeks to extend the research literature by examining the mediational role that parents' attributions play in the relationship between children's temperament and parenting stress. The following sections will give an overview of the relevant literature regarding children's temperament, parents' attributions, parenting stress, and children's internalizing and externalizing behavior problems as they relate to the parent-child relationship.

## CHAPTER TWO: LITERATURE REVIEW

### *Children's Temperament*

Temperamental characteristics are biologically-based, early appearing behavioral approaches or emotional dispositions (Bates, 2001; Calkins et al., 2004; Goldsmith et al., 1987). Further, children's temperament is defined as children's individual propensities toward emotional reactivity and self-regulation, with temperament being conceptualized as an innate and stable characteristic (Bates, Maslin, & Frankel, 1985). Given these definitions and the findings of previous research, differences in children's temperament are related to the ways in which children react to others and, in turn, to the ways in which others react to the children themselves (Bates et al., 1985; Bowlby, 1982; Shaw et al., 1998; Van den Boom & Hoeksma, 1994). Consequently, children with difficult temperaments, as opposed to those with easy temperaments, are more likely to behave and respond adversely to others, in addition to having others respond more negatively to them (Billman & McDevitt, 1980; Webster-Stratton & Eyberg, 1982). Thus, the characteristics of children's temperament are an important context for understanding the interactions that transpire between parents and their children.

Based on the findings of previous research, children's temperament often is discussed in terms of two main categories: difficult temperament and easy temperament. Temperamentally difficult children are highly active, rigid, unaffectionate, and aversive (Billman & McDevitt, 1980). Additionally, children who are categorized as having a difficult temperament display several distinctive behavioral characteristics. For example, temperamentally difficult children are more likely to be irritable, impulsive, and aggressive (Bates, Dodge, Pettit, & Ridge, 1998). Conversely, children who have easy temperaments are described as flexible (i.e., easy-going),

positive, and affectionate (Billman & McDevitt, 1980). Although the characteristics of children's temperament may be of some importance in and of itself, children's temperament in conjunction with the behaviors that are exhibited by parents also is of importance.

In fact, the match between children's temperament and their parents' behaviors plays a significant role in the development of self-regulation (Thomas & Chess, 1977). Bowlby (1982) states that infants who have easy temperaments are more likely to have mothers who develop positive and effective parenting behaviors; however, infants who have difficult temperaments are more likely to have mothers who develop negative or unfavorable parenting behaviors. Bowlby (1969) further suggests that children develop internal working models based on their early relationships with their primary caregivers. These internal working models are influential in children's relationships, attitudes, and interpersonal perceptions throughout life (Bowlby, 1969). In particular, 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, Blehar, Waters, & Wall, 1978; Bowlby, 1969). Unfortunately, research shows that children who have difficult temperaments are less likely to receive such positive and appropriate caregiving (Bowlby, 1982; Van den Boom & Hoeksma, 1994). Thus, these patterns for the parent-child relationship suggest that children's temperament plays a part in parents' attitudes and behaviors toward parenting their children.

The goodness of fit between children and their caregivers also may lend itself to the developing attachment between children and their caregivers. Caregivers 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). When goodness of fit is not achieved, Van den Boom and Hoeksma (1994) suggest that mothers are less likely to engage in physical contact with children who are innately difficult. Further, Van den Boom and Hoeksma (1994) report that mothers of infants who are temperamentally difficult display fewer positive vocalizations and less affectionate physical contact when compared to mothers of infants who are temperamentally easy. Additionally, when the mothers of infants who are temperamentally difficult do interact with their children, these interactions are based on trying to relieve the infants' distress. Interestingly, when these children who are temperamentally difficult are not distressed, their mothers are generally less responsive to them (Van den Boom & Hoeksma, 1994). Thus, children who are temperamentally difficult may be at risk for negative interactions with their parents.

Given these findings, several studies examine the relationship between children's temperamental characteristics and maternal parenting behavior (Billman & McDevitt, 1980; Calkins et al., 2004; Webster-Stratton & Eyberg, 1982). Research suggests that children who have difficult temperaments also have mothers who are more negative in affect and who hold more non-accepting attitudes toward their children (Webster-Stratton & Eyberg, 1982). In addition, these researchers suggest that these negative maternal 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 finds that children who are temperamentally difficult display significantly less positive affect when interacting with their mothers than do children who have easy temperaments (Calkins et al., 2004). Taken together, the abovementioned studies suggest 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, difficult temperamental characteristics may predict

parenting behaviors that reinforce the problems associated with difficult temperaments (Rubin et al., 2003).

Thus, the combination of children's temperament, children's environment, and their parents' parenting styles appear to act together in predicting children's behavior outcomes (Zucker et al., 2000). In fact, research finds that there is a direct link between children's temperament and their experience of behavior problems (Mun, Fitzgerald, Von Eye, Puttler, & Zucker, 2001). In a study conducted by Tschann, Kaiser, Chesney, Alkon, and Boyce (1996), research findings suggest that 2- to 5-year-old children who have difficult temperaments have significantly higher instances of internalizing and externalizing behavior problems when rated by their teachers relative to children who have easy temperaments. Additionally, in a study on mothers and their 3- to 5-year old children, Webster-Stratton and Eyberg (1982) suggest that, out of all children, the children who have difficult temperaments present with the highest level of behavior problems. Specifically, children who have difficult temperaments are both highly aggressive and highly noncompliant. Such behaviors may be related further to the interactions that transpire between children and their parents.

Thus, overall, children who have easy temperaments seem to contribute more positively to parent-child interactions, whereas children who have difficult temperaments seem to make a negative contribution to parent-child interactions (Billman & McDevitt, 1980). It should be remembered, however, that it is not only the children, but also their parents, who contribute to parent-child interactions. For example, research shows 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). Thus, it may be that parents'

contribution to the parent-child relationship is dependent on both the children's temperamental characteristics as well as their own characteristics. Given these potential relationships, it is important to examine the relationships among children's temperament and parental cognitions and behaviors further. Accordingly, the present study aims to examine how children's temperament, in conjunction with parents' specific attributions, is related to parenting stress and children's behavior problems.

### *Parents' Attributions of Children's Behavior*

At the most basic level, attributions refer to individuals' beliefs about the causation of events or behaviors as well as why these events or behaviors happen in the way that they do (Fiske & Taylor, 1984). In general, much of the empirical research regarding attributions deals with how individuals perceive and evaluate their environment in order to come up with explanations for events and behaviors (Fiske & Taylor, 1984; Miller, 1995). How someone interacts with another individual is likely to be the result of the attributions that they apply to that individual in addition to the affect that they associate with those attributions (Bugental, 1992). Fiske and Taylor (1984) state that attributions are vital to the field of psychology because they are believed to be the precursors for future judgments, responses, and behaviors. Attributions also are a vital part of familial interactions and relationships (Miller, 1995). Thus, attributions may be important predictors of parenting stress and parents' ratings of their children's behavior problems.

In fact, studies show that, with regard to parent-child interactions, the attributions that parents make regarding their children's behavior are related subsequently to their own behavior toward their children (Bugental et al., 1989). Research indicates that parents who make positive

attributions regarding their children's behavior are more likely to successfully help their children overcome problems and to contribute to positive developmental outcomes for their children (Gretarsson & Gelfand, 1988). Conversely, parents who make negative attributions regarding their children's behavior are more likely to exhibit negative affect and stronger behavioral responses toward their children (Miller, 1995). Further, parents' negative attribution biases are connected to coercive parenting, authoritarian interactions, and physical punishment (Bradley & Peters, 1991; Bugental et al., 1989). Thus, the cognitions that parents develop regarding their children appear to be related to their behavior toward their children and, subsequently, to the ways in which their children develop.

In an article reviewing the determinants and effects of parents' attributions, Miller (1995) states that there are three overlapping categories of parents' attributions. The first category consists of the immediate reasons for children's behavior. This category consists of explanations such as personality traits, effort, and ability. The second category refers to long-term explanations for children's behavior, such as how much of a role that parents play as opposed to how much of a role children's genes play in shaping their development. The third category of parents' attributions has three separate dimensions. The three general dimensions that Weiner (1985, 1986) describes for this third category include locus of control, stability, and controllability. Thus, research defines and measures parents' attributions differentially depending on which of these three attribution categories that a specific study is examining. One main goal of the present study is to examine the differential roles that the attribution dimensions of locus of control and controllability over parent-child interactions have in the relationship among children's temperament, parenting stress, and children's behavior problems. For the purposes of this study, parents' attributions regarding children's personality traits also will be

examined as opposed to parents' attributions of stability. Therefore, each of these three attribution dimensions will be discussed subsequently.

According to attribution theory, the locus of causality for a behavior is attributed to the individual, the environment, or a combination of both (Heider, 1958). Rotter's (1966) work pertaining to locus of control influences significantly attribution theory (Fiske & Taylor, 1984). The theory of locus of control suggests that stable individual differences among perceivers influence their individual perceptions and subsequent attributions (Rotter, 1966). Rotter states that individuals who have an internal locus of control attribute reinforcing events to their own ability or to things under their control. Conversely, those who have an external locus of control attribute reinforcing events or behaviors to factors outside of their control or ability (Rotter, 1966). Thus, locus of control can be viewed as each individual's way of interpreting achievements, failures, behaviors, and other events related to these things.

When applying locus of control to parent-child interactions, parents' beliefs regarding their own general abilities are related to the way in which they view their parenting abilities as well as their children's behaviors (Bugental & Shennum, 1984; Miller, 1995). For example, parents with an external locus of control display less effective parenting skills when compared to parents with an internal locus of control (Bugental & Shennum, 1984; Loeb, 1975). Parents who have an external locus of control also are more likely to use a commanding or authoritarian parenting style in order to control negative child behavior (Loeb, 1975). In contrast, parents who have an internal locus of control are more likely to use effective, authoritative parenting skills when confronted with their children's uncontrollable, negative behavior (Bugental, Caporalet, & Shennum, 1980).



Locus of control also is related to the differential ways in which parents communicate assertiveness toward unresponsive versus responsive children (Bugental et al., 1980). Using Levenson's (1974) Locus of Control Scale, Bugental and colleagues (1980) report that, when interacting with responsive children, adults with an internal locus of control and those with an external locus of control act no differently from one another. Both sound more assertive when expressing verbal affect (e.g., "You're good at this") than when making a neutral statement (e.g., "It appears to be a car of some kind"). When interacting with unresponsive children, however, adults with an internal locus of control versus those with an external locus of control act significantly different from one another. Although adults with an internal locus of control behave the same way to both responsive and unresponsive children, adults with an external locus of control behave differently toward unresponsive children. In particular, adults with an external locus of control become more, rather than less, vocally assertive when paired with an unresponsive child. Further, voice assertion in other paired dyads is highest when adults are making evaluative statements regarding children; however, adults with an external locus of control demonstrate their highest voice assertion when making non-evaluative directions toward unresponsive children. Thus, when paired with an unresponsive child, adults with an external locus of control respond to the situation rather than to the children present (Bugental et al., 1980).

In addition to locus of control, controllability over parent-child interactions is another dimension of the general classification of parents' attributions. Controllability refers to two separate types of attributions: the power or control capability that is attributed to the parent and the power or control capability that is attributed to the child regarding successful or unsuccessful parent-child interactions. If parents attribute successful or unsuccessful parent-child interactions

to something that is under their children's control, the way in which they react will be different relative to how they would react if they believe that the interaction is not under their children's control. In addition, if parents believe that they have more power or control over these interactions, they will respond differently than if they believe their children hold more power or control (Rubin & Mills, 1990).

In particular, when parents attribute their children's behavior in parent-child interactions as being something that children should have the ability to control, any negative behavior exhibited by their children will be particularly distressing to parents (Dix & Grusec, 1985). Dix and Grusec (1985) state that, if parents believe that negative interactions are within their children's control, they are more likely to respond to that behavior. Conversely, when discussing behavior that parents attribute as being out of their children's control in parent-child interactions, Rubin and Mills (1990) suggest that parents are less likely to respond to that behavior, as parents believe that their children cannot correct the behavior, even if parents respond. In addition to child controllability, adult controllability over parent-child interactions contributes significantly to the attribution literature (e.g., Weiner, 1985). When parents attribute a greater sense of control or power to their children (i.e., relative to the power that they hold themselves) for unsuccessful parent-child interactions, parents respond in an exceptionally negative and reactive way to their children's behavior (Bugental, 1992; Bugental & Cortez, 1988). Thus, parents who perceive that they have low control or power over their children's behavior during these interactions are more likely to display harsh, negative parenting behaviors. Further, parents with a low perceived sense of power over these interactions are likely to promote and maintain coercive parent-child interactions (Bugental & Johnston, 2000; Patterson, 1982).

When studying the power or control balance in parent-child interactions, Bugental and Shennum (1984) find that mothers who believe that they have a high sense of control over their children's behavior during parent-child interactions show no differential treatment between children who are labeled as responsive versus those who are labeled as unresponsive. Thus, because these mothers possess a strong sense of their own abilities and strengths as a parent, they are less likely to be influenced by children's behavior. In addition, unresponsive children are more likely to start behaving similarly to responsive children when paired with mothers who have a high sense of power. On the other hand, mothers who possess a low sense of control with regard to their children's behavior during parent-child interactions react differentially to children based on whether they are responsive or unresponsive. Thus, when paired with unresponsive children, mothers who hold low perceptions of control over interactions are more likely to react in a way that serves to maintain children's unresponsiveness. This behavior then confirms their belief that they have low control over children's behavior during an interaction with them (Bugental & Shennum, 1984).

Bugental (1992) also describes a process that occurs when parents believe that they are in a position of power disadvantage relative to their children. Bugental believes that these parents hold 'threat-oriented schemas,' in which they immediately go into a state of alert when interacting with children due to their belief that the children hold power over them. Thus, because they believe that the children hold more power in the situation, these parents are more likely to act defensively and to interpret children's behavior negatively. Further, when the children's behavior confirms the parents' belief, Bugental and colleagues (1988) suggest that these parents then go into a 'battle-plan.' The 'battle-plan' generally consists of ineffective parenting skills that eventually escalate the physiological arousal of the parent and promote

authoritarian parenting behaviors. When the parents' strategy to gain control over the children's behavior fails, the children's behavior may escalate, thus confirming the parents' belief in the use of the threat-oriented schema (Bugental, 1992). Bugental (1992) describes these 'threat-oriented' parents as those who rate behaviors that are controllable by children but uncontrollable by parents as highly important.

In addition to examining parents' locus of control and controllability over parent-child interactions, parents' attributions regarding children's personality traits are a third attribution dimension that is examined in this study. Parental trait conceptions refer to the way in which parents perceive their children's personality characteristics (Sacco & Murray, 1997). What parents believe about the personality traits of their children is related to their expectations for their children's future behavior (Sacco & Murray, 1997). Thus, parents form attributions based on their perceptions of their children's personality traits. In addition, research shows that behavioral observations spontaneously lead to trait inferences that are stored in memory (Carlston & Scowronski, 1994). Subsequently, once formed and used, these trait representations influence future processing of children's behavior, which often leads to biased perceptions (Carlston & Scowronski, 1994). Further, once parents make negative attributions regarding their children's traits, it is more difficult to disconfirm these beliefs when compared to attributions regarding children's positive traits (Rothbart & Park, 1986). Thus, research shows that attributions may become schematic and, in turn, promote automatic influences on the perception and subsequent processing of children's behavior (Bugental, 1992). Thus, negative trait representations of children are related to interpretations of and responses to children's behaviors (Sacco & Murray, 1997). As a result, parents may be more likely to interpret their children's personality as negative, even when it is not clearly negative.

Taken together, locus of control, controllability over parent-child interactions, and trait conceptions all play crucial roles in the attributions that individuals hold. In summary, in parent-child interactions, locus of control refers to whether or not parents believe that they can influence the behavior of their children (internal locus of control) or as something that they cannot influence (external locus of control). Controllability in the context of parent-child interactions refers to whether or not parents believe that their children or they themselves have control over successful or unsuccessful parent-child interactions. Lastly, parents' attributions of children's traits refer to the way in which parents perceive their children's personality characteristics (Sacco & Murray, 1997). Overall, the literature regarding these three attribution dimensions provides a framework for the way in which parents' attributions may develop. Parents' attributions, in turn, are related significantly to the way in which parents respond to their children's behavior and, subsequently, to the way in which children respond to their parents. Seeing as though parents' attributions are related significantly to parental responses, the present study further aims to examine the way in which parents' attributions are related to parenting stress.

### *Parenting Stress*

Parenting stress is described as a particular type of stress that is perceived by parents and that is derived from the demands of being a parent (Abidin, 1990). Empirical studies link parenting stress to negative parenting practices and dysfunctional parent-child interactions (Abidin, 1992; Belsky, 1984; Ostberg & Hagekull, 2000). Abidin (1995) describes one model that is very influential in the current understanding of parenting stress and that was used subsequently to guide the construction of the Parenting Stress Index (PSI). The PSI is a widely

used clinical screening self-report measure that assesses stress in the ‘Parent Domain’ and ‘Child Domain’ as well as in general or with regard to ‘Life Stress’ (Abidin, 1995). Abidin’s (1995) model suggests that the overall stress that a parent experiences is a result of parental characteristics (e.g., parents’ sense of competence, health, depression, attachment in relationship to their children), children’s characteristics (e.g., children’s temperamental characteristics, reinforcement from their parents), and demographic life stress (e.g., divorce, bereavement).

When assessing for stress-related characteristics using the PSI, Teti, Nakagawa, Das, and Wirth (1991) report 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 a myriad of 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 et al., 1991).

Other studies also demonstrate that a variety of children’s characteristics are related to the severity of parenting stress (Hagekull & Bohlin, 1990; Morgan, Robinson, & Aldridge, 2002; Ostberg & Hagekull, 2000; Webster-Stratton & Hammond, 1988). Stressful demands on parents for the care of their children (e.g., with regard to children’s problematic feeding and sleeping, illness, and profuse crying) are related to increased levels of parenting stress (Hagekull & Dahl, 1987). These demands also are related negatively to parents’ perceptions of the parent-child relationship (Krech & Johnston, 1992). Further, Weinberg and Richardson (1981) report that parents view their children’s health problems and immediate parental demands, such as problematic sleeping, as more stressful than long-term problems, such as financial difficulties.

Thus, parenting stress is related to many characteristics of the parent-child relationship and may play a mediational role in the relationships between parental characteristics and children's characteristics.

Additionally, empirical research documents that difficult child temperament may exacerbate the severity of parenting stress (Thomas, Chess, & Birch, 1968). Webster-Stratton and Eyberg (1982) report that mothers who consider their children to have difficult temperaments are more likely to respond negatively to them, thus increasing the risk for stressful familial interactions. Further, Webster-Stratton and Hammond (1988) report that mothers of children who have difficult temperaments have high levels of stress in direct relationship to their children's temperament. Ostberg and Hagekull (2000) also report that difficult child temperament serves as the most consistent predictor of parenting stress. Thus, temperamental characteristics are shown to either buffer against or increase parenting stress (Thomas et al., 1968).

Whether parenting stress occurs as a result of a stressful life event or from daily parenting hassles predicts the degree to which stress negatively influences parent-child dyads (Deater-Deckard, 2005; Noppe, Noppe, & Hughes, 1989; Ostberg & Hagekull, 2000; Weinberg & Richardson, 1981). Although both stressful life events and daily parenting stressors are related negatively to parent-child interactions, daily parenting stressors appear to be related to more detrimental effects (Crnic & Greenberg, 1990; Ostberg & Hagekull, 2000; Weinberg & Richardson, 1981). For example, Crnic and Greenberg (1990) report that, when compared to stressful life events, daily stressors are associated more closely with mothers' extreme negative perceptions of and negative interactions with their children. Further, Weinberg and Richardson (1981) state that daily stressors are associated more closely with the negative effects of parenting

stress because immediate stressors require parents to address the stressor immediately; therefore, the parent has less time to use coping resources and strategies.

Further, there are several parental characteristics that make certain parents more susceptible to the negative effects of parenting stress. Some of these characteristics originate from individual characteristics, such as adaptability, sense of competency, psychological status, and coping skills (Deater-Deckard, 2005; Morgan et al., 2002). First, adaptability and having a high sense of competency as a parent are two central characteristics that are predictors of appropriately responding to, and coping with, parent-child interactions (Bates, Freeland, & Lounsbury, 1979; Noppe et al., 1989). Further, parents' psychological health is related to the way in which parents experience stress. Coyl, Roggman, and Newland (2002) report that stress is related significantly to maternal depression and suggest that parents who experience psychological distress are less likely to successfully handle parenting demands.

In addition to the aforementioned variables, successful coping skills are related to the manner in which parents handle parenting stress (Deater-Deckard, 2005). It is suggested that mothers' who are stressed significantly are less likely to effectively cope with and handle their children's behavior (Coyle et al., 2002). If the parent is faced with daily parenting hassles, or stressors, having unsuccessful coping skills will increase the parents' proneness to stress. This proneness to stress will, in turn, build up with each daily stressor (Crnic, Gaze, & Hoffman, 2005; Deater-Deckard, 2005; Warfield, 2005). Thus, fluctuating daily stress can build into chronic stress, which is more likely to have negative consequences for parent-child interactions (Deater-Deckard, 2005). Abidin (1995) suggests that, in addition to parents' ability to successfully cope with daily parenting stressors, it also is important for parents to have the ability to successfully cope with life events outside of the parent-child relationship. If parents are



unable to successfully cope with stressful life events outside of their parenting role, these events are likely to exhaust the parents' available coping resources for parent-child interactions (Abidin, 1995).

Stress also appears to be related negatively to parenting practices. Empirical studies suggest that there is a relationship between high levels of parenting stress and problematic parental functioning, including negative parent-child interactions (Creasey & Jarvis, 1994; Forehand et al., 1986; Ostberg & Hagekull, 2000; Robson, 1997). Research suggests that parenting stress not only increases the likelihood of negative parent-child interactions but also increases the likelihood that parents will use physical punishment (Coyle et al., 2002). Further, Mash, Johnston, and Kovitz (1983) report that mothers who are physically abusive have increased levels of parenting stress when compared to mothers who are not physically abusive. Moreover, chronic parenting stress manifests itself through parental hostility and also is a major contributor to parents' inability to respond sensitively to their children's needs (Dix, 1991). Thus, overall, parenting stress acts as a precursor for harsh parenting practices (Deater-Deckard, 2005).

Spencer and McLloyd (1990) also suggest that it is not parenting stress that directly leads to negative parenting practices. Instead, it is other factors that act as mediators in this relationship. For example, Johnston (1996) states that parental perceptions of the parent-child relationship act as a mediator between parenting stress and negative parenting practices. In particular, the way in which parents view their interactions with their children is associated with parenting stress (Bugental & Shennum, 1984; Deater-Deckard, 2005; Morgan et al., 2002; Noppe et al., 1989; Ostberg & Hagekull, 2000). Krech and Johnston (1992) report that mothers perceive their children as more problematic during times in which they experience stress.

Morgan and colleagues (2002) also suggest that, as parenting stress rises, perceptions of children decrease in accuracy. Further, Fischer (1990) suggests that it may be parents' attention to the negative aspects of their children's behavior (Jouriles, Murphy, & O'Leary, 1989), an increase in making negative attributions about children's behavior (Patterson, 1982), and parents being more susceptible to children's negative behavior (Lahey, Conger, Atkeson, & Treiber, 1984) that mediate the relationship between parenting stress and negative parenting practices. Thus, there is likely to be a complex relationship between parenting stress and negative parenting practices. Further, although stress is associated with a decrease in accuracy in parents' attributions, less is known about the specific relationship between parents' maladaptive attributions and parenting stress. An examination of this relationship will add to the existing literature regarding the precursors for children's behavior problems.

#### *Children's Internalizing and Externalizing Behavior Problems*

Although children's temperament, parents' attributions, and parenting stress all are associated with varying levels of children's behavior problems, few studies examine these variables collectively in the prediction of children's behavior problems. Thus, the current study aims to examine the differential relationships that these variables have with children's internalizing and externalizing behavior problems. Children's externalizing behavior problems are defined as a variety of child symptoms that are particularly distressing to others (Achenbach, 1991). As a result, children's externalizing behavior problems are the most common cause of clinic referral among children and the most commonly cited mental health concern among parents in the general population (Anderson, Williams, McGee, & Silva, 1987). Children that are perceived as having externalizing behavior problems are characterized by symptoms such as

marked noncompliance, frequent aggression, temper tantrums, impulsivity, hyperactivity, and poor frustration tolerance (Campbell, Shaw, & Gilliom, 2000). Conversely, children's internalizing behavior problems are characterized by withdrawal, depression, inhibition, and anxiety (Eisenberg et al., 2001). Further, internalizing behavior problems are directed typically at oneself as opposed to directly at others (Roeser, Eccles, & Strobel, 1998). Perhaps most distressing is that both internalizing and externalizing behavior problems are relatively stable from early childhood into the later years of development (e.g., Denham et al., 2000; Shaw et al., 1998). For example, as many as 60% of 3-year olds with serious behavior problems will continue to exhibit these behaviors throughout childhood (Campbell et al., 2000).

With regard to externalizing behavior problems, there appears to be several risk factors that can promote the occurrence of externalizing behavior problems in children. In particular, the continuity of 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). Moreover, experiencing externalizing behavior problems during early childhood has serious consequences. For example, children who develop externalizing behavior problems during early childhood are at heightened risk for later academic, psychiatric, and antisocial problems (Reid, 1993). Additionally, continuity of internalizing behavior problems is greater among children who experience an earlier onset of symptoms, who experience an adverse home environment, and who have a more difficult temperament (Leve, Kim, & Pears, 2005). Further, research suggests that internalizing behavior problems are moderately stable across childhood with increases being typical in adolescence (e.g., see Twenge & Nolen-Hoeksema, 2002). Therefore, identifying the

precursors for internalizing and externalizing behavior problems during early childhood improves the chances for successful interventions to be utilized.

Further, research shows that there is evidence to support the importance of children's individual contributions to the development of internalizing and externalizing behavior problems beginning as early as infancy (Thomas et al., 1968). Difficult temperament is associated with internalizing and externalizing behavior problems throughout early childhood (Thomas et al., 1968). Moreover, Tschann and colleagues (1996) report that, once toddlers who have difficult temperaments reach school age, teachers rate these children as having higher instances of internalizing and externalizing behavior problems. Tschann and colleagues (1996) additionally indicate that children who have difficult temperaments display the most externalizing behavior problems, regardless of whether or not their families are categorized as being high in conflict. Thus, children's difficult temperament has a direct link to children's internalizing and externalizing behavior problems.

Many of the symptoms of internalizing and externalizing behavior problems involve emotions (Roeser et al., 1998; Rubin et al., 2003). This connection suggests that difficulty in the self-regulation of emotions may be an important contributor to early internalizing and externalizing behavior problems. Seeing as though children's temperament encompasses various forms of reactivity and self-regulation, research suggests that children who have difficult temperaments are less successful at self-regulating emotions and are thus more likely to display behavior problems as well. Conversely, children who have easy temperaments are better able to regulate their emotions and to inhibit behavior problems (Rubin et al., 2003). Therefore, children's difficult temperament may be related directly to their ability to regulate their

emotions. Subsequently, this difficulty may be related to the level of behavior problems that children experience. This relationship deserves further study.

Empirical research shows that only a subset of children who have difficult temperaments display long-term internalizing and externalizing behavior problems, however (Aunola & Nurmi, 2005; Denham et al., 2000). Thus, it is important to consider parental contributions to children's behavior problems. During infancy and early childhood, children develop emotion regulation skills in order to effectively deal with developmental challenges (Calkins & Johnson, 1998). The development of successful emotion regulation skills largely depends on parents' sensitivity and responsiveness to their children's physical and emotional needs (Calkins & Johnson, 1998). As children begin to gain independence in toddlerhood, self-regulatory skills become increasingly important (Calkins & Johnson, 1998). Moreover, parents' ability to effectively deal with their own attributions regarding their children's behavior as well as their parenting stress and parenting behaviors become important issues to examine as well.

For example, parents who are experiencing increased stress may potentially have a negative influence on children's behavior (Creasey & Jarvis, 1994). Bronfenbrenner (1989) suggests that, if parents are functioning at a lower level due to high amounts of stress, this poor functioning will likely impact their children's behavior negatively. Additionally, Creasey and Jarvis (1994) suggest that parents who report higher instances of externalizing behavior problems in their children also report increased levels of parenting stress. Further, both mothers and fathers report children's externalizing behavior problems as being more stressful for them relative to children's internalizing behavior problems. Given such findings, parents' attributions regarding children's behavior problems may be an important predictor of the amount of parenting stress that parents experience.

Further, empirical studies suggest that parents' attribution tendencies are related to children's behavior outcomes (Bugental & Shennum, 1984; Nix et al., 1999). One consistent finding regarding the relationship between parents' attributions and children's behavior problems is that parents who have children with internalizing and/or externalizing behavior problems are more likely to have a negative attribution style (Rubin & Mills, 1990). Conversely, parents who have a positive, optimistic attribution style are more likely to successfully help their children overcome potential behavior problems (Rubin & Mills, 1990). Accordingly, research points to two possible ways in which parents' negative attributions and children's behavior problems are related. First, dealing with children who exhibit behavior problems may alter patterns of parents' attributions and ultimately alter the way in which parents' think and behave toward their children. For example, Strassberg (1995) reports that mothers of boys who have externalizing behavior problems make significantly more negative attributions regarding simulated ambiguous child behaviors, experience more anger regarding these behaviors, and are more hostile in their disciplinary actions. With regard to internalizing behavior problems, Rubin and Mills (1990) report that mothers of children with internalizing behavior problems are more likely to attribute these problems to a trait within the child than are mothers in a nonclinical control group.

The second possibility is that parents' pre-existing negative attribution styles may lead to parenting behaviors that cultivate children's internalizing and/or externalizing behavior problems. For example, Bugental and Shennum (1984) assess mothers' attribution styles and then observe mothers interacting with unfamiliar children who are selected to display either positive or negative behavior. Based on findings from this study, mothers who have a more negative attribution style interact with children in ways that serve to maintain or increase

children's behavior problems. Conversely, mothers who have a more positive attribution style demonstrate little to no difference in the way in which they interact with children.

Parents' negative attribution tendencies also may function as a self-fulfilling prophecy (Nix et al., 1999). Thus, if parents hold negative attributions regarding their children, they may react to their children in a negative, hostile manner. This response then maintains or increases children's internalizing and/or externalizing behavior problems and ultimately fulfills the parents' self-fulfilling prophecy. Thus, parents' attributions in their parent-child interactions may explain the relationship between their children's behavior and their own behavior (Dix & Grusec, 1985). Overall, parents' attributions appear to be related to their view of their children's behavior as well as their subsequent parent-child interactions.

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. As already mentioned, parenting stress is related to parent-child interactions (Crnic & Greenberg, 1990). In particular, mothers who are stressed significantly are unable to effectively cope with and handle their children's behavior (Coyle et al., 2002). For example, in a study assessing attachment and parenting stress, researchers report that high levels of parenting stress are related to greater attachment insecurity and less maternal involvement (Teti et al., 1991). Moreover, Jarvis and Creasey (1991) indicate that parenting stress is more influential in attachment security than is child care placements (at home or daycare settings). 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 et al., 1986). These hostile, or coercive, parent-child interactions have deleterious effects on children's behavior problems

(Patterson, 1982). Given these findings, parenting stress is likely to be related to children's behavior both directly and indirectly through negative, coercive parenting practices. One of the problems faced by researchers, however, is the identification of the direction of the relationships among children's temperament, parents' attributions, parenting stress, and children's internalizing and externalizing behavior problems.

### *The Current Study*

Given that the relationship between children's temperament and children's internalizing and externalizing behavior problems is documented well (e.g., Mun et al., 2001), it seems appropriate to focus more attention on the parenting variables that may explain the relationship between children's temperament and an increased risk for children to experience later behavior problems. Previous empirical research indicates that children's temperament characteristics are related closely to parenting stress (Webster-Stratton & Hammond, 1988). Additionally, research suggests that children's temperament is related to the way in which parents perceive their children (Rubin et al., 2003). Thus, there is evidence that children's temperament is related to parents' perceptions of their children and to the level of parenting stress that they experience. Further, parents' attributions are related to both parenting behaviors and parents' discipline practices; however, the role that attributions play in the relationship between children's temperament and parenting stress still needs to be examined. Consequently, the literature in this area will benefit from examining the mediational role that parents' attributions may play in the relationship between children's temperament and parenting stress. Thus, this study aims to provide information regarding these relationships. By identifying the potential links among these variables, this study will contribute to our understanding of the precursors to children's



internalizing and externalizing behavior problems as well as the potential variables that are related most closely to parents' maladaptive attributions and behaviors.

The first purpose of the current study is to investigate the relationship among children's temperament, parents' attributions, and parenting stress. For the purposes of this study, each temperament dimension (i.e., general activity level, flexibility/rigidity, and mood quality) is examined on a continuum. Thus, each temperament dimension will have a score ranged from difficult to easy. The specific attributions that are examined include parental locus of control over child behavior, controllability over parent-child interactions, and child global personality traits. Thus, this study explores these components of parents' attributions in relationship to children's temperament (i.e., general activity level, flexibility/rigidity, and mood quality) and parenting stress. Based on the findings discussed previously, it is hypothesized that parents' attributions of locus of control (e.g., Ostberg & Hagekull, 2000; Webster-Stratton & Eyberg, 1982), parents' attributions regarding child personality traits, and parents' attributions regarding controllability over parent-child interactions will be associated negatively with parenting stress. Additionally, the inclusion of measures of the three attribution components provides the opportunity to examine the hypothesis that each of these variables also will be related significantly to children's temperament and parenting stress.

The second purpose of this study is to examine whether the relationship between children's temperament and parenting stress is mediated by parents' attributions. The significant relationships between children's temperament (i.e., general activity level, flexibility/rigidity, and mood quality), the three attribution components (i.e., locus of control, controllability over parent-child interactions, and traits), and parenting stress are examined in a mediational model. The mediational model (see *Figures 1, 2, and 3*) tests the hypothesis that the three attribution

components mediate the relationship between children's temperament (i.e., general activity level, flexibility/rigidity, and mood quality) and parenting stress.

Finally, this study also aims to investigate the differential relationships that children's temperament, parents' attributions, and parenting stress have with children's internalizing and externalizing behavior problems. On the basis of previous research, significant relationships between children's temperament and children's internalizing and externalizing behavior problems, parents' attributions and children's internalizing and externalizing behavior problems, and parenting stress and children's internalizing and externalizing behavior problems are hypothesized. Further, hierarchical regression analyses are used to determine the comparative contribution that children's temperament (i.e., general activity level, flexibility/rigidity, and mood quality), the three attribution components (i.e., locus of control, controllability over parent-child interactions, and traits), and parenting stress make in predicting children's internalizing and externalizing behavior problems.

## CHAPTER THREE: METHODOLOGY

### *Participants*

Participants in this study are parents of children who range in age from 3- to 6-years old and who have their children attending preschools in the Orlando area. There were 302 packets provided to parents who completed consent forms. Of those parents who completed consent forms, 81 mothers and 27 fathers returned completed packets of questionnaires. Of those who returned completed packets, there were 19 pairs of parents where both the mother and the father from the same family completed packets; the remainder of the sample (62 mothers and 8 fathers) consisted of parents from families where only one packet was completed. The suggested sample size for a multiple regression analysis ( $p < .05$ ) with seven independent variables (i.e., the most complex analysis proposed for this study) and a statistical power of .80 is 102 participants in order to detect a medium ( $R = .36$ ) effect size (Cohen, 1992). Although there are enough mothers and fathers collectively to insure sufficient power for the analyses proposed for this study, analyses for mothers and fathers are conducted separately due to the importance of examining the unique relationships of mothers' and fathers' variables (Phares, 1996).

Mother participants in this study range in age from 18- to 48-years ( $M = 32$ -years,  $SD = 6.6$ -years). The majority of mothers in this study are Caucasian (70.4%). The remainder of this sample of mothers is ethnically diverse, with the remainder of mothers reporting that they are African American (9.9%), Hispanic American (9.9%), Asian American (2.5%), or from some "Other" ethnic background (7.4%). The majority of the mothers in this sample are married (59.3%), with the remaining mothers varying in their marital status (i.e., 23.5% are single, 8.6% are divorced, 6.2% are remarried, and 2.5% are widowed). Their level of education also varies

(i.e., 3.7% have a high school diploma or less, 1.2% have vocational training, 38.3% have some college, 33.3% have a Bachelor's degree, 18.5% have a Master's degree, and 4.9% have a Doctoral degree). Yearly household income for mothers also is variable (i.e., 64.2% make less than \$30,000, 24.6% make between \$30,000 and \$60,000, 7.4% make between \$60,000 and \$90,000, and 2.5% make over \$90,000). These mothers provide ratings regarding their children who range in age from 3- to 6-years ( $M = 4.17$ -years,  $SD = 1.04$ -years). Of these children, 50.0% are female, and 50.0% are male.

Fathers in this study range in age from 19- to 46-years ( $M = 33$ -years,  $SD = 1.6$ -years). The majority of fathers in this study are Caucasian (70.4%). The remainder of this sample of fathers is ethnically diverse, with the remainder of fathers reporting that they are African American (3.7%), Hispanic American (11.1%), Asian American (3.7%), Native American (3.7%), or from some "Other" ethnic background (7.4%). The majority of the fathers are married (66.7%), whereas 22.2% are single and 11.1% are remarried. Fathers' level of education also varies (i.e., 18.5% have a high school diploma or less, 3.7% have vocational training, 25.9% have some college, 33.3% have a Bachelor's degree, 11.1% have a Master's degree, and 7.4% have a Doctoral degree). Yearly household income for fathers also is variable (i.e., 25.9% make less than \$30,000, 44.4% make between \$30,000 and \$60,000, 3.7% make between \$60,000 and \$90,000, and 22.2% make over \$90,000). These fathers provide ratings regarding their children who range in age from 3- to 6-years ( $M = 4.07$ -years,  $SD = .92$ -years). Of these children, 50.0% are female, and 50.0% are male.

## Measures

The *Dimensions of Temperament Scale-Revised for Children* (DOTS-R; Windle & Learner, 1986) assesses parents' reports of their children's temperament. The DOTS-R is a 54-item questionnaire that measures nine state 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 ( $\alpha = .79$ ). On the DOTS-R, participants rate all items along a 4-point continuum from *usually false* (1) to *usually true* (4). High scores on the subscales of the DOTS-R 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 cycle and eating habits, highly regular daily activities, lower distractibility, and a higher persistence for activity, respectively. In a previous study, test-retest coefficients of .75, .74, .69, .64, .63, .71, .72, .62, and .64, respectively, are noted for the subscales of the DOTS-R (Windle & Learner, 1986). Based on previous literature (e.g., Billman & McDevitt, 1980) and for the purposes of the current study, the temperamental dimensions of Activity Level-General, Flexibility/Rigidity, and Mood Quality are used in this study to examine the three temperamental dimensions that are most likely to distinguish between difficult and easy child temperament. In this study, the internal consistency of parents' scores for Activity Level (.91), Flexibility/Rigidity (.82), and Mood Quality (.82) is good. 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.

The *Parenting Locus of Control Scale – Short Form* (PLOC-SF; Rayfield et al., 1995a) is a 25-item questionnaire that provides a measure of the degree to which parents believe that they can influence the behavior of their children. The PLOC-SF is a shortened form of the original *Parenting Locus of Control Scale* (PLOC; Campis, Lyman, & Prentice-Dunn, 1986). The PLOC-SF correlates .92 with the original Parental Locus of Control Scale. The items on the PLOC-SF are rated on a 5-point rating scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) for each item. Higher total scores on the PLOC-SF indicate higher perceived locus of control (internal locus of control). Rayfield, Eyberg, Boggs, and Roberts (1995b) report a Cronbach alpha of .79 for the PLOC-SF total score, which is comparable to the .80 coefficient for the longer PLOC. In this study, the internal consistency of parents' scores for parental locus of control is adequate (.80). In this study, the overall PLOC-SF total score is used.

The *Parent Attribution Test* (PAT; Bugental, 1998) is used as a measure of the degree to which parents attribute unsuccessful parent-child interactions to factors controllable or uncontrollable by children or adults. Participants are asked to rate the relative importance of potential causes for successful and unsuccessful caregiving experiences. Separate subscales are created to measure the attributed control to adults over caregiving success (ACS) and failure (ACF) and the attributed control to children over caregiving success (CCS) and failure (CCF). The composite of the ACF and the CCF scores constitutes a measure of perceived control over failure (PCF). The composite of the ACS and the CCS scores constitutes a measure of perceived control over success (PCS). In a previous study, a test-retest coefficient of .63 is noted for the PAT using the PCF and PCS subscales. In this study, the internal consistency of parents' scores for parental reports of perceived control over failed caregiver-child interactions is adequate (.74). The PCF composite is used in this study.

The *Child Trait Rating Scale* (CTRS; Sacco et al., 1993) consists of 15 traits designed to assess parents' global trait perceptions of their children. Unlike the DOTS-R, the CTRS uses items from several self-concept measures (Sacco et al., 1993), which assesses parents' trait attributions of their children. Each trait is rated on a 7-point Likert scale, with positive and negative poles of each trait at the endpoints. The positive poles of each item are: Tolerant of others, likeable, leader, moral, intelligent, friendly, useful, knows him/herself well, reliable, practical, considerate, kind, organized, not selfish at all, and not stubborn at all. Total scores are calculated such that higher CTRS scores reflect more positive trait perceptions. A Cronbach alpha of .76 is reported in a previous study using the CTRS. In this study, the internal consistency of parents' scores for child trait attributions is sufficient (.78). Although this internal consistency value is lower than those on other measures used in this study, it is deemed acceptable as this measure asks parents to rate their children on a variety of different traits. An overall score for parents' global trait perceptions is used in this study.

The *Parenting Stress Index-Short Form* (PSI-SF; Abidin, 1995) measures stress in the parent-child relationship and 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 scale measures stress in the Parent Domain (PD) and assesses the degree of stress that parents are experiencing in the parent role (i.e., parents' impaired sense of parenting competence, conflict with life roles and the coparent, lack of social support, symptoms of depression). The second scale measures stress in the Child Domain (CD) and assesses parents' expectations of their children (i.e., parental perceptions of whether or not children are reinforcing to the mother or father as a parent). The third scale, Difficult Child (DC), assesses children's behavioral characteristics (i.e., demanding behavior from children). The items

for each subscale are rated using a 5-point Likert scale. In each of the three subscales, as well as in the Total score of the PSI-SF, higher scores represent more parenting stress. In a previous study, the PSI-SF has reliabilities of .91 for the Total score 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. Each item is rated using a 5-point Likert scale. In this study, the internal consistency of parents' scores of parenting stress is good (.91). In this study, the overall Parenting Stress composite score (the sum of the three scales described here) is used.

The *Child Behavior Checklist* (CBCL; Achenbach & Rescorla, 2000, 2001) provides a rating of children's competencies and behavior problems. Parents complete either the 1.5- to 5-year old version or the 6- to 18-year old version, depending on the age of their children. The CBCL for 1.5- to 5-year olds is composed of 100 behavior problem items, whereas the CBCL for 6- to 18-year olds is composed of 113 behavior problem items. In both versions, parents rate their children's behavior problems using the following scale: 0 = *not true*, 1 = *somewhat or sometimes true*, and 2 = *very true or often true*. Both measures provide T scores for children's Internalizing, Externalizing, and Total Behavior Problems, allowing some comparability across children's ages on these scales. This measure has good test-retest reliability (mean  $r = .85$  and  $.88$ , respectively) for the preschool (Achenbach & Rescorla, 2000) and school age versions (Achenbach & Rescorla, 2001). Further, the CBCL is noted to differentiate 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 functioning (Achenbach & Rescorla, 2000, 2001).



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 children regarding a variety of variables (e.g., age, occupation, ethnicity).

### *Procedure*

After receiving approval from the Institutional Review Board (IRB) at the university where this study was conducted, the directors of several Orlando preschools 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, forms were handed out to each child at the end of the school day. Each child was given a recruitment letter for the study and a Consent Form to be taken home for their parents to complete. Parents returned consent forms directly to their children's teachers, and investigators collected the forms from the preschool directors. Investigators then provided research packets to those parents who agreed to participate via a completed consent form. Each packet of questionnaires required approximately one hour for parents to complete. The parent packets included the Demographics Questionnaire, the aforementioned questionnaires, and a Debriefing Form that explained the purpose of the study and provided references to the relevant research literature should participants like more information about the topic area covered by this study. Parents completed the packet at home and returned it in a sealed envelope (provided by the investigator) to their children's preschool director. Investigators then were able to collect the completed research packets from the preschool directors for use in this study.

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 eight weeks. The announcement instructed potential participants to contact the investigator in order to obtain a full description of the study. After contacting the investigator, each potential participant was mailed a recruitment letter for the study, a Consent Form, and a packet of questionnaires, which included the Demographics Questionnaire, the aforementioned questionnaires, and a Debriefing Form that explained the purpose of the study and provided references to the relevant research literature for more information about the topic area covered by this study. Parents completed the packet at home and returned it to the investigator in a self-addressed sealed envelope (provided 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 are calculated for each measure. With regard to temperament, mothers report that, on average, their children are moderately active ( $M = 17.76$ ,  $SD = 5.02$ ; possible range = 7-28), have a somewhat flexible behavioral style ( $M = 15.35$ ,  $SD = 3.20$ ; possible range = 5-20), and generally have a more positive quality of mood ( $M = 26.33$ ,  $SD = 2.98$ ; possible range = 7-28). When reporting on parents' attributions, on average, mothers report having a more internal locus of control regarding their perceived influence over their children's behavior ( $M = 95.07$ ,  $SD = 12.06$ ; possible range = 25-125) and more positive trait perceptions of their children ( $M = 82.16$ ,  $SD = 11.61$ ; possible range = 15-105). They also rate parents ( $M = 25.77$ ,  $SD = 3.73$ ; possible range = 1-7) and children ( $M = 22.24$ ,  $SD = 3.40$ ; possible range = 5-35) as having relatively similar levels of control over unsuccessful parent-child interactions. Additionally, mothers in this sample report that, on average, they are experiencing moderate levels of parenting stress ( $M = 67.60$ ,  $SD = 16.87$ ; possible range = 36-180). Further, on average, mothers report that their children are experiencing nonclinical levels of internalizing ( $M = 44.72$ ,  $SD = 9.47$ ; possible range = 33-69) and externalizing ( $M = 44.75$ ,  $SD = 9.77$ ; possible range = 30-74) behavior problems.

Similarly, with regard to temperament, fathers report that, on average, their children are moderately active ( $M = 19.56$ ,  $SD = 4.78$ ; possible range = 7-28), have a somewhat flexible behavioral style ( $M = 15.41$ ,  $SD = 3.12$ ; possible range = 5-20), and have a more positive quality of mood ( $M = 26.63$ ,  $SD = 2.20$ ; possible range = 7-28). When reporting on parents' attributions,

on average, fathers report having a more internal locus of control regarding their perceived influence over their children's behavior ( $M = 95.22$ ,  $SD = 11.45$ ; possible range = 25-125) and moderately positive trait perceptions of their children ( $M = 82.40$ ,  $SD = 9.44$ ; possible range = 15-125). They also rate parents ( $M = 24.44$ ,  $SD = 3.39$ ; possible range = 1-7) and children ( $M = 22.63$ ,  $SD = 3.13$ ; possible range = 5-35) as having similar levels of control over unsuccessful parent-child interactions. Based on these means, fathers in this sample report that, on average, they are experiencing moderate levels of parenting stress ( $M = 68.69$ ,  $SD = 15.48$ ; possible range = 36-180). Additionally, on average, fathers report that their children are experiencing nonclinical levels of internalizing ( $M = 43.13$ ,  $SD = 9.37$ ; possible range = 33-69) and externalizing ( $M = 42.25$ ,  $SD = 9.75$ ; possible range = 30-74) behavior problems.

#### *t-Tests*

Independent sample *t*-tests analyses are used to examine whether there are significant differences in the mean scores between mothers' and fathers' ratings of their children's activity level, flexibility, and mood quality (DOTS-R); their attributions of locus of control (PLOC-SF), child traits (CTRS), and controllability over parent-child interactions (PAT); their perceived level of parenting stress (PSI-SF); and their children's internalizing and externalizing behavior problems (CBCL). With regard to children's temperament, there are no significant differences across mothers and fathers in their perceptions of their children's activity, flexibility, and mood quality. Further, there are no significant differences on the measures of parents' attributions, indicating that mothers' and fathers' report similar attributions regarding perceived levels of influence over children's behavior, similar attributions regarding trait perceptions of their children, and similar levels of controllability over parent-child interactions to parents and

children alike. These results also reveal that there are no significant differences in parenting stress ratings across mothers and fathers, signifying that mothers and fathers endorsed similar levels of parenting stress. Lastly, there are no significant differences across mothers and fathers in their perceived level of their children's internalizing and externalizing behavior problems. Differences across mothers and fathers ratings are presented in Table 1.

### *Correlational Analyses*

To examine the first aim of this study, correlations are calculated to examine the relationships among children's temperament (i.e., general activity level, flexibility/rigidity, and mood quality), parents' attributions (i.e., parental locus of control, controllability over parent-child interactions, and child personality attributions), parenting stress, and children's internalizing and externalizing behavior problems. It is important to note that attributions regarding controllability over parent-child interactions do not correlate significantly with any of the study variables. Accordingly, this variable is not used in subsequent regression analyses. Correlational analyses for mothers and fathers are presented in Table 2.

#### *Mothers*

Examination of the correlational analyses regarding the three child temperament dimensions reveal that mothers who report that their children have higher activity levels also report that their children have less flexible behavioral styles ( $r = -.38, p < .01$ ). Additionally, mothers who report that their children have less flexible behavioral styles also report that their children generally display a less positive quality of mood ( $r = .53, p < .01$ ). Thus, a more rigid behavioral style is related to both greater child activity levels and a more negative mood quality.

When examining correlational analyses regarding the relationship between children's temperament and parents' attributions, difficult child temperament is related positively and significantly to an external locus of parental control and less positive child trait attributions, whereas easier child temperament is related to an internal locus of parental control and more positive child trait attributions. Specifically, mothers who report that their children have a greater general activity level also report having lower perceived influence over their children's behavior, or a more external locus of control ( $r = -.29, p < .01$ ), and less positive child trait attributions ( $r = -.25, p < .05$ ). Additionally, mothers who report that their children have a more flexible behavioral style also report a higher perceived influence over their children's behavior, or a more internal locus of control ( $r = .49, p < .01$ ), and more positive child trait attributions. Lastly, mothers who report that their children have a more positive mood quality also endorse a higher perceived influence over their children's behavior, or a more internal locus of control ( $r = .28, p < .05$ ).

Next, when examining correlational analyses regarding children's temperament and parenting stress, mothers who report that their children display a greater general activity level ( $r = .31, p < .01$ ), a less flexible behavioral style ( $r = -.44, p < .01$ ), and a less positive quality of mood ( $r = -.28, p < .05$ ) also report higher levels of parenting stress. Correlational analyses regarding parents' attributions and parenting stress reveal that mothers who endorse a lower perceived influence over their children's behavior, or a more external locus of control ( $r = -.68, p < .01$ ), and less positive child trait attributions ( $r = -.60, p < .01$ ) also report a higher level of parenting stress.

Lastly, when examining correlational analyses regarding children's perceived internalizing and externalizing behavior problems, mothers who report that their children have a

less flexible behavioral style ( $r = -.49, p < .01$ ) and a less positive quality of mood ( $r = -.28, p < .05$ ) endorse higher levels of children's internalizing behavior problems. Further, mothers who have less perceived influence over their children's behavior ( $r = -.31, p < .01$ ) and who endorse less positive child trait attributions ( $r = -.43, p < .01$ ) also endorse higher levels of children's internalizing behavior problems. With regard to children's externalizing behavior problems, mothers who endorse that they have less perceived influence over their children's behavior ( $r = -.46, p < .01$ ) and that their children have less positive child trait attributions ( $r = -.44, p < .01$ ) also endorse higher levels of children's externalizing behavior problems. Further, mothers who report that their children display a higher activity level ( $r = .38, p < .01$ ), a less flexible behavioral styles ( $r = -.32, p < .01$ ), and a less positive mood quality ( $r = -.26, p < .05$ ) also endorse higher levels of externalizing behavior problems. Lastly, mothers who endorse higher levels of parenting stress also rate their children as having higher levels of internalizing ( $r = .45, p < .001$ ) and externalizing ( $r = .39, p < .001$ ) behavior problems.

### *Fathers*

The same correlational analyses are examined for fathers separately. When examining correlational analyses regarding the relationship between children's temperament and parents' attributions, difficult child temperament is related positively and significantly to an external locus of control and less positive child trait attributions, whereas easier child temperament is related to an internal locus of parental control and more positive child trait attributions. Specifically, fathers who report that their children have a greater activity level also report having a lower perceived influence over their children's behavior, or a more external locus of control ( $r = -.42, p < .05$ ). Additionally, fathers who report that their children have a more flexible behavioral style report more positive child trait attributions ( $r = .65, p < .01$ ). Lastly, fathers

who report that their children have a more positive mood quality also report more positive child trait attributions ( $r = .49, p < .01$ ).

Next, when examining correlational analyses regarding children's temperament and parenting stress, fathers who report that their children display a less flexible behavioral style ( $r = -.51, p < .01$ ) also report higher levels of parenting stress. In contrast, child activity level ( $r = .30, p < .15$ ) is not related significantly to parenting stress, and child quality of mood ( $r = -.39, p < .06$ ) is related marginally to parenting stress for fathers. Correlational analyses regarding parents' attributions and parenting stress revealed that fathers who endorse lower perceived influence over their children's behavior, or a more external locus of control ( $r = -.71, p < .001$ ), and less positive child trait attributions ( $r = -.60, p < .01$ ) also report higher levels of parenting stress.

Lastly, when examining correlational analyses regarding children's internalizing and externalizing behavior problems, fathers who report that their children have a less flexible behavioral style ( $r = -.60, p < .01$ ) endorse higher levels of children's internalizing behavior problems. Further, fathers who have less perceived influence over their children's behavior ( $r = -.47, p < .05$ ) and who endorse less positive child trait attributions ( $r = -.69, p < .001$ ) also endorse higher levels of children's internalizing behavior problems. Additionally, fathers who report that their children display a less flexible behavioral style ( $r = -.42, p < .05$ ) and a less positive mood quality ( $r = -.48, p < .05$ ) endorse higher levels of externalizing behavior problems. Fathers who endorse that their children have less positive child trait attributions ( $r = -.66, p < .001$ ) also endorse higher levels of children's externalizing behavior problems. Lastly, fathers who endorse higher levels of parenting stress also rate their children as having higher levels of internalizing ( $r = .62, p < .01$ ) and externalizing ( $r = .57, p < .01$ ) behavior problems.



Taken together, although fathers' correlational analyses did not yield as many significant relationships in comparison to mothers' correlational analyses, it should be noted that data for both mothers and fathers followed the same general trend. Thus, it is likely that the low number of participating fathers contributed to the lack of significant correlational findings.

#### *Regression Analyses: Parents' Attributions as a Mediator*

To examine the second aim of this study (i.e., the mediational value of attributions in the relationship between children's temperament and parenting stress), regression analyses are conducted on each of the attribution categories (i.e., parental locus of control and child trait attributions) that are related significantly to children's temperament (i.e., general activity level, flexibility/rigidity, and mood quality) and parenting stress. Establishing a mediational model requires several findings (Baron & Kenny, 1986; see *Figure 1*). In a series of regression equations, children's temperament must predict parents' attributions (path a) as well as parenting stress (path b). In an additional regression equation, parents' attributions must predict parenting stress (path c). With the inclusion of parents' attributions in this last regression equation, the relationship between children's temperament and parenting stress must decrease to non-significance, indicating the mediational role of parents' attributions. This procedure is followed for each of the attribution components that are related significantly to children's temperament and parenting stress in the correlational analyses. Results of the maternal mediational regression analyses are presented in Table 3, and results of the paternal mediational regression analyses are presented in Table 4.

*Mothers' Locus of Control Attributions.*

When examining the mediational role that parental locus of control plays in the relationship between children's flexibility and parenting stress, the first regression equation reveals that mothers' ratings of children's flexibility predict significantly their ratings of parental locus of control. In the second regression equation, mothers' ratings of children's flexibility predict significantly their perceived levels of parenting stress. Then, collectively, mothers' ratings of children's flexibility and their ratings of parental locus of control predict significantly their ratings of their own perceived parenting stress. In particular, when entered first, mothers' ratings of children's flexibility predict significantly their own perceived parenting stress. When mothers' ratings of locus of control are added to this equation, however, only their attributions of locus of control are a significant predictor of their parenting stress. Thus, mothers' attributions of parental locus of control fully mediate the relationship between their ratings of children's flexibility and their perceived levels of parenting stress. The mediational value of mothers' locus of control attributions is confirmed with a significant Sobel Test ( $z = 3.61, p < .001$ ).

Secondly, when examining the mediational role that parental locus of control plays in the relationship between children's activity level and parenting stress, the first regression equation reveals that mothers' ratings of children's activity level predict significantly their attributions of locus of control. In the second regression equation, mothers' ratings of children's activity level predict significantly their parenting stress. Then, collectively, mothers' ratings of children's activity level and their ratings of locus of control predict significantly their ratings of their own perceived parenting stress. In particular, when entered first, mothers' ratings of children's activity level predict significantly their own perceived parenting stress. When mothers' ratings of locus of control are added to this equation, however, only their locus of control attributions are a

significant predictor of parenting stress. Thus, mothers' locus of control attributions fully mediate the relationship between their ratings of children's activity level and their own perceived parenting stress. The mediational value of mothers' locus of control attributions is confirmed with a significant Sobel Test ( $z = -2.73, p < .01$ ).

Lastly, when examining the mediational role that parental locus of control plays in the relationship between children's quality of mood and parenting stress, the first regression equation reveals that mothers' ratings of children's mood quality predicts significantly their ratings of locus of control. In the second regression equation, mothers' ratings of children's mood quality predict significantly their own perceived levels of parenting stress. Then, collectively, mothers' ratings of children's mood quality and their own ratings of locus of control predict significantly their ratings of their perceived parenting stress. In particular, when entered first, mothers' ratings of children's mood quality predict significantly their perceived parenting stress. When mothers' ratings of locus of control are added to this equation, however, only their locus of control is a significant predictor of their parenting stress. Thus, mothers' locus of control attributions fully mediate the relationship between their ratings of children's mood quality and their own parenting stress. The mediational value of mothers' locus of control attributions is confirmed with a significant Sobel Test ( $z = 2.45, p < .01$ ).

#### *Mothers' Child Trait Attributions.*

When examining the mediational role that child trait attributions play in the relationship between children's flexibility and parenting stress, the first regression equation reveals that mothers' ratings of children's flexibility predict significantly their ratings of child trait attributions. In the second regression equation, mothers' ratings of children's flexibility predict significantly their perceived levels of parenting stress. Then, collectively, mothers' ratings of

children's flexibility and their ratings of child trait attributions predict significantly their ratings of their own perceived parenting stress. In particular, when entered first, mothers' ratings of children's flexibility predict significantly their own perceived levels of parenting stress. When mothers' ratings of child trait attributions are added to this equation, however, children's flexibility decreases in significance when predicting parenting stress. Thus, mothers' child trait attributions partially mediate the relationship between children's flexibility and parenting stress. The mediational value of mothers' child trait attributions is confirmed with a significant Sobel Test ( $z = 3.48, p < .001$ ).

Secondly, when examining the mediational role that child trait attributions play in the relationship between children's activity level and parenting stress, the first regression equation reveals that mothers' ratings of children's activity level predict significantly their child trait attributions. In the second regression equation, mothers' ratings of children's activity level predict significantly their perceived levels of parenting stress. Then, collectively, mothers' ratings of children's activity level and their ratings of child trait attributions predict significantly their ratings of their own perceived parenting stress. In particular, when entered first, mothers' ratings of children's activity level predict significantly their own perceived levels of parenting stress. When mothers' ratings of child trait attributions are added to this equation, however, only mothers' child trait attributions are a significant predictor of parenting stress. Thus, mothers' child trait attributions fully mediate the relationship between their ratings of children's activity level and their own perceived levels of parenting stress. The mediational value of mothers' child trait attributions is confirmed with a significant Sobel Test ( $z = -2.64, p < .01$ ).

Lastly, when examining the mediational role that child trait attributions play in the relationship between children's quality of mood and parenting stress, the first regression

equation reveals that mothers' ratings of children's mood quality does not predict significantly their ratings of child trait attributions ( $p < .31$ ). As this regression equation is not significant, mediation is not possible. As a result, mediational analyses are not analyzed further for these variables.

#### *Fathers' Locus of Control Attributions*

When examining the mediational role that parental locus of control plays in the relationship between children's flexibility and parenting stress, the first regression equation reveals that fathers' ratings of children's flexibility does not predict significantly their ratings of locus of control ( $p < .10$ ). As this regression equation is not significant, mediation is not possible. As a result, mediational analyses are not analyzed further for these variables.

Secondly, when examining the mediational role that parental locus of control plays in the relationship between children's quality of mood and parenting stress, the first regression equation reveals that fathers' ratings of children's mood quality does not predict significantly their ratings of locus of control ( $p < .48$ ). As this regression equation is not significant, mediation is not possible. As a result, mediational analyses are not analyzed further for these variables.

Lastly, when examining the mediational role that parental locus of control plays in the relationship between children's activity level and parenting stress, the first regression equation reveals that fathers' ratings of children's activity level predicts significantly their ratings of locus of control ( $p < .05$ ). In the second regression equation, however, fathers' ratings of children's activity level do not predict significantly their own perceived parenting stress ( $p < .14$ ). As this regression equation is not significant, mediation is not possible. As a result, mediational analyses are not analyzed further for these variables. Certainly, the lack of significant results for fathers may be a result of the low number of participating fathers.

### *Fathers' Child Traits Attributions*

When examining the mediational role that child trait attributions play in the relationship between children's flexibility and parenting stress, the first regression equation suggests that fathers' ratings of children's flexibility predict significantly their child trait attributions. In the second regression equation, fathers' ratings of children's flexibility predict significantly their own perceived parenting stress. Then, collectively, fathers' ratings of children's flexibility and their child trait attributions predict significantly their perceived parenting stress. In particular, when entered first, fathers' ratings of children's flexibility predicts significantly their own parenting stress. When fathers' child trait attributions are added to this equation, however, only their ratings of child trait attributions are a significant predictor in their own parenting stress. Thus, fathers' child trait attributions fully mediate the relationship between their ratings of children's flexibility and their own perceived parenting stress. The mediational value of fathers' child trait attributions is confirmed with a significant Sobel Test ( $z = 1.75, p = .08$ ).

Secondly, when examining the mediational role that child trait attributions play in the relationship between children's activity level and parenting stress, the first regression equation suggests that fathers' ratings of children's activity level do not predict significantly their child trait attributions ( $p < .32$ ). As this regression equation is not significant, mediation is not possible. As a result, mediational analyses are not analyzed further for these variables.

Lastly, when examining the mediational role that child trait attributions play in the relationship between children's quality of mood and parenting stress, the first regression equation suggests that fathers' ratings of children's quality of mood predict significantly their child trait attributions. In the second regression equation, fathers' ratings of children's quality of mood predict marginally their perceived parenting stress. Then, collectively, fathers' ratings of

children's quality of mood and their child trait attributions predict significantly their perceived parenting stress. In particular, when entered first, fathers' ratings of children's quality of mood predict significantly their own parenting stress. When fathers' child trait attributions are added to this equation, however, only their ratings of child trait attributions are a significant predictor in their own parenting stress. Thus, fathers' child trait attributions fully mediate the relationship between their ratings of children's quality of mood and their own perceived parenting stress. The mediational value of fathers' child trait attributions is confirmed with a significant Sobel Test ( $z = 1.66, p < .09$ ).

#### *Hierarchical Regression Analyses*

To examine the final aim of this study, hierarchical regression analyses are used to determine the relative contributions of children's temperament (i.e., greater activity level, flexibility, and mood quality), parents' attributions (i.e., parental locus of control attributions and child trait attributions; note that parents' ratings of controllability over parent-child interactions are not used as they are not related to children's behavior problems), and parenting stress in predicting children's internalizing and externalizing behavior problems. The temperament variables are entered in block 1 (i.e., activity level, flexibility, and mood quality), the attribution variables are entered in block 2 (i.e., parental locus of control attributions and child trait attributions), and parenting stress is entered in block 3. Results of the hierarchical regression analyses for mothers and fathers are presented in Table 5.

#### *Mothers' Ratings*

First, a hierarchical regression analysis examining mothers' predictors of children's internalizing behavior problems shows that children's flexibility contributes significantly to the

prediction of children's internalizing behavior problems in Block 1. In particular, a less flexible behavioral style is related to higher levels of children's internalizing behavior problems. In Block 2, the regression equation remains significant when mothers' attributions are added. In this block, mothers' ratings of children's flexibility and their child trait attributions serve as significant predictors, with a less flexible behavioral style and less positive trait attributions being related to higher levels of children's internalizing behavior problems. In Block 3, the regression equation remains significant with the addition of parenting stress. Again, mothers' ratings of children's flexibility and their child trait attributions serve as significant predictors. Thus, a less flexible behavioral style and less favorable child trait attributions are the strongest individual predictors of mothers' ratings of child internalizing behavior problems.

Next, a hierarchical regression analysis examining mothers' predictors of children's externalizing behavior problems shows that children's activity level contributes significantly to the prediction of children's externalizing behavior problems in Block 1. In particular, higher activity level is related to higher levels of children's externalizing behavior problems. In Block 2, the regression equation remains significant with the addition of mothers' attributions. In this block, mothers' child trait attributions are a significant predictor, with less positive trait attributions being related to higher levels of children's externalizing behavior problems. In Block 3, the regression equation remains significant with the addition of parenting stress. In this block, only mothers' child trait attributions remain a significant predictor. Thus, negative child trait attributions are the strongest individual predictors of mothers' ratings of children's externalizing behavior problems.



### *Fathers' Ratings*

When examined for fathers, a hierarchical regression analysis examining predictors of children's internalizing behavior problems shows that children's flexibility contributes significantly to the prediction of children's internalizing behavior problems in Block 1. In particular, a less flexible behavioral style is related to higher levels of children's internalizing behavior problems. In Block 2, the regression equation remains significant with the addition of fathers' attributions. In this block, fathers' child trait attributions are the only significant predictor, with less positive trait attributions being related to higher levels of children's internalizing behavior problems. In Block 3, the regression equation remains significant with the addition of parenting stress, but there are no significant individual predictors. Thus, when examined together, although the regression equation remains significant, there are no significant individual predictors of fathers' ratings of children's internalizing behavior problems.

Next, a hierarchical regression analysis examining fathers' predictors of children's externalizing behavior problems shows that, although the regression equation is significant, none of the child temperament dimensions contribute significantly to the prediction of children's externalizing behavior problems in Block 1. In Block 2, the regression equation remains significant with the addition of fathers' attributions. In this case, fathers' child trait attributions are a significant predictor, with less positive child trait attributions being related to higher levels of children's externalizing behavior problems. In Block 3, the regression equation remains significant with the addition of parenting stress. In this block, the predictive value of fathers' child trait attributions is attenuated in the presence of fathers' parenting stress. Thus, when examined together, no significant individual predictors emerge in predicting fathers' ratings of children's externalizing behavior problems.

## CHAPTER FIVE: DISCUSSION

The results of this study suggest that it is important to examine parents' attributions as an explanatory variable in the relationships among children's temperament, parenting stress, and children's behavior problems. In this study, as expected, mothers' ratings of children's more difficult temperament (i.e., higher activity level and lower flexibility) are related positively and significantly to less positive child trait attributions, whereas easier child temperament (i.e., lower activity level and greater flexibility) is related to more positive child trait attributions. This finding appears to support previous research that states that attributions become schematic and, in turn, promote automatic influences on the perception and subsequent processing of children's behavior (Bugental, 1992). Thus, parents who hold more negative child trait attributions may be more likely to automatically perceive their children's temperament as difficult. Contrary to expectations, however, the quality of children's mood is unrelated to mothers' child trait attributions. This finding may be the result of children's mood being viewed as a more transient characteristic (i.e., as opposed to being perceived as a fixed characteristic that is related to parents' attributions of children's global traits).

Similar to mothers' ratings, fathers' ratings of children's difficult temperament (i.e., less flexibility and less positive quality of mood) are related positively and significantly to less positive child trait attributions, and fathers' ratings of easier child temperament (i.e., more flexibility and more positive quality of mood) are related to more positive child trait attributions. Interestingly, unlike mothers' reports, fathers' child trait attributions are unrelated to their ratings of their children's activity. This finding may suggest that children's mood quality is a more salient temperamental characteristic for fathers, whereas children's activity level may be more prominent for mothers. Specifically, previous literature suggests that, when compared to

mothers, fathers are more likely to spend time engaging in active play with their children (Lewis & Lamb, 2003; Phares, 1996). Further, Labrell (1994) suggests that, when compared to mothers, fathers are more likely to engage in activity that increases children's activity level. Thus, it may be the case that, because fathers are more likely to engage their children in active play, they may not perceive children's activity level as a difficult temperament characteristic. Additionally, the differences in these findings may be the result of the low number of father participants. Thus, future research should seek to replicate these findings in larger samples of fathers.

This study also demonstrates that children's difficult temperament is related positively and significantly to an external parental locus of control. Specifically, mothers' ratings of children's flexibility and quality of mood are related significantly and positively to mothers' locus of control attributions. In contrast, mothers' ratings of children's activity level are related significantly and negatively to mothers' ratings of locus of control. Thus, mothers who rate their children as having an easier temperament (i.e., lower activity, greater flexibility, and more positive quality of mood) also endorse an internal locus of control. These findings may be consistent with the abovementioned research (Van den Boom & Hoeksma, 1994), which suggests that the interactions that mothers of children who are temperamentally difficult have with their children are based on trying to relieve children's distress and are likely to be unsuccessful. Accordingly, due to unsuccessful attempts at trying to relieve their children's distress, mothers of children who are temperamentally difficult may believe that they have no control over their children's behavior. As a result, they may develop a more external locus of control.

Similarly, for fathers, ratings of children's difficult temperament are related positively and significantly to an external locus of parental control, and ratings of children's easier

temperament are related to an internal locus of parental control. Specifically, fathers' ratings of children's activity level are related significantly and negatively to their locus of control attributions. Thus, fathers who report that their children have a higher general activity level also report having an internal locus of parental control. In contrast, fathers' ratings of children's flexibility and quality of mood are unrelated to their locus of control attributions. Certainly, this finding may be the result of the small number of father participants in this study. An additional explanation may be, however, that fathers may not perceive their children's activity as being a salient difficult temperament characteristic and subsequently may perceive that they should have a higher level of influence over this temperament dimension. It may be the case that fathers have an external locus of control regarding their children's activity level due to their outlook on activity level itself. Specifically, it may not be a temperamental dimension that fathers attempt to control.

Lastly, contrary to previous literature (e.g., Bugental, 1992), parents' attributions of controllability over parent-child interactions are unrelated to any of the other constructs examined in this study. This lack of relationships may be a result of the sample used in the present study. Specifically, the participants in the current study are considerably different from the participant sample used to validate the *Parent Attribution Test* (i.e., parents in the current study are higher in socioeconomic status and tend to report that they and their children are not experiencing clinically concerning difficulties; Bugental, 1992). Accordingly, the range of ratings provided by the parents in the current study may not be broad enough to produce statistically significant results. Future research should examine the potential differences in parents' ratings of their controllability attributions in the context of parent-child interactions across parents of different cultural and socioeconomic backgrounds.

In this study, mothers who report that their children display more difficult temperament characteristics (i.e., greater activity level, less flexibility, and more negative mood quality) also report higher levels of parenting stress. For fathers, only lower levels of children's flexibility are related to higher levels of parenting stress. Additionally, mothers and fathers who report more negative child trait attributions and an external locus of control in the context of children's behavior also endorse higher levels of perceived parenting stress. Overall, similar to previous research (e.g., Abidin, 1995; Crnic & Greenberg, 1990; Ostberg & Hagekull, 2000; Weinberg & Richardson, 1981), these findings suggest that parents who perceive their children as having difficult temperaments and less favorable child traits and who rate themselves as having an external locus of control over their children's behavior are more likely to perceive themselves as having higher levels of parenting stress. In contrast, it may be the case that parenting stress may prompt parents to perceive their children as having a difficult temperament and as having less favorable child traits and to increase their beliefs that they do not have control over their children's behavior. Although the findings of this study cannot allow a conclusion as to the directionality of the relationship among these variables, these relationships deserve further study.

This study also demonstrates the mediational value of parents' attributions in the relationship between children's temperament and the parenting stress reported by mothers and fathers. In particular, this study demonstrates the mediational role that parents' locus of control attributions have in the relationship between children's temperament and the parenting stress experienced by mothers and fathers. Findings reveal that parental locus of control fully mediates the relationship between all three dimensions of children's temperament (i.e., activity level, flexibility, and quality of mood) and the parenting stress experienced by mothers. In other words, mothers who believe that they have a strong influence over their children's behavior,

even when their children have difficult temperaments, may experience lower levels of parenting stress. Thus, mothers' attributions of their ability to influence their children's behavior may have significant value when attempting to understand the relationship between mothers' ratings of their children's temperament and their own parenting stress.

Consistent with previous literature, having children who have a more difficult temperament may lead to parents developing a more external parental locus of control. Further, parental locus of control is associated with less effective parenting skills when compared to parents with an internal locus of control (Bugental & Shennum, 1984; Loeb, 1975). For example, parents who have an external locus of control also are more likely to use a commanding or authoritarian parenting style in order to control negative child behavior (Loeb, 1975). This type of parenting style, in turn, may increase parents' level of parenting stress (Creasey & Jarvis, 1994; Forehand et al., 1986; Ostberg & Hagekull, 2000; Robson, 1997). Thus, parental locus of control is related to the way in which parents perceive and respond to children's temperament characteristics and to mothers' parenting stress.

Additionally, the results of this study suggest that mothers' child trait attributions fully mediate the relationship between their ratings of their children's activity level and their own parenting stress. Mothers' child trait attributions also partially mediate the relationship between their ratings of their children's flexibility and their own parenting stress. In other words, mothers who attribute more positive traits to their children may eliminate the influence that high levels of children's activity and behavioral rigidity may have on their parenting stress. For fathers, their ratings of child trait attributions fully mediate the relationship between their ratings of their children's flexibility and their own parenting stress. Fathers' child trait attributions also fully mediate the relationship between their ratings of their children's quality of mood and their own

parenting stress. Thus, fathers who attribute more positive traits to their children may eliminate the influence that their children's behavioral rigidity and negative quality of mood has on their parenting stress.

These findings are consistent with previous literature which suggests that parents who make positive child attributions are more likely to successfully help their children overcome problems and to contribute to positive child developmental outcomes (Gretarsson & Gelfand, 1988). The current study suggests that parents hold more negative child trait attributions about their children who are temperamentally difficult. These attributions may be related to negative interpretations of and responses to children's behaviors (Sacco & Murray, 1997) and to increases in parenting stress (Creasey & Jarvis, 1994; Forehand et al., 1986; Ostberg & Hagekull, 2000; Robson, 1997). Thus, child trait attributions are related to the way in which parents perceive and respond to children's temperament characteristics and to the parenting stress reported by mothers and fathers.

When examining the mediational results regarding parental locus of control and child trait attributions, these results lend support to the 'goodness of fit' hypothesis. Having a parent who is able to attribute children's rigidity, high activity level, or negative quality of mood to children's difficult temperament, and not to factors directly caused by or controlled by the parents or children themselves, may decrease the stress experienced by parents. The 'goodness of fit' hypothesis suggests that, regardless of children's temperament, parents are able to successfully adapt to fit the needs of their children and thus effectively influence children's behavior. As a result, parents 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 et al., 1993). Thus, if parents are able to attribute their

children's behavior to children's innate temperament, and not to factors that the parents or children can control or change, they may be better able to adapt their parenting to fit the needs of their children's temperament. Thus, as hypothesized, it may be that the contribution that parents bring into the parent-child relationship is dependent on both the children's temperamental characteristics as well as parents' attributions about their children and their own parenting behaviors.

This study also examines the relative contributions of children's temperament (i.e., general activity level, flexibility, and mood quality), parents' attributions (i.e., parental locus of control and child trait attributions), and parenting stress in predicting children's internalizing and externalizing behavior problems. When examining mothers' ratings of children's internalizing behavior problems, all of the variables, with the exception of mothers' attributions of controllability and children's activity level, are related significantly to their ratings of children's internalizing behavior problems. In particular, children's difficult temperament (i.e., less flexibility and less positive mood quality) is related to higher ratings of children's internalizing behavior problems. Further, mothers' less positive child trait attributions and external locus of control over children's behavior is related to their higher ratings of children's internalizing behavior problems. Lastly, mothers' higher parenting stress is related to higher ratings of children's internalizing behavior problems. These findings are consistent with previous research that suggests that children's difficult temperament (Thomas et al., 1968; Tschann et al., 1996), parents' negative attributions (Bugental & Shennum, 1984; Strassberg, 1995), and parents' increased levels of parenting stress (Creasey & Jarvis, 1994) are associated with children's internalizing behavior problems.



Beyond the usual relationships documented in the literature, when examined together, only mothers' ratings of their children's flexibility and their child trait attributions contribute significantly to the prediction of children's internalizing behavior problems. Thus, mothers who report that their children have a more rigid behavioral style and who endorse less positive child trait attributions also are more likely to give higher ratings of their children's internalizing behavior problems. Thus, mothers who endorse less positive child trait attributions may process their children's behavior as being consistent with these attributions. As mentioned previously, dealing with children may alter patterns of parents' attributions and ultimately alter the way in which parents' think and behave toward their children (Strassberg, 1995). These perceptual changes may contribute to less favorable ratings of their children's behavior. Thus, it is important to note that the way in which parents perceive their children's internalizing behavior problems are related to the negative attributions that they make about their children.

When examining these same relationships for fathers, children's difficult temperament (i.e., less flexibility) is related to higher ratings of children's internalizing behavior problems. Further, fathers who endorse less positive child trait attributions and who endorse having a more external locus of control over children's behavior also provide higher ratings of children's internalizing behavior problems. Lastly, as with mothers, higher levels of fathers' parenting stress are related to fathers' higher ratings of their children's internalizing behavior problems. As with mothers, these findings are consistent with previous research (Bugental & Shennum, 1984; Loeb, 1975; Thomas et al., 1968; Tschann et al., 1996). When examined together, although the regression equation remains significant, none of the variables predict fathers' ratings of their children's internalizing behavior problems. This lack of individual significant predictors may be the result of the small number of father participants in this study.

As expected for mothers' ratings of children's externalizing behavior problems, all of the variables, with the exception of mothers' attributions of controllability, are related significantly to children's externalizing behavior problems. In particular, consistent with previous research (e.g., Zucker et al., 2000), children's difficult temperament (i.e., greater activity level, less flexibility, and less positive mood quality) is related significantly and positively to increases in children's externalizing behavior problems. Further, mothers' less positive child trait attributions and an external locus of control over children's behavior are related to mothers' endorsements of higher levels of children's externalizing behavior problems. Lastly, as found in previous research (e.g., Ostberg & Hagekull, 2000), higher parenting stress is related to higher levels of children's externalizing behavior problems.

Beyond the usual relationships that are documented in the literature, when examined together, only mothers' child trait attributions contribute significantly to their ratings of children's externalizing behavior problems. As mentioned above, these results may support the idea that mothers may hold mental representations of their children, which subsequently promote the processing of their children's behavior as being consistent with those representations (e.g., Fiske & Taylor, 1984). Thus, mothers who make less positive child trait attributions may process their children's behavior as being consistent with these attributions (i.e., higher child activity level and higher levels of children's externalizing behavior problems). This finding suggests the important role that parental attributions have in the perceptions of children's behavior.

When examining the same relationships for fathers, children's difficult temperament (i.e., less flexibility and less positive mood quality) is related to higher ratings of children's externalizing behavior problems. Further, although fathers' locus of control attributions are

unrelated to their ratings of children's externalizing behavior problems, fathers' less positive child trait attributions are related to their higher ratings of children's externalizing behavior problems. Lastly, as with mothers, fathers who experience higher levels of parenting stress also provide higher ratings of their children's externalizing behavior problems. When examined together, however, only fathers' child trait attributions contribute significantly to their ratings of children's externalizing behavior problems. Thus, similar to mothers, fathers who endorse less positive child trait attributions may process their children's behavior as being consistent with this attribution (i.e., higher perceived externalizing behavior problems). As with mothers, this finding suggests the important role that parental attributions have in the subsequent perceptions, processing, and responses to children's behavior.

Given these findings, it will be important for researchers and clinicians to collect information from multiple informants when assessing children's internalizing and externalizing behavior problems. It may be particularly important to use multiple informants to improve the understanding of children's behavior in the context of the parent-child interactions that transpire in families, as different informants may hold different attributions regarding children and these parent-child interactions. Further, the findings of this study suggest that parenting interventions should include a component addressing the attributions that parents have of their children as well as the role that parents believe they play in parent-child interactions. Such components may be particularly important in changing the negative child attributions that parents may have of their children. These components also may be important in changing parents' low perceived control over their children's behavior. Such changes in attributions subsequently may increase the likelihood of parents and their children experiencing a 'good fit', regardless of the temperament characteristics exhibited by parents and their children. In particular, parents' positive child trait

attributions and attributions of having an internal locus of control may serve as protective factors in the relationship between children's difficult temperament (or parents' perceptions of such a temperament) and the amount of parenting stress experienced by mothers and fathers.

The results of this study should be viewed within the context of its limitations. First, the suggested sample size for a multiple regression analysis ( $p < .05$ ) with seven independent variables (i.e., the most complex analysis in this study) and statistical power of .80 is 102 participants in order to detect a medium ( $R = .36$ ) effect size (Cohen, 1992). Although the number of participating mothers in this study appears to be adequate, the number of fathers who chose to participate is low. As a result, there is still a chance that Type II errors are present within the context of the findings of this study. Further, as noted above, there are a considerable number of parents who did not return their research packets despite being contacted by the researchers and consenting to participate. There may be some extraneous variables that are not controlled in the current study that may be related to participants' decision to not return their research packets. Additionally, participating parents may not be representative of the general population. Specifically, participating parents are among a select group of parents who participated in the study despite not receiving compensation for their participation, they are mostly Caucasian, and their children are enrolled mostly in private daycares or preschools. Further, participating parents' demographic characteristics may have been related to the study results and their generalizability. In particular, approximately 23% of mothers and 22% of fathers are single. Thus, their ratings may be different from those who are married, especially with regard to parenting stress. Similarly, as the socioeconomic status of the participating parents is variable, ratings may be different for those considered to be from a higher socioeconomic status when compared to those from a lower socioeconomic status. Finally, this

study relies solely on parents' self-reports, as the participants are 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 children examined.

Despite the limitations of this study, the findings reported here represent a positive contribution to the literature on the importance of parents' attributions, particularly when examining the relationships among children's temperament, parenting stress, and children's internalizing and externalizing behavior problems. Given the relationships that are documented among children's temperament, parents' attributions, and children's behavior problems, the purpose of this study is to extend the research literature by examining the mediational role that parents' attributions play in the relationship between children's temperament and parenting stress. This study also examines the comparative contributions made by children's temperament, parents' attributions, and parenting stress on children's internalizing and externalizing behavior problems.

In summary, the mediational results of this study suggest that mothers' locus of control attributions fully mediate the relationship between all three temperament dimensions (i.e., activity level, flexibility, and quality of mood) and parenting stress. Additionally, results reveal that mothers' child trait attributions fully mediate the relationship between children's activity level and parenting stress and partially mediate the relationship between children's flexibility and parenting stress. Fathers' child trait attributions fully mediate the relationship between children's flexibility and parenting stress and the relationship between children's quality of mood and parenting stress. When examined together, only mothers' ratings of their children's flexibility and child trait attributions contribute significantly to their ratings of children's internalizing behavior problems. Additionally, when examined together, only mothers' child trait attributions

contribute significantly to their ratings of children's externalizing behavior problems. Similarly, fathers' child trait attributions contribute significantly to their ratings of children's externalizing behavior problems. These results may support the idea that mothers and fathers hold mental representations of their children, which subsequently promote the processing of their children's behavior as being consistent with those representations (e.g., Fiske & Taylor, 1984).

The results of this study suggest further that parents' attributions have important implications for the way in which parents perceive and respond to their children's behavior (e.g., Bugental et al., 1989). In particular, parents' dysfunctional attributions are related to more problematic parental discipline practices (Dix & Grusec, 1985), harsh parental reactions (Bugental et al., 1989), and children's experience of internalizing and externalizing behavior problems (Bugental & Shennum, 1984). By identifying the potential links among these variables, this study contributes to our understanding of the role that parents' attributions play in the context of the parent-child relationship as well as the potential variables that are related most closely to maladaptive parental cognitions and behaviors. 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' attributions of their children and the role of attributions in predicting children's behavior problems in addition to parenting stress and other parenting characteristics.

## APPENDIX A: DIFFERENCES BETWEEN MOTHERS' AND FATHERS' RATINGS

Table 1. Differences between mothers' and fathers' ratings

Variables	<i>Mothers</i>		<i>Fathers</i>		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>Temperament</i>					
Child Activity Level	17.77	5.02	19.56	4.78	1.66
Child Flexibility	15.35	3.20	15.41	3.12	.07
Child Mood	26.33	2.98	26.63	2.20	.55
<i>Attributions</i>					
Parental Locus of Control	95.07	12.07	95.22	11.45	.06
Child Trait Rating	82.16	11.62	82.41	9.44	.11
Adult Controllability	25.77	3.73	24.44	3.39	-1.71
Child Controllability	22.25	3.40	22.63	3.13	.54
<i>Parenting Stress</i>					
Stress	67.60	16.87	68.69	15.48	.31
<i>Child Behavior Problems</i>					
Internalizing Behavior Problems	44.73	9.47	43.13	9.37	-.72
Externalizing Behavior Problems	44.76	9.77	42.25	9.75	-1.09



APPENDIX B: CORRELATIONS AMONG MOTHERS' AND FATHERS' RATINGS OF  
TEMPERAMENT, ATTRIBUTIONS, PARENTING STRESS, AND CHILD BEHAVIOR

Table 2. Correlations Among Mothers' and Fathers' Ratings of Temperament, Attributions, Parenting Stress, and Child Behavior

Variables	1	2	3	4	5	6	7	8	9	10
1. Child Activity Level	-	-.13	-.26	-.42*	-.20	-.13	-.09	.30	.10	.37
2. Child Flexibility	-.38**	-	.37	.32	.65***	.14	.40	-.51***	-.60**	-.42*
3. Child Mood	-.16	.53***	-	.14	.49***	.01	.03	-.39	-.39	-.48*
4. Parent Locus of Control	-.29**	.49***	.28*	-	.24	.19	.08	-.71***	-.47*	-.40
5. Child Trait Rating	-.25*	.29**	.12	.43***	-	-.12	.16	-.60**	-.69***	-.66***
6. Adult Controllability	-.11	.03	-.12	.20	.09	-	.32	.09	.02	-.15
7. Child Controllability	.06	-.03	-.07	-.02	.15	.19	-	.00	-.23	-.34
8. Parenting Stress	.31**	-.42***	-.28*	-.68***	-.60***	-.10	-.03	-	.67**	.57**
9. Child Internalizing	.18	-.49***	-.28*	-.31**	-.43***	.11	.07	.39**	-	.65**
10. Child Externalizing	.39**	-.32**	-.26*	-.46***	-.44***	-.05	-.12	.45***	.52***	-

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

Results for mothers are below the diagonal, whereas results for fathers are above the diagonal

APPENDIX C: MEDIATIONAL REGRESSION ANALYSES FOR MOTHERS' RATINGS

Table 3. Mediation Regression Analyses for Mothers' Ratings

Regression/Variables	Beta	<i>t</i>	<i>p</i>
<i>Mediator: Parental Locus of Control</i>			
Child Flexibility and Parenting Locus of Control: $F(1, 79) = 24.38, p < .001, r^2 = .23$			
Child Flexibility	.49	4.94	.001
Child Flexibility, Parental Locus of Control, and Parenting Stress: $F(2, 80) = 35.81, p < .001, r^2 = .47$			
Child Flexibility	-.14	-1.52	.13
Parental Locus of Control	-.61	-6.54	.001
Child Activity Level and Parenting Locus of Control: $F(1, 79) = 6.98, p < .001, r^2 = .47$			
Child Activity Level	-.29	-2.64	.01
Child Activity Level, Parental Locus of Control, and Parenting Stress: $F(2, 80) = 35.84, p < .001, r^2 = .23$			
Child Activity Level	.13	1.53	.13
Parental Locus of Control	-.64	-7.55	.001
Child Mood Quality and Parental Locus of Control: $F(1, 79) = 6.80, p < .05, r^2 = .07$			
Child Mood Quality	.28	2.61	.01
Child Mood Quality, Parental Locus of Control, and Parenting Stress: $F(2, 78) = 34.84, p < .001, r^2 = .46$			
Child Mood Quality	-.10	-1.13	.26
Parental Locus of Control	-.65	-7.62	.001
Regression/Variables	Beta	<i>t</i>	<i>p</i>
<i>Mediator: Child Trait Ratings</i>			
Child Flexibility and Child Trait Ratings: $F(1, 79) = 7.44, p < .01, r^2 = .09$			
Child Flexibility	.29	2.73	.01
Child Flexibility, Child Trait Ratings, and Parenting Stress: $F(2, 78) = 30.54, p < .001, r^2 = .43$			
Child Flexibility	-.29	-3.23	.002
Child Trait Ratings	-.52	-5.85	.001
Child Activity Level and Child Trait Ratings: $F(1, 79) = 5.38, p < .05, r^2 = .05$			
Child Activity Level	-.25	-2.32	.05
Child Activity Level, Child Trait Ratings, and Parenting Stress: $F(2, 78) = 25.14, p < .001, r^2 = .38$			
Child Activity Level	.17	1.89	.06
Child Trait Ratings	-.56	-6.13	.001
Child Mood Quality and Child Trait Ratings: $F(1, 79) = 1.05, p < .31, r^2 = .01$			
Child Mood Quality	.12	1.03	.31

APPENDIX D: MEDIATIONAL REGRESSION ANALYSES FOR FATHERS' RATINGS

Table 4. Mediation Regression Analyses for Fathers' Ratings

Regression/Variables	Beta	<i>t</i>	<i>p</i>
<i>Mediator: Parental Locus of Control</i>			
Child Flexibility and Parenting Locus of Control: $F(1, 25) = 2.91, p < .10, r^2 = .10$			
Child Flexibility	.32	1.71	.10
Child Activity Level and Parenting Locus of Control: $F(1, 25) = 5.36, p < .05, r^2 = .18$			
Child Activity Level	-.42	-2.32	.02
Child Activity Level and Parenting Stress: $F(1, 25) = 2.31, p < .14, r^2 = .09$			
Child Activity Level	.30	1.52	.14
Child Mood Quality and Parental Locus of Control: $F(1, 25) = .53, p < .48, r^2 = .02$			
Child Mood Quality	.14	.73	.48
Regression/Variables	Beta	<i>t</i>	<i>p</i>
<i>Mediator: Child Trait Ratings</i>			
Child Flexibility and Child Trait Ratings: $F(1, 25) = 18.69, p < .001, r^2 = .41$			
Child Flexibility	.65	4.32	.001
Child Flexibility, Child Trait Ratings, and Parenting Stress: $F(2, 23) = 7.29, p < .01, r^2 = .34$			
Child Flexibility	-.21	-.96	.34
Child Trait Ratings	-.47	-2.18	.04
Child Activity Level and Child Trait Ratings: $F(1, 25) = 1.03, p < .32, r^2 = .04$			
Child Activity Level	-.20	-1.01	.32
Child Mood Quality and Child Trait Ratings: $F(1, 25) = 7.97, p < .01, r^2 = .24$			
Child Mood Quality	.49	2.82	.01
Child Mood Quality, Child Trait Ratings, and Parenting Stress: $F(2, 23) = 6.77, p < .01, r^2 = .37$			
Child Mood Quality	-.10	-.51	.62
Child Trait Ratings	-.55	-2.84	.01

## APPENDIX E: HIERARCHICAL REGRESSION ANALYSES

Table 5. Hierarchical Regression Analyses

Variables	<i>B</i>	SE <i>B</i>	$\beta$
<b>Internalizing Behavior Problems</b>			
<i>Mothers' Ratings</i>			
Block 1. $F(3, 66) = 6.98, p < .001, r^2 = .21$			
Child Activity Level	.05	.21	.03
Child Flexibility	-1.4	.39	-.46**
Child Mood Quality	-.15	.38	-.05
Block 2. $F(5, 64) = 6.82, p < .001, r^2 = .30$			
Child Activity Level	-.03	.20	-.02
Child Flexibility	-1.27	.41	-.42**
Child Mood Quality	-.19	.36	-.06
Parental Locus of Control	.07	.12	.08
Child Trait Rating	-.29	.09	-.357**
Block 3. $F(6, 63) = 5.65, p < .001, r^2 = .29$			
Child Activity Level	-.04	.20	-.02
Child Flexibility	-1.26	.41	-.42**
Child Mood Quality	-.17	.36	-.06
Parental Locus of Control	.10	.13	.11
Child Trait Rating	-.26	.11	-.33*
Parenting Stress	.04	.09	.07
<i>Fathers' Ratings</i>			
Block 1. $F(3, 19) = 4.29, p < .05, r^2 = .31$			
Child Activity Level	-.23	.38	-.11
Child Flexibility	-1.57	.59	-.52*
Child Mood Quality	-.98	.84	-.24
Block 2. $F(5, 17) = 5.05, p < .05, r^2 = .48$			
Child Activity Level	-.51	.38	-.26
Child Flexibility	-.37	.67	-.12
Child Mood Quality	-.35	.81	-.09
Parental Locus of Control	-.31	.18	-.35
Child Trait Rating	-.48	.21	-.49*
Block 3. $F(6, 16) = 4.00, p < .05, r^2 = .45$			
Child Activity Level	-.47	.41	-.24
Child Flexibility	-.39	.69	-.13
Child Mood Quality	-.26	.89	-.06
Parental Locus of Control	-.26	.26	-.29



Variables	<i>B</i>	SE <i>B</i>	$\beta$
Child Trait Rating	-.45	.24	-.46
Parenting Stress	.06	.19	.09
<b>Externalizing Behavior Problems</b>			
<i>Mothers' Ratings</i>			
Block 1. $F(3, 66) = 5.67, p < .01, r^2 = .17$			
Child Activity Level	.59	.22	.31**
Child Flexibility	-.48	.42	-.15
Child Mood Quality	-.42	.40	-.13
Block 2. $F(5, 64) = 6.72, p < .001, r^2 = .29$			
Child Activity Level	.43	.21	.22*
Child Flexibility	.02	.42	.01
Child Mood Quality	-.41	.37	-.13
Parental Locus of Control	-.21	.12	-.23
Child Trait Rating	-.23	.09	-.28*
Block 3. $F(6, 63) = 5.53, p < .001, r^2 = .28$			
Child Activity Level	.42	.21	.22
Child Flexibility	.03	.43	.01
Child Mood Quality	-.40	.38	-.13
Parental Locus of Control	-.19	.14	-.21
Child Trait Rating	-.22	.11	-.26*
Parenting Stress	.27	.09	.05
<i>Fathers' Ratings</i>			
Block 1. $F(3, 19) = 3.21, p < .05, r^2 = .23$			
Child Activity Level	.45	.42	.22
Child Flexibility	-.79	.65	-.25
Child Mood Quality	-1.32	.93	-.31
Block 2. $F(5, 17) = 3.64, p < .05, r^2 = .38$			
Child Activity Level	.36	.43	.17
Child Flexibility	.27	.76	.08
Child Mood Quality	-.43	.93	-.10
Parental Locus of Control	-.14	.21	-.14
Child Trait Rating	-.59	.24	-.58*
Block 3. $F(6, 16) = 2.98, p < .05, r^2 = .35$			
Child Activity Level	.44	.46	.94
Child Flexibility	.22	.78	.28
Child Mood Quality	-.28	1.01	-.23
Parental Locus of Control	-.01	.30	-.03

Child Trait Rating	-.52	.27	-1.92
Parenting Stress	.13	.22	.59

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

## APPENDIX F: IRB Approval



University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

### EXPEDITED CONTINUING REVIEW APPROVAL NOTICE

From : UCF Institutional Review Board  
FWA00000351, Exp. 10/8/11, IRB00001138

To : Melissa Middleton and Co-PI: Samantha Scott

Date : March 18, 2009

IRB Number: SBE-08-05571

Study Title: Parental Perceptions, Parenting Behavior, and Child Behavioral Outcomes

Dear Researcher,

This letter serves to notify you that the continuing review application for the above study was reviewed and approved by the IRB designated reviewer on 3/18/2009 through the expedited review process according to 45 CFR 46 (and/or 21 CFR 50/56 if FDA-regulated).

**Continuation of this study has been approved for a one-year period. The expiration date is 3/17/2010.** This study was determined to be no more than minimal risk and the category for which this study qualified for expedited review is:

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Subjects or their representatives must receive a copy of the consent form(s).

All data must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

To continue this research beyond the expiration date, a Continuing Review Form must be submitted 2 – 4 weeks prior to the expiration date. Use the Unanticipated Problem Report Form or the Serious Adverse Event Form (within 5 working days of event or knowledge of event) to report problems or events to the IRB. Do not make changes to the study (i.e., protocol methodology, consent form, personnel, site, etc.) before obtaining IRB approval. Changes can be submitted for IRB review using the Addendum/Modification Request Form. An Addendum/Modification Request Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 03/18/2009 01:12:08 PM EST

IRB Coordinator

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