THE ROLE OF PARENTAL SELF-EFFICACY AND PARENTAL KNOWLEDGE IN PARENT-INFANT INTERACTIONS DURING THE TRANSITION TO PARENTHOOD

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Submitted to the Graduate College of Bowling Green State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2012

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ABSTRACT

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Only two studies in the parenting literature have simultaneously considered the effects of both parental self-efficacy and parental knowledge on parenting behaviors. Both studies found a significant interaction effect between maternal knowledge and maternal self-efficacy in predicting the quality of parent-infant interactions. The current study attempted to extend this line of research by assessing both mothers and fathers from the same 164 families, replicating findings when the infant was both 6 and 12 months, and using both observational and self-report data. Parents completed both self-report measures on parental self-efficacy and parental knowledge of development, and were observed in 10 minute interactions with their infant at both 6 and 12 months to assess parenting behaviors. For mothers, greater maternal knowledge of child development was related to observations of greater maternal sensitivity and less intrusiveness during parent-infant interactions when the infant was 6 months old after controlling for infant temperament, parental age and education, and other demographic factors. This pattern of observational findings did not emerge for mothers when infants were 12 months old, nor did this finding emerge for fathers at either 6 or 12 months. Greater maternal self-efficacy was correlated with lower parental reports (mother and father combined) of maternal hostility towards the infant when the infant was 6 and 12 months. Greater paternal self-efficacy was also found to be correlated with lower paternal hostility at both 6 and 12 months. Greater parental self-efficacy was uniquely related to increased parental reports of over protective behaviors in the home by
fathers when infants were both 6 and 12 months and by mothers when infants were 12 months. For both mothers and fathers, difficulty of infant temperament was uniquely related to increased intrusively hostile behavior exhibited towards their infant at both 6 and 12 months. The results of this study were contrary to previous findings in that no interaction effect between parental knowledge and parental self-efficacy was found to predict parenting behavior. Limitations and directions for future research are discussed.
I would like to dedicate this manuscript to my parents.

The long hours of talking out my problems, evaluating my thoughts and feelings, ultimately led me to Clinical Psychology and my life-long passion. Without your encouragement, unconditional belief in me, cool headed problem solving, and late night editing of drafts, I would not have made it through these five years. Mom, you are a true model of motherhood, your love and sacrifice for our family takes my breath away. Your ever present strength, calmness in the face of chaos, and friendship has meant the world to me. You truly are my rock. Papi, you have shared in my tears of joy and sadness and proved that a father is strong when he is gentle. You taught me to be a student, a teacher, and a listener. Thank you for modeling that learning is not a task to complete but rather a passionate, lifelong pursuit. I could not have done this without you both!
ACKNOWLEDGMENTS

I would like to acknowledge, first and foremost, my advisor Annette Mahoney, Ph.D. Without your vision and willingness to embark on a longitudinal study, this document would not exist. Throughout my three years at Bowling Green, you were my advisor, teacher, and supervisor, and I look forward to your friendship in the future. I would also like to acknowledge my committee members, Alfred DeMaris, Ph.D., Marie Tisak, Ph.D., and Carolyn Tompsett, Ph.D. Your flexibility, insightful comments, and encouragement, not to mention your flexibility in scheduling was much appreciated. The final acknowledgement goes to my friends and family for their love, encouragement, and support.
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INTRODUCTION

The transition to parenthood can be both stressful and wonderful for new parents. It involves the introduction of new roles, the necessity to learn new skills, the development of new relationships, and the re-evaluation of previously defined roles (Cowan & Cowan, 1995). Parenting is not an innate ability. People learn how to parents from their own parents and loved ones, from the media, and from personal experience. These influences and experiences can be positive or negative, helpful or confusing. Parenting infants for the first time can be an especially difficult process, as it requires individuals to complete unfamiliar and complex tasks, often under high levels of fatigue. What gives parents the motivation to persist in difficult tasks and push through the exhaustion? Some research would suggest that parental self-efficacy is a motivational force that allows parents to persist through these difficult tasks (Bandura, 1982). Persistence in the face of difficult tasks would, intuitively, seem to be a requirement for successful parenting; however, without accurate knowledge of parenting, a new mother or father may persist in caregiving behaviors that are developmentally inappropriate. Taken together, it would seem that both parental knowledge and the self-efficacy to apply that knowledge play an important role in successful parenting.

The research on self-efficacy and/or parental knowledge in families with infants has predominantly focused on mothers (Leerkes & Crockenberg, 2002; Montigny & Larcharite, 2005) using cross-sectional research designs (Coleman & Karraker, 2003; Conrad, Gross, Fogg, & Ruchala, 1992; Salonen, et al., 2009) within the first three months after the birth of the infant (Porter & Hsu, 2003; Salonen, et al., 2009), and/or with high risk populations (Hess, Teti, & Hussey-Gardner, 2004). The current study assesses both mothers and fathers of typically developing infants when their infant is 6 and 12 months old. The purpose of the study is to
evaluate the impact of parental knowledge and parental self-efficacy on the quality of parent-infant interactions.

Two Important Dimensions of Parenting Skills and Their Effects on Child Development: Parental Sensitivity and Intrusiveness

Parental Sensitivity

Although no single definition captures “successful parenting,” two aspects of parenting behaviors observed in interactions between parents and infants have been shown to repeatedly predict long- and short-term emotional and behavioral functioning in infants and toddlers (Strand & Wahler, 1996). One set of critical parenting behaviors revolves around “parental sensitivity.” Diana Baumrind defines parental sensitivity (a.k.a. parental responsiveness) as "the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children’s special needs and demands" (Baumrind, 1991, p. 62). Parental sensitivity has long been thought to be a crucial element in the development of secure attachment relationships between infant and parent (Bowlby, 1969) and in fact, the parents’ sensitivity to their baby’s signals of pleasure or discomfort has been shown to be an important component of the infant’s development and to the understanding of social initiatives and exchanges (Wolff & Ijzendoorn, 1997). Parental sensitivity encapsulates a range of parenting behaviors that include engagement with the infant in a warm and loving manner, and developmentally and situationally appropriate responsiveness to infant cues and needs. Parental sensitivity has been associated with lower levels of externalizing behaviors in children both cross-sectionally and longitudinally (Leventhal, Selner-O'Hagan, Brooks-Gunn, Bingenheimer, & Earls, 2004). A sensitive parent would be expected to also provide developmentally appropriate simulation for the child’s development. Stimulation of development, which can be
defined as providing activities or play interactions that are within the infant’s proximal zone of development, has been found to predict greater intellectual development when compared to young children whose parents encourage solitary activities in infancy (Schaefer & Edgerton, 1985). A parent’s sensitivity towards their infant has been shown to have long-ranging familial benefits, such as predicting a child’s later acceptance of family values and compliance with parental directives (Hetherington & Frankie, 1967; Keller, et al., 2004; MacDonald, 1992). In the rare instances that parental sensitivity has been studied in fathers, researchers have found that a father’s sensitive interactions with his infant is a greater predictor of secure attachment in late childhood and adolescence than the mother’s interaction behavior (Grossmann, et al., 2002). The scarce, but informative, research on the importance of paternal/maternal sensitivity in the creation and maintenance of attachment with one’s child emphasizes the importance of examining parental sensitivity in father-infant interactions as well as mother-infant dyads.

Parental Intrusiveness

While sensitive, warm, engaged, and developmentally appropriate stimulation of development has been shown to have positive outcomes for infants, these behaviors do not necessarily imply the absence of negative parenting behaviors. Parental interactions can become harmful or too stimulating for an infant when a parent engages in overbearing, overprotective, and intrusive play behaviors. “Intrusiveness,” which encompasses both overbearing teaching and overprotective behaviors, occurs when the parent bombards the infant with activities/toys, frequently takes control of activities, or imposes an excessively mature or immature level of functioning on the infant/child (Wood, McLeod, Piacentini, & Sigman, 2009). Excessive intrusiveness or overprotection can place an infant’s autonomy and development at risk as well as result in poor developmental outcomes for the infant. Indeed, research has shown that greater
intrusiveness in early parent-infant interactions predicts greater externalizing behavior problems and overall higher psychological problems (as rated by the Child Behavior Checklist Total Problems subscale) at two years of age (MÃntymaa, Puura, Luoma, Salmelin, & Tamminen, 2004). Additionally, a number of studies have demonstrated that hostile and/or aloof parenting behaviors have long ranging consequences of externalizing behavior problems in middle and late childhood (e.g., Marchand, Hock, & Widamin, 2002; Morrell & Murray, 2003; Rothbaum & Weisz, 1994). It is clear that parenting is not always easy and when an infant is fussy, it can be difficult for parents to modulate their own stress during interactions with their infant, thereby resulting in the exhibition of hostility or negativity towards their infant. In summary, this research points to the short and long range developmental consequences, both behaviorally and emotionally, of engaging in these maladaptive parenting behaviors.

Parental Self-efficacy

As indicated above, a parent’s ability to engage in sensitive and developmentally appropriate stimulation during interactions with their infant without restricting the child’s autonomy is a crucial element in raising a socially and emotionally healthy infant (Montigny & Larcharite, 2005). Thus, it is important to understand the parental characteristics that contribute to these positive and negative parenting practices and that may be amenable to change via educational efforts. Research points to self-efficacy as one significant factor that contributes to an individual’s confidence and effort devoted to parenting (e.g., Cinamon, Wisel, & Tzuk, 2007; Coleman & Karraker, 2003; Hess, et al., 2004; Pierce, et al., 2010; Sevigny & Loutzenhiser, 2009; Teti & Gelfand, 1991). Parental self-efficacy has been identified as a parental characteristic that can be increased through parent training programs (Sanders, 1999) and is predictive of a significant increase in the sensitivity that parents, who are taught appropriate
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Parenting skills via parent training programs, exhibit towards their infant/child (Leerkes & Crockenberg, 2002). Additionally, increasing parental self-efficacy has been shown to increase the likelihood that a parent will maintain, over time, the positive parenting practices acquired through parent training (Sofronoff & Farbotko, 2002). For these reasons, self-efficacy is often a target of parent psycho-educational programs or parent-focused family counseling sessions (Sanders & Woolley, 2005).

While parental self-efficacy has been associated with the positive parenting behaviors for parents who have participated in structured, specialized programs that teach effective parenting skills, only two studies have evaluated the role of parental self-efficacy in maintaining less effective parenting behaviors in community samples of parents. The findings from these studies initially suggest that parents with high self-efficacy may persist in less effective parenting behaviors due to a naive confidence in their parenting skills (Conrad, et al., 1992; Hess, et al., 2004). A goal of the present study is therefore to evaluate the role of parental self-efficacy in both positive (e.g., parental sensitivity) and negative (e.g., parental intrusiveness) parenting behaviors.

The concept of parental self-efficacy is rooted in the more general theory of self-efficacy that was originally conceived by Albert Bandura. Broadly speaking, self-efficacy refers to an individual’s evaluation of his/her ability to successfully complete a task in a given situation (Bandura & Schunk, 1981). Self-efficacy has been found to be an important component of performing or learning diverse human behaviors, desirable or undesirable, although researchers who focus on intervention with distressed individuals tend to highlight the value of self-efficacy in helping to motivate positive changes. Bandura (1982) asserts that if individuals view themselves as being efficacious in their ability to complete a certain task, they will exert a
tremendous amount of energy to meet any challenges and difficulties that arise in performing that task successfully. When applying this construct to parenting, parental self-efficacy can be understood as a parent’s belief or evaluation about their ability to successfully complete the tasks required for parenting (Coleman & Karraker, 2003; Hess, et al., 2004). Many terms have been used to communicate the construct of parental self-efficacy, including parental competence, parental confidence, and parental self-esteem (Jones & Prinz, 2005). To maintain continuity throughout this study, the term self-efficacy will be used as an all-encompassing term for these similar constructs.

During the transition to parenthood, parents begin to differentiate their personal self-efficacy from their parental self-efficacy (Porter & Hsu, 2003). Research on the effects of parental self-efficacy on parenting practices has yielded mixed findings regarding which parenting practices are improved by self-efficacy and which are not. Some research suggests that higher parental self-efficacy during pregnancy is associated with an easier transition to parenthood (Williams, et al., 1987) and greater behavioral competence in everyday tasks of caring for an infant such as feeding and changing diapers (Teti & Gelfand, 1991; Walker, Crain, & Thompson, 1986). Sanders and Wooley (2005) as well as Johnston and Mash (1989) also found that mothers with greater parental self-efficacy reported less infant/child behavior problems, implying that more efficacious mothers were more confident and thus able to engage in effective parenting skills with infants and avoid being intrusive.

In addition to lower infant/child behavioral problems, parents of young children with higher parental self-efficacy also appear to use more active and directive parenting practices that have been shown to promote positive development in infants and children. Parents with higher self-efficacy have also been found to engage in less over-reactive, punitive discipline across their
child’s development (Donovan & Leavitt, 1989; Johnston & Mash, 1989; Mash & Johnston, 1983) and exhibit less hostility towards their infants at 4 months and 16 months (Pierce, et al., 2010). However, no studies could be located that directly assessed associations between self-efficacy and parental overprotective behaviors and intrusiveness with typical families and/or typically developing infants. Conceptually, however, parents who rely on maladaptive parenting strategies to help them manage infants, such as being overly protective, may also be more likely to persist in these negative parenting practices if they confidently view themselves as engaging in necessary parenting behavior that will ultimately lead to a better adjusted toddler or young child.

To reiterate, ideally parents would tend to exhibit only sensitive parenting, but some highly self-efficacious parents may draw both on sensitive and insensitive strategies with their children, depending on the situation at hand (e.g., spanking or imposing excessive limitations as discipline).

Although the studies above have found a significant relationship between parental self-efficacy and parent/child behavior, some studies have failed to reveal a relationship between these variables. For instance, Halpern and McLean (1997) did not find a significant relationship between mother-infant play interactions and maternal self-efficacy. Similar to Halpern and McLean, Leerkes and Crockenberg’s (2002) research did not show a significant relationship between maternal self-efficacy and maternal sensitivity during mother-infant interactions. Halpern and McLean (1997) suggest that their null findings may be due to the single time point evaluation of these behaviors. Specifically, parental self-efficacy may impact quality of parent-child interactions and child behavior more with the passage of time. Alternately, these discrepant findings may be accounted for by the rapidly changing tasks required for parenting a developing infant. In the first year of life, an infant’s social, emotional, and physical world rapidly evolves.
As a parent attempts to keep up with their child’s developmental changes, their self-efficacy is likely to also change (Rothbart, 1989). It may be lower at some developmental time points (e.g., as the infant begins to learn how to crawl) and higher at other times (e.g., when the infant begins sleeping through the night). Therefore in the present study parental self-efficacy will be assessed at two different developmental time points (i.e., when the infant is 6 and 12 months).

Parental levels of self-efficacy can be measured during pregnancy as an indicator for how they approach parenting their new born infant; however, there are many child characteristics that have been found to play a significant role in the maintenance or degradation of self-efficacy throughout parenthood, such as the infant’s gender. Conflicting evidence exists regarding the impact of infant gender on parental self-efficacy. Brage-Hudson et al. (2001) found that there was no significant difference in self-efficacy between parents of same-sex versus parents of opposite sex children. Cronenwett, Sampselle, and Wilson (1988) found however, that in terms of infant care, fathers of boys had higher self-efficacy than fathers of girls. A possible explanation for these findings is that as the child grows older and parents begin to engage in more gender-stereotypical play, mothers of daughters and fathers of boys may show an increase in parental self-efficacy (De Luccie, 1996). Additionally, as the child grows, the father may be able to take part in more caregiving responsibilities (e.g., feeding when the infant is weaned to a bottle) and thus feel more efficacious, regardless of the infant’s gender. To eliminate child gender as an extraneous factor that may influence parental self-efficacy, this will be entered as a control variable in the present study.

The difficulty of an infant’s temperament may also reduce a parent’s self-efficacy. Troutman and Cutrona (1990) demonstrated that infants who were observed to be more irritable by objective observers and who were rated as more difficult by their mothers, had mothers who
reported feeling less efficacious. It may seem obvious to the reader that a mother who repeatedly attempts to soothe her fussy child and is unsuccessful in the attempt may feel some degree of inadequacy over time and therefore feel less efficacious as a parent (Cutrona & Troutman, 1986; Donovan & Leavitt, 1989; Donovan, Leavitt, & Walsh, 1990; Papousek & von Hafacker, 1998; Stifter & Bono, 1998). However, despite the apparent importance of child temperament as a contributor to parental self-efficacy, this child factor has consistently been left out as a control variable in much of the parental self-efficacy literature. Further, infant temperament has been completely ignored in research addressing the mutual and interactive roles of parental knowledge and parental self-efficacy in predicting parenting of infants. Therefore, to determine the unique effects that knowledge may have on self-efficacy, as well as the unique effects that knowledge and self-efficacy have individually on parenting behavior, it is important to control for difficulty of infant temperament.

The effects of parental self-efficacy on the quality of parenting interactions as well as infant behavior may also be influenced by parent’s age, and intuitively, a parent’s education is likely to be heavily tied to their parenting knowledge (Bailey, 1994; De Luccie, 1996; Elek, Hudson, & Bouffard, 2003). Thus, these variables will also be entered as control variables in the present study.

Moderating Effect of Parental Knowledge on Parental Self-efficacy and Parenting Behavior

One possible reason that some researchers have not found a direct relationship between parental self-efficacy and parenting behavior (Halpern & McLean, 1997; Leerkes & Crockenberg, 2002) could be the presence of factors that may moderate or interact with parental self-efficacy to impact parenting behavior. For example, although successful parenting may
require confidence in one’s parenting ability, the quality of parenting may also require an accurate awareness of what constitutes developmentally appropriate parenting practices (i.e., parental knowledge). Conrad and colleagues (1992) suggest that self-efficacy in one’s ability to succeed is necessary but not sufficient for mastering a task. Consistent with Bandura’s (1977) assertion that mastery requires a combination of both correct knowledge and confidence to influence behavior (Bandura, 1977), parents may need to have accurate knowledge about the parenting task and what “success” in that domain would look like in order to achieve competency. Parental knowledge has been defined by Dichtelmiller and colleagues (1992) as “an aspect of adult social cognition that comprises one's understanding of infant developmental processes, caregiving and childrearing skills, and developmental norms.” Benasich and Brooks-Gunn (1996) found that when assessing parental knowledge in a sample of mothers of low-birth weight, high risk infants, the influence of parental knowledge varied by the specific domain of parenting that they were measuring. For the purpose of this study, the domain of parental knowledge assessed was the parent’s knowledge of major developmental milestones (e.g., when an infant begins to crawl and walk).

Benasich & Brooks-Gunn (1996) found that parents with greater knowledge of developmental capabilities and milestones provided more stimulating and positive environments for their infant. Mothers with correct awareness of the rapidity of infant cognitive development also provided their infants with more cognitively enriching activities earlier than less knowledgeable mothers. In summary, this research indicates that parents’ knowledge base surrounding parenting and knowledge of their infant’s development have been shown to lead to the creation and maintenance of an educational and enriching environment within the home. Further, the positive effects of parental knowledge on parent-infant outcomes discussed above
appear to be moderated by parental characteristics such as the parent’s level of educational attainment and age of the caregiving parent (Benasich & Brooks-Gunn, 1996; Parks & Smeriglio, 1986; Synder, Eyres, & Barnard, 1979). For the purpose of this study, parental education level and age will be set as control variables to remove them as possible confounds when evaluating the relationship between parental self-efficacy and parental knowledge.

Parental knowledge has been shown to be associated with more positive parent-infant interactions, more competent parenting practices, and better infant adjustment. Despite the theoretical necessity of parental knowledge for parental self-efficacy as discussed above, very little research has been conducted on the interplay between parental self-efficacy and parental knowledge in predicting parent-infant interaction quality, such as parental sensitivity, warmth, and non-intrusive stimulation (Sanders & Morawska, 2005). Specifically, only two studies have simultaneously considered the direct effects of both parental self-efficacy and parental knowledge on parenting behaviors and attempted to determine if each aspect of parenting cognitions predicts parent and infant behavior when the other predictor is controlled (Conrad, et al., 1992; Hess, et al., 2004).

Conrad and colleagues (1992) conducted a study with 55 mothers of 1 to 3-year olds focusing on knowledge of parenting tasks and parental self-efficacy and their relation to the quality of parent-infant interactions during toddlerhood. A cross-sectional research design was used to assess the impact of self-reported parental self-efficacy and parental knowledge on observed parent-infant interaction quality (i.e., maternal sensitivity and stimulation of development). Observations of parent-toddler interactions occurred during a structured scenario in which the parent was instructed to teach the child a certain skill. Conrad and colleagues (1992) did not find a main effect of parental knowledge on quality of parent-toddler interactions, nor did
they find a main effect of parental self-efficacy on the quality of parent-toddler interactions. However, they did find a significant interaction effect between maternal knowledge and maternal self-efficacy in predicting the quality of parent-toddler interactions. Specifically, those mothers who reported the greatest knowledge of parenting and parental self-efficacy demonstrated a greater quality of parent-toddler interactions than their less knowledgeable and less confident counterparts. Interestingly, when maternal knowledge was low but parental self-efficacy was high, the quality of parent-toddler interactions was also poor. This finding suggests that knowledge may be playing a crucial role in self-efficacy when performing desirable parenting behavior.

A study by Hess and colleagues (2004) represents the only attempt in the literature thus far to study the possible interaction of parental self-efficacy with parental knowledge in infancy to predict parenting skills. Their sample included 65 mothers with a wide age range (1 to 10 months) of high-risk infants (e.g., premature birth, low birth weight, or infants with a persistent medical condition). Maternal self-efficacy and parental knowledge were measured via self-report measures, while maternal behavioral competence (a.k.a. quality of interaction with their infant) was measured through observations of mother-infant unstructured play interaction. Hess and colleagues did not find a main effect for parental self-efficacy or parental knowledge on maternal behavioral competence; however, they did discover an interaction effect between self-efficacy and parental knowledge in predicting maternal behavioral competence. Specifically, when parental knowledge and parental self-efficacy were both high, maternal behavioral competence was high. But, consistent with Conrad et al.’s findings (1992), when parental knowledge was low and parental self-efficacy was high, then maternal behavioral competence was low. Also, mothers who exhibited the combination of low self-efficacy and high knowledge showed similar
behavioral competence to those mothers with low self-efficacy and low knowledge.

Interestingly, the low knowledge and high self-efficacy mothers exhibited the lowest behavioral competence among the four groups of mothers. These mothers appear to represent a group of mothers uniquely at risk in regards to behavioral competence during parent-infant interactions. These findings support the notion of the “naively confident mother” also identified in the study conducted by Conrad and colleagues (1992). However, due to the lack of fathers within the sample of this study and Conrad and colleagues, it is difficult to know if the findings of the “naively confident” group within the mothers of these two studies would hold for fathers as well.

As this research illustrates, some foundation has been laid regarding the interaction of parenting knowledge with self-efficacy and their impact on parent-infant outcomes, but much is still unclear. Currently, no studies have evaluated the interaction effect of parental self-efficacy and parental knowledge on negative aspects of parenting behavior at multiple time points for infants from the same family. Additionally, each of the two studies looking at the interaction effect of parental self-efficacy and parental knowledge on quality of parent-infant interactions and/or infant behavior were focused only on mothers, and only one study was conducted with infants (i.e., within the first year after birth). The role of infant temperament was not considered or controlled for in examining the direct and interactive effects of self-efficacy and knowledge for parental behavior. Finally, these studies only employed observational measures of positive parenting strategies and did not assess negative parenting behavior that tends to occur less frequently and are therefore more difficult to detect during short observed interactions when parents are often on their best behavior. Thus, especially when attempting to assess negative parenting, it is helpful to rely both on parental self-reports of low base rate behavior such as undesirable parenting tactics as well as direct observation of brief parent-infant interactions.
The Present Study

Although some initial evidence suggests that parental self-efficacy and parental knowledge are each tied cross-sectionally to positive parenting behaviors (e.g., parental sensitivity, warmth, and appropriate stimulation of development), scarce and inconsistent information exists on the role of parental self-efficacy in predicting negative parenting behaviors (e.g., intrusiveness and negative regard towards the infant). Further, little research is currently available about the interplay of parental efficacy and knowledge in predicting positive parental behavior during observed parent-infant interactions across the first year of life (Conrad, et al., 1992; Hess, et al., 2004; Pierce, et al., 2010; Sevigny & Loutzenhiser, 2009) and currently no research exists on the role of this interaction in predicting negative parenting behavior. These inconsistent findings are likely due to some of the limitations within the current literature. First, parental self-efficacy and knowledge have been understudied in fathers (Jones & Prinz, 2005). Also, much of the research on parenting self-efficacy and knowledge has been done on mothers of high-risk infants (e.g., low birth weight; Hess, et al., 2004) or may combine high-risk infants with typically developing infants to create their sample (Halpern & McLean, 1997). These factors limit the generalizability of the findings to most families (Dichtelmiller, et al., 1992; Gage, Everett, & Bullock, 2006; Hess, et al., 2004; Julian, 1983; Stern & Alvarez, 1992). In addition to the aforementioned limitations, the research in this area seems to lack multi-modal assessment of the outcomes under measurement (Morawska, Winter, & Sanders, 2008).

This study seeks to address these limitations by assessing parents with typical pregnancies and typically developing infants when the infants were 6 and 12 months of age. Additionally, observational data as well as self-report data was used to evaluate the intrusive and negative parenting behaviors during mother-infant and father-infant interactions. Due to the lack
of reliable and valid self-report measures of parental sensitivity with infants, positive parenting behaviors were restricted to the use of observational data from parent-infant interactions. Parental knowledge and parental self-efficacy were measured by parental self-report. The purpose of this study is to assess the role that parental knowledge of infant development and parental self-efficacy play in maintaining parental sensitivity and/or intrusiveness and negativity.

Hypotheses

Hypothesis 1: Higher self-reported parental knowledge about developmental milestones when an infant is 6 months old was expected to be uniquely associated with more sensitive parenting at 6 months during observations of interactions and lower parental intrusiveness and negativity from both observation of interactions and parent report, after controlling for parental efficacy, infant temperament, infant gender, parental age, and education. A parallel set of cross-sectional findings were expected when the infant is 12 months old.

Hypothesis 2: Higher self-reported parental self-efficacy when an infant is 6 months old was expected to be uniquely associated with more effective parenting behavior at 6 months based on observations after controlling for infant temperament, infant gender, parental age, and education. Given that there is little research to inform the direction of effects to be expected when looking at the role of parental self-efficacy in predicting parental intrusiveness and negativity; it was difficult to hypothesize about the direction of the correlation between parental self-efficacy and intrusive parenting. Ideally, greater parental self-efficacy would predict lower parental intrusiveness and negativity after controlling for infant temperament, infant gender, parental age, and education. However the reverse pattern could also be possible in a community sample of highly confident parents who are not necessarily well educated about effective parenting strategies with infants.
Hypothesis 3: Mothers and fathers with greater parental knowledge when their infant was 6 months old were expected to show greater parental self-efficacy at that time. Likewise, parental knowledge at 12 months was expected to be positively correlated with parental self-efficacy at 12 months.

Hypothesis 4A. 6 Months: The impact of mothers’ and fathers’ self-efficacy at 6 months on ratings of parenting behaviors during parent-infant interactions at 6 months was expected to be moderated by the level of parental knowledge at 6 months after controlling for infant temperament, parent age, education, and infant gender. Specifically, those parents with low knowledge and high self-efficacy at 6 months were expected to display poorer parenting behavior (e.g., more intrusiveness and negativity towards the infant) than those with high knowledge/high self-efficacy and those with low knowledge/low self-efficacy at 6 months.

Hypothesis 4B. 12 Months: The impact of mothers and fathers self-efficacy at 12 months on ratings of parenting behaviors during parent-infant interactions at 12 months was expected to be moderated by the level of parental knowledge at 12 months after controlling for infant temperament, parent age, education, and infant gender. Specifically, those parents with low knowledge and high self-efficacy at 12 months were expected to display poorer parenting behavior (e.g., more intrusiveness and negativity towards the infant) than those with high knowledge/high self-efficacy and those with low knowledge/low self-efficacy at 12 months.
METHODS

Sample

The participants for this project were drawn from a longitudinal study (New Arrivals Passage to Parenthood Study – NAPPS) directed by Drs. Annette Mahoney, Kenneth Pargament and Al DeMaris tracking married couples’ transition into parenthood. Funding for the NAPPS study was provided by a generous grant from the Templeton Foundation.

Participants were recruited from a mid-sized metropolitan area of the Midwest including the surrounding suburban and rural areas. A variety of methods were used to recruit participants including advertisement at childbirth classes, and distribution of mailers, flyers, and other advertisements. Recruitment materials can be found in Appendix C. Couples who responded to advertisements were informed that the study was designed to examine the effects of the transition to parenthood on spiritual, physical, and emotional well-being. Inclusion criteria required partners to be married, pregnant with each individual’s first child, and that English was the primary language within the household. Staff members contacted interested couples by phone to ensure that they met inclusion criteria and to schedule appointments for home visits.

For the purposes of this study, the primary data used for analyses were collected during the third and fourth phases of the NAPPS project (i.e., when the child was approximately 6 and 12 months old). The NAPPS project was modeled after the four-phase, longitudinal NICHD Child Care Study. Phase one of this larger project occurred when the couples were in the late stages of their third trimester of pregnancy, and phase two occurred when the infant was 3 months old. Of the 178 families who began the study, 164 families completed all phases of data collection. At the fourth time point, infants’ ages ranged from 49 to 63 weeks ($M = 52.64, SD = \ldots$)
2.59), and mothers’ and fathers’ ages ranged from 21 to 41 years ($M = 28.18, SD = 3.97$) and 21 to 43 years ($M = 29.72, SD = 4.44$), respectively. Couples had been married an average of 3.6 years at pregnancy. In 79.8% of the sample, both spouses were Caucasian and in 20.2% of the sample, one or both spouses were from other ethnic backgrounds. Of the infants, 48% ($n = 79$) were male. For mothers, 6.2% had a high school education, 22.5% had partial college/post high school training, 44.9% had college degrees, and 26.4% had graduate or professional degrees. For fathers, 1.7% had completed some high school, 10.1% had a high school education, 28.1% had partial college/post high school training, 42.1% had college degrees, and 18% had graduate or professional degrees. The breakdown of family income during pregnancy was: 3.1% less than $25,000; 23.3% between $25,001 and $50,000; 31.9% between $50,001 and $75,000; 25.2% between $75,001 and $100,000; 11.6% between $100,001 and $130,000; and 4.9% more than $130,000. At the fourth phase (i.e., when the child was approximately 1 year old), 76.2% of mothers and 94.5% of fathers worked outside the home.

**Procedure**

As indicated above, data for the current study were drawn from phases three and four of the NAPPS data collection when the infant was 6 months and 12 months, respectively. Phase three (i.e., when the child was 6 months) involved one home visit, whereas phase four (i.e., when the child was 12 months) involved two home visits approximately 2-3 weeks apart, given the amount of data being collected at that stage of family life. Before beginning the home visits, each participant was asked to read and sign a consent form that provided them with detailed information about the study and their right to withdraw from the study at any time. The consent form given to the parents can be found in Appendix B.
During home visits at 6 months and 12 months, both parents were asked to complete a battery of questionnaires and complete videotaped parent-infant interactions. Each parent completed paper and pencil surveys (See Appendix B) individually while in the presence of two research assistants who provided childcare for the infant as needed.

*Observational Coding Procedures*

Parent-infant interactions were videotaped at phase three and four of this study (i.e., 6 months and 12 months). The procedure for the parent-infant interaction sessions were modeled after the NICHD Child Care Study. A brief explanation of this procedure and coding system are provided here; for greater detail readers are directed to the NICHD study publications (e.g., NICHD, 1999; NICHD, 2005). Even-numbered subjects began with the mother-infant interaction and odd-numbered subjects began with the father-infant interaction. The parent not involved in the current interaction was asked to go to a location in the house where they could not hear or see the interaction with the target parent and child. The non-target parent completed surveys during the other’s interaction.

During phase three when the infant was 6 months old, the target parent was asked to play with the child like they normally would. The parent was asked to position the infant and self in such a way so that throughout the interaction their faces would be videotaped as much as possible. During time four, when the infant was approximately 12 months old, the parents were presented with three bags of toys and asked to work their way through the three bags at their own pace. The main objective of this task was to provide structure for observing parent-infant interactions in the context of play by specifying that the child play with the toys in each bag starting with a specified bag. Toys were selected to be within the child’s zone of proximal development, to foster different types of activities, to have the potential of being used in multiple
ways by the child and their parents, and to provide some similarity across families in the nature of the play task. An example script for the parent-infant interactions can be found in Appendix A, Section IV.

Coding of parent-infant interactions involved observers’ qualitatively rating 10 minutes of semi-structured, videotaped parent-infant play. Three coders were first asked to take longhand notes of parent and child behaviors as they relate to each scale and organize the notes by coding category on the worksheet titled "Qualitative Notes." Ratings were then given based on a detailed coding manual that explicated how raters should evaluate the quality and quantity of behavior (see Appendix A, IV). Thus, evaluations took into account the quality of the observed behaviors in relation to the proportion of the time they were observed. The tapes were watched one time through to get a sense of the overall dynamic and flow of the interaction, then again a second time in which the coder took written notes of parent and child behaviors. If necessary to get complete sense of the tape, coders were encouraged to watch the tape a third time adding to the notes of parent and child behaviors. The coding system was taken and revised from the NICHD Early Child Care Study (NICHD, 1999). The entire coding system included six parent codes and five child codes. The six pertinent parenting codes from the revised coding manual, which includes detailed definitions of each coding construct, can be found in Appendix A, IV.

Interrater reliability was calculated for each of six parent codes for both mothers and fathers at 6 months and 12 months. Coders were trained via sample parent-child interaction videos using the coding system adapted from the NICHD Child Care Study discussed above. Once coders reached an overall interclass correlation (ICC) of .80 on all six codes combined, coding interactions were assigned so that each coder was responsible for coding one a third of the videotaped interactions. To assess inter-reliability over time, one third of the tapes were
randomly selected to be coded by all three coders, who were uninformed about which tapes
would be checked for inter-rater reliability. Interrater reliability results can be found in Table 1.

The overall ICC was .96 for all codes combined for the mother-infant interactions taped
at 6 months. The ICC for each individual code for mothers at 6 months was above .90.
Specifically, the values of ICCs for the six codes were .93 for sensitivity, .91 for intrusiveness,
.94 for engagement, .97 for stimulation of development, .94 for warmth/love, and .94 for
negative regard. The overall ICC for mothers at 12 months was .88. The ICCs for each of the six
individual codes for mothers for parent-infant interactions 12 months were above .60.
Specifically, the values of ICCs were .69 for parental responsiveness, .65 for intrusiveness, .91
for engagement, .75 for stimulation of development, .64 for warmth, and .73 for negative regard.

The overall ICC was .90 for all codes combined for the father-infant interactions taped at
6 months. The ICCs for the six individual codes for fathers at 6 months were above .90.
Specifically, the values of ICCs were .93 for parental responsiveness, .91 for intrusiveness, .94
for engagement, .97 for stimulation of development, .94 for warmth, and .94 for negative regard.
The overall ICC for fathers at 12 months was .88. The ICCs for each of the six individual codes
for fathers at 12 months were for the most part over .69. However, the ICCs for parental warmth
and parental negative regard were of concern. Specifically, the values of ICCs were .73 for
parental responsiveness, .75 for intrusiveness, .84 for engagement, .69 for stimulation of
development, .46 for warmth, and .55 for negative regard. The level of interrater reliability for
the last two observational codes of warmth/affection and negative regard were below the level
typically accepted within observational research on parent-child interactions.

Factor analysis was initially conducted with each set of parent-infant interactions (four
total: mother/father-infant interactions at both 6 and 12 months) to determine if the observational
variables would load onto two dimensions at each time point for mothers and fathers that corresponded to the two aspects of parenting behavior of interest for this study (i.e., parental sensitivity and parental intrusiveness and negativity). Due to the low reliability coefficients for parental warmth/affection and negative regard for father-infant interactions at 12 months, a factor analysis was run with and without these codes for this particular parent-infant interaction; for the other three interactions only one FA was conducted (i.e., mother-infant interaction at 6 months; mother-infant interaction at 12 months; father-infant interaction at 6 months).

The dimensionality of the six codes on the observational coding system used in this study was analyzed using principal component analysis. Two criteria were used to determine the number of factors to rotate: the scree test and the interpretability of the factor solution. The scree plot indicated that the observational parenting behavior codes loaded onto two factors, which were then rotated using Varimax rotation procedure. The rotated solution, as shown in Table 2, yielded two interpretable factors that did load onto the two aspects of parenting behavior of interest for this study, specifically that of sensitive parenting behaviors, which will heretofore be labeled as sensitive parenting behaviors, and that of negative parenting behaviors, which will heretofore be labeled as intrusive and negative parenting behaviors.

The factor analysis also revealed that one of the six individual codes, namely the code labeled “sensitivity” in the coding manual, strongly loaded onto both dimensions, positively loading on the sensitive dimension and negatively loading on the intrusive/negative dimension. This suggests that the observational code of “sensitivity” may measure parenting behaviors that are sensitive and insensitive in a way that the other coded variables did not. The corresponding eigen values for each code can be found in Table 3.

The additional factor analysis that was run for fathers at 12 months with only four codes
(sensitivity, engagement, stimulation, and intrusiveness) revealed that the four codes loaded onto only one dimension which will be called father’s 12 months single factor composite. A composite variable was created from the result of the factor analysis and a regression analysis was run to determine if the exclusion of the two variables with low alphas would contribute significantly to the results when compared with the two dimensions and resulting composite variables that were created when warmth/affection and negative regard were included during the factor analysis. The findings for the single dimension were not markedly different that the results of the two dimensions and therefore for consistency across parents and time points analyses were run with the two dimensions for father’s at 12 months will be included as well (results of these regression analyses can be found in the results section and Table 4).

Measures

*Demographic Information*

Each parent also completed a demographic questionnaire to obtain general information about the family. Parental education, parent age, and child gender variables were entered into the regression equation as control variables (See Appendix A, Section V).

*Infant Temperament*

Infant temperament may influence parental self-efficacy and therefore obscure the relation between self-efficacy and parent/infant outcomes (Porter & Hsu, 2003). To control for this possibility, parent ratings on the Bates Temperament scale (Bates, Freeland, & Lounsbury, 1979 – 20 items), rating the difficulty of their infant’s temperament when the infant was three months old, was entered as control variable. Items were rated on a 7-point Likert scale measuring the frequency and intensity of infant behaviors/characteristics related to four subscales: fussy, unadaptable, dull, and unpredictable. Parents who rate their infants high on the fussy subscale
view their baby as difficult to soothe, irritable for long periods of time, and as crying and fussing much more than the average baby. Infants who are rated high on the unadaptable subscale are perceived by parents to respond negatively to changes in routine and to new people and places. Infants rated high on the dull subscale are reported to very rarely smile, make happy sounds, or show much excitement compared to most infants. Parents who rate their infants high on the unpredictable subscale report that they have difficulty predicting when the infant will sleep, wake up, or be hungry. The four subscales of this measure were combined to create a composite variable of overall temperament that was entered into the regression equation as a control variable (See Appendix A, Section VI for a copy of this measure).

Knowledge of Infant Development

Parental knowledge of developmental milestones was measured by the Knowledge of Infant Development inventory. In initial studies by McPhee (1981) the internal consistency reliability alpha for the Knowledge of Infant Development Inventory was .82 for parents. This measure assesses knowledge of effective parenting practices that promotes children’s health, psychosocial development, developmental processes, health and safety guidelines, and developmental norms and milestones relevant to children from birth to 2 years of age. In total, the measure is 75 items, but due to survey production error only the 19-item subscale that measures the parent’s knowledge of developmental milestones was administered to all parents at phases three, and four of this study (i.e., when the infant was 6 months, and 12 months old). The instructions for the 19 developmental milestones questions indicated that parents should respond as either “agree” or “disagree” that the behavior listed was age appropriate; if they disagreed, parents were then asked to decide if the child would need to be older or younger to exhibit the behavior. Three example items from the developmental milestone are “Most babies can sit on
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Infants usually are walking by about 12 months of age, and “Two year olds are able to reason logically, much like an adult would.” The remaining questions used to assess parental knowledge of developmental milestones can be found in Appendix A, Section II.

**Parental Self-efficacy**

Parental self-efficacy was assessed using the parental self-efficacy subscale from the Parental Cognitions and Conduct Toward the Infant Scale (PACOTIS, Boivin, et al., 2005). The present study used the parental self-efficacy subscale that was administered to all parents at phase three and four of this study (i.e., 6 months and 12 months). This subscale was embedded throughout the entire PACOTIS, which is a self-report measure of parental perceptions and behavioral tendencies toward a recently born infant. The parental self-efficacy subscale assesses a parent’s subjective confidence in his or her ability to care effectively for a particular infant. Three sample items are “I feel that I am very good at calming my child down when he/she is upset, fussy or crying,” “I feel that I am good at keeping my baby amused,” and “I feel that I am very good at attracting the attention of my baby.” For the other items in this subscale, see Appendix A, Section I. Each item was rated on a 10-point Likert scale ranging from 1 (“Not at all what I think”) to 10 (“Exactly what I think”). The content validity of the PACOTIS was confirmed by a panel of 15 experienced clinical and development psychologists, and good construct validity was found for each of the four subscales, including the self-efficacy subscale (Boivin, et al., 2005).

**Parental Intrusiveness**

*Direct Observation of Parental Intrusiveness and Negativity.* Direct observation of parental intrusiveness and negativity was measured by relying on three of the observers’ ratings
The Role of Parental Knowledge & Self-efficacy in Parent Behavior

of the videotaped parent and child interactions discussed above in the procedures section:

parental intrusiveness, negative regard, and insensitivity. Interactions between parent and infant
may become intrusive when parent-infant interactions include excessively high arousal, vigorous
physical interaction, or a rapid pace that does not allow the child a "turn" or an opportunity to
respond at his/her pace. Alternatively, an intrusive interaction may be one in which a parent
behaves in an overprotective manner or unnecessarily limits an infant’s ability to explore or
manipulate objects, thereby restricting development. Parental negative regard is identified as a
parent who seems disinterested in the child’s activities, looks bored or aloof, rarely makes eye
contact and/or rarely talks to the child. Parental negative regard also includes the rare instances
that a parent speaks harshly or becomes physical with the child during the interaction. Parental
insensitivity was rated when a parent failed to notice or actively ignored the infant’s signals of
distress. Additionally, insensitivity occurs when a parent responds inappropriately to the child’s
cues or bids for attention, and thereby increases the child’s distress.

Parental Report of Intrusively Hostile Behavior. Parental reports of their own and their
spouses’ intrusiveness and negativity was assessed based on responses of the parents to the
hostile-reactive parenting subscale of the PACOTIS (Boivin et al., 2005 – 14 items). See
Appendix C, Section III for a copy of this measure. This scale is designed to assess how angry
and annoyed parents get with their babies (e.g., “I have been angry with my baby when he/she
was particularly fussy,” “When my baby cries, he/she gets on my spouse’s nerves”), as well as
parents’ reactive behavior toward their infant’s fussiness, ranging from mild (e.g., “I have raised
my voice with or shouted at my baby when he/she was particularly fussy”) to severe (e.g., “My
spouse has shaken my baby when he/she was particularly fussy”). Each parent rated these items
on a 10-point Likert scale ranging from 1 (“Not at all what I/he/she did”) to 10 (“Exactly what
I/he/she did”) when the infant was 6 and 12 months old. Scores for mothers’ and father’s intrusively hostile behavior toward their infant were created for fathers by summing fathers’ self-reports with mothers’ reports of the fathers’ behavior and then taking the average of the sum score. The same was done for mothers’, with mothers’ self-reports and father’s report of mother’s behavior. This resulted in a parental intrusively hostile composite score for each parent. In a recent study of infants, the hostile-reactive parenting subscale yielded an alpha of .80 across three time points, with the earliest time point beginning at age 4 ½ months (Pierce et al., 2010).

**Parent Report of Intrusively Overprotective Behavior.** Parental intrusiveness & negativity was also measured using the overprotective parenting subscale of the PACOTIS (Boivin et al., 2005 – 10 items). See Appendix C, Section III for a copy of this measure. This scale is designed to assess behaviors reflecting excessive concern for the safety and protection of the child. These behaviors can result in a restriction of the child’s autonomy by limiting the child’s ability to explore and experience new things. Scores for mothers’ and father’s intrusively overprotective behavior toward their infant were created for fathers by summing fathers’ self-reports with mothers’ reports of the fathers’ behavior and then taking the average of the sum score. The same was done for mothers’, with mothers’ self-reports and father’s report of mother’s behavior. This resulted in a parental intrusively overprotective composite score for each parent.

To maintain clarity throughout the rest of the document regarding observational data versus parent report data specific labels will be used to denote each sub-domain of Intrusiveness and Negativity. Observations of parental intrusiveness and negativity will be referred to as parental intrusiveness and negativity during parent-infant interactions. Parent report of hostility will be referred to as “intrusively hostile behavior towards the infant” and parent report of overprotective behaviors will be referred to as “intrusively overprotective behavior.”
**Parental Sensitivity**

*Direct Observation of Parental Sensitivity.* Direct observation of parental sensitivity was measured by combining three of the observers’ codes from the videotaped parent and child interactions discussed above in the procedures section. Four codes were used to assess components of sensitivity: parental sensitivity, parental warmth/affection, parental stimulation of development, and parental engagement. Parental sensitivity focuses on how the parent observes and responds to the child’s social gestures, expressions, signals, behavior and temperament. The key defining characteristic of a sensitive interaction is that it is child-centered. The sensitive parent manifests awareness of the child's needs, moods, interests, and capabilities, and allows this awareness to guide his/her interaction. Parental warmth measures parents’ positive feelings toward the child expressed during interaction with him/her. Specific behaviors that contributed to these ratings included: speaking in a warm tone of voice, hugging or other expressions of physical affection, smiling, laughing with the child, looking into the child’s face when talking, and/or enthusiasm about the child. An engaged parent is optimally stimulating of an infant, engages with and is aware of, the child's needs for interaction. Engagement with the child was measured to determine how much of the interaction parents spent actually engaged versus observing their child. The engaged parent facilitates involvement with objects or people without taking over excessively. Such parents join the child's play, participate in "conversations" and seem aware of what the child is doing. The engaged parent seeks out and wants the child to look to them, pays attention to how the child looks at them, making frequent eye contact, vocalizes to them, or responds to other cues that call for parent attention and involvement.

*Parent Report of Sensitivity.* Notably missing from this study is a parent report measure of parental sensitivity. Unfortunately, the literature on parental sensitivity had not yielded a
reliable and valid self-report measure of parental sensitivity when data used for this study was collected as part of a larger project (Boivin, et al., 2005). In short, although the researchers who developed the PACOTIS were able to create reliable and valid subscales to assess parental hostility, overprotectiveness, and self-efficacy with infants, they attempted but were unable to generate items that held together in a consistent way to assess parental warmth and sensitivity. These researchers concluded that many parents tended to over report these highly desirable parenting skills and thus the parents’ responses did not yield a reliable or valid measure that differentiated this dimension, implying that observational methods are necessary to assess parental sensitivity.
RESULTS

Descriptive statistics were calculated for predictor, criterion, and control variables and can be found below in Table 5. The results of the regression analysis for father-infant interactions at 12 months that employed the single dimension composite variable of observations of parent behavior (e.g., single dimension of parenting behavior without warmth/affection and negative regard) did not produce significant results or differing results when compared to the two-dimension regression analysis of the fathers parenting behavior at 12 months (see Table 4). Therefore, to promote consistency across analyses for both parents and time points, the two dimensions of observation of parent-infant interactions (parental sensitivity and parental intrusiveness/negativity) will be used rather than the single dimension for fathers’ analyses at 12 months.

Mothers

Maternal Parental Knowledge

Maternal Intrusiveness. Correlations for maternal intrusiveness can be found in Table 6. Maternal self-reports of greater parental knowledge were correlated with observations of lower intrusive and negative parenting behavior during parent-infant interactions with infants at 6 months ($r=-.25$, $p<.01$). This association remained significant (see Table 7) after controlling for difficulty of child temperament, child gender, maternal education, and maternal age, ($\beta=-.24$, $p<.05$). This significant finding with observational data did not emerge when infants were 12 months old. Maternal reports of parental knowledge were not related to mother and father reports of mother’s intrusively hostile or intrusively overprotective behavior with their infants 6 or 12 months old.
Maternal Parental Sensitivity. Table 6 presents the results for bivariate correlations of maternal parenting behavior. The results suggest that maternal self-report of more parental knowledge was related with observations of greater maternal sensitivity observed during parent-infant play interactions when the infant was 6 months old \((r=.31, p<.01)\). Further, hierarchical regression analysis revealed (see Table 7) that maternal reports of greater parental knowledge uniquely contributed to the variance in observations of more sensitive parenting behavior toward the infant at 6 months, after controlling for difficulty of child temperament, child gender, maternal education, and maternal age \((\beta=.28, p<.05)\). This significant finding did not emerge when infants were 12 months old.

Maternal Parental Self-efficacy

Maternal Intrusiveness. Maternal self-report of parental self-efficacy was negatively correlated (see Table 6) with mothers’ and fathers’ reports of maternal intrusively hostile behavior when the infant was 6 months \((r=-.23, p<.01)\) and 12 months old \((r=-.28, p<.01)\). However, after controlling for child temperament, child gender, maternal education and maternal age, parental self-efficacy did not significantly contribute to the variance in maternal hostility when the infant was 6 or 12 months (see Table 7). Additionally, mothers’ parental self-efficacy was found to contribute uniquely to the variance in maternal intrusively overprotective behavior at 12 months \((\beta=.23, p<.05)\). This finding was not replicated at 6 months. Maternal self-efficacy was not related to observed intrusiveness during maternal-infant interactions.

Maternal Parental Sensitivity. Observations of maternal sensitivity during parent-infant interaction were not correlated with parental self-efficacy.
Maternal Supplemental Findings

Maternal Intrusiveness. Maternal intrusively hostile behavior toward the infant was positively correlated (see Table 6) with maternal rating of infant temperament when the infant was both 6 months ($r=.34$, $p<.01$) and 12 months old ($r=.37$, $p<.01$). This relationship held up after controlling for parent education, parent age, and child gender (see Table 7) when the infant was both 6 months ($\beta=.34$, $p<.05$) and 12 months old ($\beta=.37$, $p<.05$).

Interaction Effects between Parental Knowledge and Maternal Parenting Behavior

No significant interaction effects between maternal knowledge of infant development and maternal self-efficacy emerged with any observed or parent-report data on parenting behavior when infants were 6 or 12 months old.

Father

Paternal Parental Knowledge

Fathers’ knowledge of infant development was not correlated (see Table 8) with any parenting behaviors at 6 or 12 months. Knowledge was, as would be expected, positively correlated (see Table 8) with education at 6 months ($r=.21$, $p<.01$) and 12 months ($r=.26$, $p<.01$). However, fathers’ knowledge of child development did not significantly account for any additional variance in parenting behavior above and beyond that of infant temperament, infant gender, parent age, and parent education.

Paternal Parental Self-efficacy

Paternal Intrusiveness. Paternal self-efficacy was correlated (see Table 8) with maternal and paternal reports of paternal intrusively overprotective behaviors when the infant was 6 months ($r=.30$, $p<.01$) and 12 months old ($r=.26$, $p<.01$). Regression analysis (see Table 9)
revealed that paternal self-efficacy continued to contribute uniquely to the variance in paternal intrusively overprotective behaviors when the infant was both 6 months ($\beta=.30, p<.05$) and 12 months old ($\beta=.30, p<.05$), above and beyond the control variables (i.e., parent education, age, child gender and difficulty of temperament). This indicates that the greater self-reported paternal self-efficacy, the more fathers engage in intrusively overprotective behaviors with their infant when their infant was both 6 and 12 months old. Paternal self-efficacy was also correlated (see Table 8) with maternal and paternal reports of paternal intrusively hostile behaviors towards the infant when the infant was both 6 months ($r=-.21, p<.01$) and 12 months old ($r=-.16, p=.05$). However, this relationship did not emerge after controlling for infant temperament, infant gender, parent education, and parent age (see Table 9).

*Paternal Parental Sensitivity.* When the infant was 6 months old, paternal parental self-efficacy was correlated with observations of paternal sensitivity during parent-infant play interactions ($r=.19, p<.05$), but this relationship did not emerge at 12 months (see Table 8). Additionally, after controlling for infant temperament, infant gender, parent education and parent age, the parental self-efficacy did not significantly contribute to the variance in observed parental sensitivity during parent-infant play interactions (see Table 9).

*Paternal Supplemental Findings*

*Paternal Intrusiveness.* Maternal and paternal reports of paternal intrusively hostile behavior exhibited towards the infant was positively correlated (see Table 8) with paternal-rated level of difficulty of infant temperament when the infant was both 6 months ($r=.22, p<.01$) and 12 months old ($r=.24, p<.01$). The relationship between paternal ratings of infant temperament and paternal intrusively hostile behavior towards the infant held after controlling for infant gender, parent education, and parent gender (see Table 9) when the infant was both 6 months
(β=.25, p<.05) and 12 months old (β=.27, p<.05). Additionally, maternal and paternal reports of paternal intrusively hostile behavior was also negatively correlated (see Table 8) with paternal age when the infant was 6 months (r=-.17, p<.05) and 12 months old (r=-.23, p<.01). Paternal age continued to account for a significant amount of variance in paternal intrusively hostile behavior towards the infant (see Table 9) when the infant was both 6 months (β=-.23, p<.05) and 12 months old (β=-.29, p<.05) after controlling for parent education and infant gender. These findings indicate that younger fathers and fathers of infants with more difficult temperaments exhibit greater intrusively hostile behaviors towards their infant when the infant is both 6 and 12 months old.

Interaction Effects between Parental Knowledge and Paternal Parenting Behavior

No significant interaction effects between paternal knowledge of infant development and paternal self-efficacy emerged with any observed or parent-report data on parenting behavior when infants were 6 or 12 months old.
DISCUSSION

Only two studies have simultaneously considered the direct effects of both parental self-efficacy and parental knowledge on parenting behaviors and attempted to determine if each aspect of parenting cognitions predicts parenting behavior when the other predictor is controlled (Conrad, et al., 1992; Hess, et al., 2004). Both studies found a significant interaction effect between maternal knowledge and maternal self-efficacy in predicting positive parenting behaviors during observed parent-child interactions. Interestingly, when maternal knowledge was low, but maternal self-efficacy was high, maternal sensitivity was less likely to occur. This finding suggests that parental knowledge may be playing a crucial role in the application of self-efficacy to actual parenting tasks (at least for mothers). Maternal parenting practices were the main focus of these two studies. Conrad et al. (1992) specifically focused on the parenting of toddlers whereas Hess and colleagues (2004) focused on the parenting of high-risk infants. A major limitation of both of these studies was the exclusion of fathers. Whether this exclusion was due to lack of availability of fathers or indifference to the father’s role in caregiving is unclear. Additionally, neither of these studies evaluated the role of parental knowledge and parental self-efficacy in typically developing infants (i.e., 12 months and under) nor did they evaluate the role of parental knowledge and parental self-efficacy in predicting negative parenting behaviors as well as positive parenting behaviors.

The Effect of Additional Control Variables

The current study sought to address these limitations by including both mothers and fathers and by evaluating the role of parental knowledge and self-efficacy during infancy (i.e., when the child was 6 months and 12 months) for both positive and negative parenting behaviors. A multi-method approach to evaluation was employed to assess negative parenting behavior by
using both observational data and the parents’ report on their own behavior and their report on their spouses’ behavior. Further, unlike Conrad et al. and Hess et al., parents’ ratings of child temperament and the child’s gender were entered as control variables in the present study. As suggested by previous research, the level of difficulty of an infant’s temperament has been shown to have a significant impact on parental self-efficacy. The gender of the child in relation to the gender of the parent has been suggested as a contributing factor to parental self-efficacy with parents of same-gendered infants reporting greater self-efficacy than those with opposite-gendered infants (e.g., Cronenwett, et al., 1988; De Luccie, 1996). However, other studies found that infant gender did not account for a significant amount of variance in parental self-efficacy (e.g., Brage-Hudson, et al., 2001). This study attempted to control numerous extraneous variables that may be contributing to the main and interaction effects reported in previous research to determine the unique and interactive effects of parental knowledge and parental self-efficacy on parental behavior. This study confirmed the null results previously found regarding the effect of infant gender on parental self-efficacy. Infant gender did not appear to be related with parental self-efficacy, parental sensitivity, nor was it related to parental intrusiveness for mothers or fathers. This indicates that infant gender may not play a significant role in predicting how a parent feels about his/her parenting abilities, nor does it seem to be related to how parents interact with their infant.

Factor Analysis Results

Consistent with broader developmental literature, the factor analysis of the observational coding variables mapped onto two parenting behavior constructs: the sensitive parent who provides warm and appropriate stimulation, and the intrusive and negative parent whose interactions with the child are characterized by poor attunement, restrictive or overwhelming
The Role of Parental Knowledge & Self-efficacy in Parent Behavior

play behavior, and/or cold/distant affect or aloofness exhibited towards the infant. These two dimensions map onto two dimensions of parenting behavior popularized by Diana Baumrind (Baumrind, 1991) (Baumrind, 1966) that were later refined by Maccoby and Martin (1983) into two specific parenting behavior domains of responsiveness and behavioral control. Sensitivity was the label given to the composite variable that was derived through the factor analysis from observational measures of sensitivity, warmth/affection, stimulation, and engagement during parent-infant interaction. This composite variable maps onto the construct of parental responsiveness, which refers to "the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children’s special needs and demands" (Baumrind, 1991, p. 62). The second dimension identified through the factor analysis, labeled intrusiveness and negativity, was derived from observational measures of intrusiveness, negative regard towards the infant, and insensitive parenting behaviors during parent-infant interactions. This composite variable maps directly onto the construct suggested by Diana Baumrind, labeled behavioral control, which refers to a "parent’s maturity demands, supervision, disciplinary efforts and willingness to confront the child who disobeys" (Baumrind, 1991, pp. 61-62). Therefore, a unique contribution of this study to the broader child development literature is to provide additional support through observational data at two important developmental time points during infancy for the two domains described by Diana Baumrind more than a decade ago.

Hypothesis 1: The Role of Knowledge in Parenting Behavior

Mothers

The first hypothesis of this study predicted that higher self-reported parental knowledge about developmental milestones when an infant is 6 months old is expected to be uniquely
associated with more sensitive parenting at 6 months (based on observations of interactions) and lower parental intrusiveness and negativity (based on both observation of interactions and parent report), after controlling for parental self-efficacy, infant temperament, infant gender, parental age, and education. A parallel set of cross-sectional findings was examined when the infant was 12 months old. For mothers, this hypothesis held true. Greater knowledge of infant development predicted greater sensitivity, lower intrusiveness and less negative behaviors during observed parent-infant interactions at 6 months. These findings held after controlling for the effects of child temperament, parent education, parent age, and child gender. The relationship between parental knowledge and the two dimensions of parenting behavior when the child was 6 months old did not hold up when the infant was 12 months old. Interestingly, at 12 months, mothers’ knowledge of child development was no longer correlated with sensitivity, nor was it correlated with intrusiveness and negativity. Clinically, this suggests that the inclusion of developmental milestones in the early education of mothers (e.g., prenatal or directly post partum) is likely to increase positive parenting behaviors in mothers and reduce the risk of intrusive behaviors that may limit the child’s development and autonomy prior to child’s first birthday.

Fathers

Regarding the first hypothesis of this study, fathers’ knowledge of child development did not appear to play a role in predicting positive or negative parenting behaviors at either 6 months or 12 months. However, fathers with greater education displayed more sensitive behavior with their infant during parent-infant interactions and reported less overprotective behaviors at both 6 and 12 months. Knowledge of infant development may then only be a facet of the knowledge that fathers employ to inform their parenting style and behaviors. Future research might begin looking at the other facets of knowledge that may be related to parenting style and behavior in
Hypothesis 2: The Role of Parental Self-efficacy in Parenting Behavior

**Mothers**

The second hypothesis of this study predicted that higher self-reported parental self-efficacy when an infant is 6 months old would be uniquely associated with more effective parenting behavior at 6 months based on observations of parent-infant play interactions, after controlling for infant temperament, infant gender, parental age, and education. Despite there being limited research to support a direction of effects in regard to parental self-efficacy as it relates to intrusive and negative parenting behaviors, it would seem logical that greater self-efficacy would predict less intrusiveness and negativity toward the infant after controlling for infant temperament, infant gender, parental age, and education. For mothers, greater maternal self-efficacy was related to lower levels of intrusively hostile behaviors toward the infant at 6 months. Additionally, maternal self-efficacy also seemed to be related to greater maternal overprotective behaviors towards the infant at 12 months. Therefore, it seems that greater self-efficacy in mothers reduces hostility exhibited towards the infant, but greater self-efficacy may also increase the amount of intrusively overprotective behaviors she engages in that may limit the child’s development and risk his/her autonomy at the crucial age when independence begins to blossom.

**Fathers**

Regarding the second hypothesis, paternal self-efficacy appeared to be extensively related to father’s parenting behavior. Fathers with greater paternal self-efficacy displayed greater intrusively overprotective behaviors when their infant was both 6 and 12 months old. This relationship was significant after controlling for infant temperament, infant gender, parental
education, and paternal age. While self-efficacy may increase intrusively overprotective behaviors, fathers’ greater paternal self-efficacy was also related to lower intrusively hostile behavior exhibited towards the infant when the infant was both 6 and 12 months old. In terms of positive parenting behaviors, greater paternal self-efficacy was also related to greater paternal sensitivity exhibited during observed parent-infant interactions.

The findings suggest, for both mothers and fathers, that high parental self-efficacy can both decrease and increase negative parenting behaviors. The dual role of parental self-efficacy may imply that there is a yet unidentified variable or variables that maybe moderating the links between self-efficacy and intrusively hostile or intrusively overprotective behaviors. Future research could further evaluate the possible moderator(s) of the links between these variables. Practically speaking, these findings indicate that when conducting parent training programs or family orientated psychotherapy, fathers and mothers may benefit from greater understanding of the line between protecting their infant versus engaging in overprotection that may limit their child’s autonomy.

Supplemental Findings

There were several interesting findings that resulted from the analyses that were unrelated to the hypotheses set forth at the outset but that are of interest and importance and so will be discussed here prior to the discussion of the null findings related to the remaining hypotheses.

Mothers

 Mothers who rated their infant as having a more difficult temperament engaged in greater intrusively hostile behavior towards their infant at both 6 and 12 months old. Interestingly, mothers with more education consistently rated their infants as having more difficult temperaments. These findings may imply that mothers with more education have a lower
tolerance for fussiness and an unadaptable infant than mothers with lower education, thus increasing the degree of hostility they exhibit towards their infant. Whether the low tolerance is due to more educated mothers feeling as though they should be able to calm and soothe their child better or if they notice more fussy or negative behaviors than less educated mothers remains to be determined. Future studies might explore this further to determine if more highly educated mothers would benefit from psychoeducation related to having more realistic expectations regarding persistent fussiness that is typical in infancy. This psychoeducation might soften their negative evaluations of their infant’s temperament.

*Fathers*

Similar to mothers, fathers who rated their child as having a more difficult temperament engaged in greater intrusively hostile behavior towards their infant when the infant was both 6 and 12 months old. Additionally, when the infant was both 6 months and 12 months old, younger fathers displayed greater intrusively hostile behavior towards their infant than their older counterparts. These findings indicate that older fathers may have a greater degree of patience when their infants are fussy or difficult than younger, and possibly less experienced, fathers.

The findings from this study regarding intrusively hostile and overprotective behaviors in both mothers and fathers are of particular interest given that parenting styles that are characterized by hostility and overprotection have been shown to have strong associations with childhood internalizing symptoms (Arrindell, Emmelkamp, Monisma, & Brilman, 1983; Dadds & Barrett, 1996; Parker, 1990). Specifically, retrospective and observational research has shown strong relationships between overprotection and childhood generalized anxiety (Barrett, Rapee, Dadds, & Ryan, 1996), social anxiety (Spaulding & Morris, March, 1997), and depression (Cole & Rehm, 1986; Messer & Gross, 1995). Additionally, a comprehensive review by Rapee (1997)
suggested that parental intrusiveness, marked with hostility may be correlated more specifically with child depression, whereas parental intrusiveness that is marked with overprotective behavior plays a greater role in the onset and maintenance of generalized anxiety and social anxiety. This research points to the importance of reducing hostility and overprotection in early childhood and the importance of the findings of this study in identifying younger fathers as a population at greater risk for intrusively hostile behaviors when their infant is fussy or difficult, and identifying more highly educated mothers as having a tendency to view their child as more fussy in general.

Although fathers’ education was not measured as a moderating factor between self-efficacy and over protection, this study did reveal that greater overall education was related to less intrusively overprotective behaviors in fathers. This indicates that there is still more to understand about the predictors and moderators of fathers’ overprotective behaviors. Practically speaking however, it would seem wise to focus on teaching younger fathers during pregnancy or directly post partum better coping skills to manage their hostility during difficult moments with their infant. With regard to overprotective behaviors exhibited by mothers and fathers, providing specific education on developmentally appropriate care and the importance of autonomy for their infants may aid in decreasing their overprotective behaviors.

Hypothesis 3: The Relationship between Parental Knowledge and Parental Self-efficacy

The third hypothesis of this study, predicted that mothers and fathers with greater parental knowledge when their infants were 6 months old would show greater parental self-efficacy at that time. Likewise, parental knowledge at 12 months would be positively correlated with parental self-efficacy at 12 months. Contrary to our hypothesis and the findings of Conrad
et al. (1992), which found a positive correlation between parental knowledge and self-efficacy ($r=.33, p<.05$), knowledge of infant development and parental self-efficacy were not correlated for mothers or fathers at either 6 or 12 months.

Hypothesis 4a & 4b: Moderating Effects of Parental Knowledge on Parental Self-efficacy

With regard to hypotheses 4a and 4b, which proposed that the interaction between parental self-efficacy and knowledge would greater predict parenting behavior at both 6 months and 12 months after taking into account the simultaneous main effects of self-efficacy and knowledge, a surprising lack of findings emerged across all observational variables (i.e., sensitivity and warmth and stimulation of development) and self-report variables (i.e., hostility and overprotection). The interaction between parental knowledge of child development and parental self-efficacy did not predict any additional variability above and beyond the control variables or the unique effects of parental self-efficacy and parental knowledge. The null findings may be due to the specificity of the measurement of parental knowledge used in the current study. The current study used a subscale of the Knowledge of Infant Development Inventory that measures solely the parent’s knowledge of child development. Conrad et al (1992) and Hess et al (2004) both used the entire Knowledge of Infant Development Inventory to measure parental knowledge which includes knowledge of developmentally appropriate parenting practices as well as knowledge of child development. The full parental knowledge scale may provide a more holistic evaluation of a parent’s knowledge of parenting an infant than knowledge of child development alone.

An additional explanation for the lack of findings in this study is the addition of two control variables, specifically, child gender and child temperament, which were not controlled
for in Conrad or Hess’s studies. While child gender did not appear to explain any significant variables, the difficulty of a child’s temperament significantly predicted and was related to greater intrusively hostile behavior exhibited towards the infant by both mothers and fathers, above and beyond that of parental education, parent age, and infant gender. Although not directly assessed in this study, these findings suggest that the difficulty of infant temperament may play a mediating role between knowledge and self-efficacy, thereby increasing intrusive and negative parenting behaviors for both mothers and fathers. Future research should focus greater attention on the degree to which temperament may mediate links between self-efficacy and parenting behavior.

Limitations

The current study attempted to address the limitations discussed by Conrad et al. and Hess et al. by incorporating both mothers and fathers, assessing the family at multiple time points during infancy, and using both observational and self-report data. Knowledge of child development and parenting practices has been shown to moderate the impact of self-efficacy on parents’ observed parenting behaviors (Conrad, et al., 1992; Hess, et al., 2004), however, the current study failed to find an interaction effect between parenting knowledge of infant development and parental self-efficacy. A major limitation to this study that may account for the null findings was the choice of parental knowledge measure, specifically, the use of the knowledge of developmental milestone subscale instead of the complete Knowledge of Infant Development Inventory that includes the knowledge of parenting an infant subscale. Conrad et al. and Hess et al. used both the parent’s knowledge of parenting an infant subscale as well as the parent’s knowledge of infant development subscale. The implications for parental education may then be that a parent’s knowledge of developmental milestones may only play a small role in
their parenting behavior. Future research could address the importance of other types of parenting knowledge in predicting effective parenting behaviors. It is possible that a measure of parental knowledge of parenting practices has a greater predictive quality of actual parenting behavior than the knowledge of developmental milestones. Knowledge of developmental milestones may influence the use of developmentally appropriate versus developmentally inappropriate parenting practices and therefore play a more subtle role in the prediction of parenting behavior.

In summary, this study found that parental knowledge plays an important role in positive parenting behaviors for mothers such as sensitivity, while self-efficacy was linked to fathers’ sensitive parenting behaviors. This study also found that, for both mothers and fathers, self-efficacy appears to reduce intrusively hostile behavior towards their infant, but also appears to increase intrusively overprotective parenting behaviors. As frequently is the case in psychological research, interesting findings often lead to more questions, and so it has been with this study. Future research might begin to examine whether temperament plays a greater role than previously thought in predicting parenting behavior above and beyond that of knowledge and self-efficacy. Additionally, future research should continue to explore the types of knowledge that predict better parenting behavior to better inform parenting programs and psychotherapy with families. For the time being, it seems clear that there is still much to learn about the variables that impact and predict positive and negative parenting behaviors and how these behaviors may differ for mothers versus fathers.
REFERENCES


### TABLES AND FIGURES

#### Table 1: Interrater Reliability for Observational Variables

<table>
<thead>
<tr>
<th>Observational Code</th>
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<td></td>
<td></td>
</tr>
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<td>.93</td>
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<td>.91</td>
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<td>.94</td>
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</tr>
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#### Table 2: Mothers and Fathers at 6 and 12 months, Rotated Component Matrix for the Two Dimension Factor Analysis

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#### Table 3: Father’s 12 Month, Single Dimension Factor Analysis

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Table 4: Fathers – 12 Months Hierarchical Regression Analysis for the Observational Single Dimension Composite

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**Note:** Bold values have significant p level beyond .05
Table 5: Mother and Father, 6 and 12 months, Descriptive Statistics for Predictor, Criterion, and Control Variables

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<td>16.89</td>
<td>7.23</td>
</tr>
<tr>
<td>12 months Intrusively Overprotective (PR)</td>
<td>164</td>
<td>34.00</td>
<td>5.50</td>
<td>39.50</td>
<td>16.64</td>
<td>6.54</td>
</tr>
</tbody>
</table>

| **Dad**        |     |       |     |      |      |                |
| Age (yrs)      | 164 | 22    | 20  | 42   | 28.73| 4.41           |
| Education (yrs)| 164 | 4     | 3   | 7    | 5.66 | .936           |
| 6 months Self-efficacy | 164 | 32    | 28  | 60   | 46.02| 6.69           |
| 6 months Knowledge | 164 | .737  | .211| .947 | .681 | .140           |
| 6 months Sensitivity (OB) | 162 | 9.00  | 5.50| 14.50| 10.22| 1.83           |
| 6 months Intrusive/Negative (OB) | 162 | 7.00  | -1.50| 5.50| .3765| .994           |
| 6 months Intrusively Hostile (PR) | 164 | 34.50 | 7.00| 41.50| 16.78| 7.80           |
| 6 months Intrusively Overprotective (PR) | 164 | 30.00 | 4.50| 34.50| 13.58| 5.77           |
| 12 months Single Factor Composite (OB) | 159 | 9.00  | 1.50| 10.50| 6.23 | 1.89           |
| 12 months Self-efficacy | 164 | 31    | 29  | 60   | 46.05| 6.51           |
| 12 months Knowledge | 164 | .632  | .263| .895 | .679 | .129           |
| 12 months Sensitivity (OB) | 159 | 9.00  | 6.00| 15.00| 10.82| 1.90           |
| 12 months Intrusive/Negative (OB) | 159 | 7.00  | -2.00| 5.00| .3208| 1.40           |
| 12 months Intrusively Hostile (PR) | 164 | 35.00 | 7.00| 42.00| 16.73| 7.17           |
| 12 months Intrusively Overprotective (PR) | 164 | 29.00 | 4.50| 33.50| 12.74| 5.27           |

<table>
<thead>
<tr>
<th><strong>Child Gender</strong></th>
<th>Female</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>162</td>
<td>82</td>
</tr>
</tbody>
</table>

(OB) = Observational data, (PR) = Parent Report Data
Table 6: Mothers 6 and 12 month Bivariate Correlations

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Criterion Variables</th>
<th>Criterion Variables</th>
<th>Control Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of Infant Development</td>
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<td>-.12</td>
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<tr>
<td>Parental Self-efficacy</td>
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<td>-.23**</td>
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<td>-.28**</td>
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<tr>
<td>Overprotective Intrusiveness (PR)</td>
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<td>.15</td>
<td>-.10</td>
</tr>
<tr>
<td>Intrusiveness &amp; Negativity (OB)</td>
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<td>.00</td>
<td>-.06</td>
</tr>
<tr>
<td>Sensitivity (OB)</td>
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<td>-.02</td>
<td>.02</td>
</tr>
<tr>
<td>Mother’s Education</td>
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<td>-.07</td>
<td>-.05</td>
</tr>
<tr>
<td>Child Gender</td>
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<td>.00</td>
<td>.07</td>
</tr>
<tr>
<td>Mother’s age</td>
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<td>.01</td>
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<tr>
<td>Difficulty of Temperament</td>
<td>.14</td>
<td>-.34**</td>
<td>.37**</td>
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</table>

Note: Top triangle is mother’s 6 month correlations. Lower half of triangle (in gray) is mother 12 month correlations.
Table 7: Mothers - Hierarchical Regression Analyses: Parental Knowledge & Self-efficacy Predicting Parental Behavior Based on Observations of Parent-infant Interactions and Parents’ Combined Reports

<table>
<thead>
<tr>
<th></th>
<th>Observational Sensitivity</th>
<th>Observational Intrusiveness &amp; Negativity</th>
<th>Parent Report Hostile Intrusiveness</th>
<th>Parent-report Overprotective Intrusiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 months</td>
<td>12 months</td>
<td>6 months</td>
<td>12 months</td>
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<tr>
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<td>.07</td>
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<td>Child Gender</td>
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<td>.28</td>
<td>.13</td>
</tr>
<tr>
<td>Parent Age</td>
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<td>.00</td>
<td>.05</td>
<td>.11</td>
</tr>
<tr>
<td>Temperament</td>
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<td>-.01</td>
<td>-.08</td>
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<td><strong>Step 2 – Enter Predictors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>.04</td>
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<td>Child Gender</td>
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<td>-0.12</td>
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<td><strong>Step 3 – Enter Interaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent Education</td>
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<td>.06</td>
<td>.27</td>
<td>.13</td>
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<tr>
<td>Child Gender</td>
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<td>-.18</td>
<td>-.05</td>
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<td>Parent Age</td>
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<tr>
<td>Temperament</td>
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<td>-.12</td>
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<td>-0.12</td>
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<td>.06</td>
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<td>Self-efficacy X Knowledge</td>
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<td>-.10</td>
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Note: Bold values have significant p level beyond .05.
<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Criterion Variables Parent Report (PR)</th>
<th>Criterion Variables Observational (OB)</th>
<th>Control Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Self-efficacy (PR)</td>
<td>Hostile Intrusiveness</td>
<td>Overprotective Intrusiveness</td>
<td>Intrusiveness &amp; Negativity</td>
</tr>
<tr>
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<td>.24**</td>
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*.p<.05, **.p<.01

Note: Top triangle is father’s 6 month correlations. Lower half of triangle (in gray) is father 12 month correlations.
Table 9: Fathers - Hierarchical Regression Analyses: Parental Knowledge & Self-efficacy Predicting Parental Behavior Based on Observations of Parent-infant Interactions and Parents’ Combined Reports

<table>
<thead>
<tr>
<th></th>
<th>Observational Sensitivity</th>
<th>Observational Intrusiveness &amp; Negativity</th>
<th>Parent Report Hostile Intrusiveness</th>
<th>Parent-report Overprotective Intrusiveness</th>
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<tr>
<td></td>
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<td>.05</td>
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<td>-.04</td>
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<td>.00</td>
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<tr>
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<td>-.05</td>
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<td>Parental self-efficacy</td>
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<td>Self-efficacy X Knowledge</td>
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<td>.00</td>
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</tbody>
</table>

Note: Bold values have significant p level beyond .05
APPENDIX A, SECTION I

Parent self-efficacy - self report -6 item subscale from Parental Cognitions and Conduct Towards their Infant Scale (PACOTIS)

1) I feel that I am very good at keeping my baby amused.
2) I feel that I am very good at calming my baby down when he/she is upset, fussy or crying.
3) I feel that I am very good at keeping my baby busy while I am doing other things.
4) I feel that I am very good at attracting the attention of my baby.
5) I feel that I am very good at feeding my baby, changing his/her diapers, and giving him/her a bath.
6) In general, do you think you are ‘a good mother/a good father’?
APPENDIX A, SECTION II

Parental Knowledge of Developmental Milestones

1) Most babies can sit on the floor without falling over by 7 months.
2) Six month olds will respond to someone differently if the person is happy or upset.
3) Most 2 year olds know the difference between make-believe and true stories on TV.
4) Infants usually are walking by about 12 months of age.
5) Eight month olds act differently with familiar people than with someone not seen before.
6) Babies are about 7 months old before they can reach and grab for things.
7) Two year olds are able to reason logically, much like an adult would.
8) One year olds know right from wrong.
9) Three month olds often will smile when they see an adult's face.
10) Most children are ready to be toilet trained by one year of age.
11) Infants begin to respond to their name at 10 months.
12) Babies begin to laugh at things around 4 months.
13) Six month olds know what "No" means.
14) Four month olds lying on their stomach start to lift their heads.
15) Babbling ("a-bah-bah" or "bup-bup") begins around 5 months.
16) Eighteen month olds often cooperate and share when they play together.
17) Infants of 12 months can remember toys they have watched being hidden.
18) Babies usually say their first real word at six months.
19) Infants will avoid high places, like stairs, by six months of age.
APPENDIX A, SECTION III

PARENT-INFANT CODING MANUAL

as of September 26, 2008 - From the NICHD Study of Early Child Care

Qualitative Ratings of Parent-Child Interaction at 15 Months

General Instructions for Applying the Qualitative Ratings

Each set of qualitative ratings is to be based on 10 minutes of videotaped semi-structured observation of the parent and his/her child. The procedure for structuring the parent-child interaction is one in which the parent is instructed to show his/her child toys that are contained in three sequentially numbered bags. The parent is told that he/she should feel free to play with his/her child or not.

In determining the ratings it is helpful for the coder to take longhand notes of parent and child behaviors as they relate to each scale and organize the notes by coding category on the worksheet titled "Qualitative Notes."

Ratings for most of these scales should be based on both the quality and quantity of behavior. Thus, evaluations should be made taking into account the quality of the observed behaviors in relation to the proportion of the time they were observed.

Watch the tape one time through to get a sense of the overall dynamic and flow of the interaction. Watch tape a second time and take written notes of parent and child behaviors. If necessary, watch tape a third time.

Use the same standards to rate mothers and fathers. Especially after viewing an unusually negative or positive interaction, take a break so that your view of the subsequent tape is not unduly affected by the preceding interaction. Pace your viewing of tapes and do not try to watch too many tapes in one sitting or in the same day.
If you are especially tired, ill, or extremely stressed out in a given week, let the rest of your coding team know this so adjustments can be made.

Interruption Issues:

Issue 1: If both baby and parent face is obscured for at least one minute or longer and this interferes with your ability to rate either party, then stop counting time from when both face(s) were obscured, and resume clock time when at least one party’s face (hopefully both) can be seen again. Watch additional minutes/seconds at “end” of what would be 10 minutes to make up for lost time.

Issue 2: If baby face is obscured completely for two or more minutes regardless of what parent is doing and this interferes with your ability to rate the baby, then stop counting time from when baby’s face was obscured, and resume clock time when both faces can be seen again. Watch additional minutes/seconds at “end” of what would be 10 minutes to make up for lost time.

- When either issue occurs, note this on tracking form attached to the file cabinet where DVDs are located AND immediately send fellow coders on your team an email to let them know about the issue and exactly what time units you decided to code.

1. PARENT SENSITIVITY/RESPONSIVENESS TO CHILD

This scale focuses on how the parent observes and responds to the child’s social gestures, expressions, signals, behavior and temperament. Behavior and temperament includes neutral, positive or negative (e.g., cries, frets, distress) patterns of behavior. The key defining characteristic of sensitive interaction is that it is child centered. The sensitive parent is tuned to the child and manifests awareness of the child's needs, moods, interests, and capabilities, and allows this awareness to guide his/her interaction.

If the child initiates social gestures and expressions (looking at the parent, reaching toward the
parent, waving, clapping hands, handing objects, directing speech to the parent), or makes demands, desires, or requests known (stretching arms to be picked up, reaching for toys the parent is holding), the sensitive parent responds appropriately, based on the child's cues.

If the child appears disengaged, the sensitive parent takes time to reengage the child in a manner that demonstrates sensitivity to the child's mood. When the child is bored or frustrated, the parent offers toys or other engaging opportunities. When the child is interested and involved with toys, the sensitive parent allows him/her time to independently explore them. During play, the sensitive parent provides one toy or game at a time and bases continuation on the child's response. How and what they play is geared to whether or not the child seems to be enjoying the activity. The parent does not persist with an activity or toy that the child is obviously not enjoying.

A sensitive parent provides stimulation that is situationally appropriate. He/she provides the child with contingent vocal stimulation and acknowledges the child's interest, efforts, affect, and accomplishments. Sensitive parents need not spend all the time engaged with the child, but the difference between them and the detached parent is that the sensitive parent seems to be actively taking an interest in the child's activities, as evidenced by comments, embellishments, or redirection when the child loses interest. It is at these times --when the child loses interest or generally becomes aimless --that the difference between the sensitive parent and the detached, understimulating parent is most easily seen; the detached parent does not respond, responds in a listless manner, or responds with developmentally inappropriate comments and behavior. The insensitive parent could also be overstimulating or intrusive and might continue in his/her attempts to engage the child even when the child is providing clues that he/she is seeking to end the interaction.
A sensitive interaction is well timed and paced to the child's responses, a function of its child-centered nature. Such an interaction appears to be "in sync." The parent paces games or toy presentation to keep the child engaged and interested, but also allows him/her to disengage if interest is lost and generally to shape the nature of the involvement. Sensitivity involves judging what is a pleasurable level of arousal for the child and helping the child to regulate arousal and affect. When the child loses interest, the sensitive parent switches to a new tactic, toy, or activity and observes the child's reaction, or reduces his/her involvement to allow the child a larger role in shaping the activity. In this way the sensitive parent can be distinguished from both an intrusive and a detached parent.

Markers of sensitivity include (a) acknowledging the child's affect; (b) contingent vocalizations by the parent; (c) facilitating the manipulation of an object or child movement; (d) appropriate attention focusing; (e) evidence of good timing paced to the child's interest and arousal level; (f) changing the pace when the child appears overstimulated or tired (e.g., turns away, is fussy); (g) picking up on the child's interest in toys or games; (h) shared positive affect; (i) encouragement of the child's efforts; (j) providing an appropriate level of stimulation when needed; (k) sitting on floor or low seat, at the child's level, to interact. Thus, the sensitive parent demonstrates the ability to adapt his/her behavior to the child's mood and level of development. The parent neither over- nor understimulates. The parent knows when it is time to increase or reduce the amount of stimulation the child is experiencing. For example, the parent discontinues an activity that is beyond the child's capacity for response or introduces a new activity when the child appears bored.

In the event the child displays distress, judge parental sensitivity on how the parent responds to the distress in the following three ways:
1. Proportion of distress signals responded to. What proportion of distress is responded to? The parent who responds sensitively responds consistently to distress signals.

2. Latency of response. How long does it take the parent to respond? The parent who responds sensitively to his/her child's distress does so promptly. Mild fussiness does not require the parent to respond as quickly as does the child's acute distress.

3. Appropriateness of response. Appropriateness of the adult's behavior should be inferred by its effectiveness in soothing the child coupled with a consideration for its fit with the intensity of the distress. Parents who do not acknowledge distress, even if the child self-soothes, should be judged to be less sensitive than those who do acknowledge the distress, however short-lived. Caregiving responses to the child's distress generally involve speaking sympathetically to the child, approaching the child, offering help or intervening, changing an activity or its pace, offering toys, patting, picking up, holding closely (especially in a ventral/ventral position), and rocking. Any of these or other behaviors can be considered sensitive if they appear to have the effect of comforting the child. If the parent's first response to the distress does not soothe the child, the episode should be rated as insensitive (even if the response was immediate) unless the parent proceeds to offer a "fuller" response (i.e., more proximal soothing behaviors). Some response, however, unless totally perfunctory, is judged as more sensitive than none at all. As a sign of their growing maturity, some toddler crying increasingly occurs in situations of frustration. While, in general, more proximal responses are more appropriate than less proximal (e.g. squatting at the child's level and offering concrete help rather than a distal spoken response), close holding is not necessarily more appropriate than other caregiver behavior that addresses the source of the frustration.
Ratings on this scale are composed of both qualitative and quantitative dimensions. The proportion of signals responded to and the latency of response time should be evaluated in relation to the quality (appropriateness) of the response. A rating of 1 should be given to a parent who never responds to the child or who responds very slowly and infrequently, and generally inappropriately. If some appropriate responses occur but more are not appropriate, or responses are generally delayed, the parent should receive a rating of 2. A parent might also receive a 2 if the responses are perfunctory. If a greater proportion of distress episodes are responded to and given appropriate responses than not, the rating would be a 3. A rating of 4 should be given to those parents who exhibit immediate and exceptionally sensitive and appropriate responses in almost all situations.

Ratings on this scale should be based on both quality and quantity of parent behavior.

1 = Not at all to very little sensitivity. This rating should be given to parents who are insensitive and unresponsive. The parent may be either predominantly intrusive or detached. The parent rarely responds appropriately to the child's cues, and does not manifest an awareness of the child's needs. Interactions, if they occur at all, are characteristically ill timed or inappropriate. When the child cries or frets, the parent responds not at all, or very slowly or inappropriately. If there is a response, it is only after the child becomes very demanding, and the response is so delayed that it cannot be construed to be responsive to the child's behavior. A parent who typically appears oblivious or punitive to the child's distress would receive this score.

1.5

2 = Low sensitivity. This rating should be given to parents who display infrequent or weak sensitivity/responsivity. While the parent is sometimes sensitive, the balance is clearly in the direction of insensitivity. The parent responds rarely or slowly to child's distress signals, and
appears more unresponsive than responsive. The responses tend to be minimal or perfunctory or otherwise inappropriate. For example, if child displays distress, the parent may talk to or briefly pat a crying child, or offer more toys. The parent may respond in some fashion but it does not appear to address the child's underlying source of distress. Often the parent's actions appear to increase the child's distress. He/she may seem minimally interested in providing genuine comfort.

2.5

3 = Moderate sensitivity. This rating should be given to parents who are predominantly sensitive/responsive. The parent demonstrates sensitivity in most interactions but may neglect to give a full response. When child displays distress, the parent typically responds promptly to child distress, demands, and signals, but there is some time in which clear child signals do not receive a response or in which the response is somewhat delayed or are ineffective. Some of the parent's responses are mixed, i.e., some half-hearted or perfunctory, but the majority are full responses where the observer feels like "that was a good episode."

3.5

4 = High sensitivity. This rating should be given to parents who are exceptionally sensitive and responsive to child. Instances of insensitivity are rare and never striking. Interactions are characteristically well timed and appropriate. The parent responds quickly and appropriately to the child. If the child is upset, the parent takes time to soothe and calm the child. There may be proportionally few instances of ignoring and/or minimally responding to the distress, but overall most responses are prompt, appropriate, and effective.

2. PARENT INTRUSIVENESS (a.k.a., Over-control)

Intrusive, insensitive interaction is definitely adult-centered rather than child-centered.
Prototypically, intrusive parents impose their agenda on the child despite signals that a different activity, level, or pace of interaction is needed. High arousal, vigorous physical interaction, or a rapid pace are not, by themselves, indicative of intrusive overstimulation -- if the child responds positively with sustained interest and is not engaging in defensive behaviors.

Intrusiveness is apparent when the parent does not allow the child a "turn" or an opportunity to respond at his/her pace. Some intrusive parents persist in demonstrating toys to the child long after his/her interest has been gained and he/she obviously wants to manipulate the toy him/herself. These parents appear unable to relinquish control of the interaction in order to facilitate the child's exploration or regulation of the activity. Another example of controlling, intrusive behavior is displayed by parents overwhelming the child with a rapid succession of toys or suggestions, not allowing him/her time to react to one before another occurs. Extreme intrusiveness can be seen as overcontrol to a point where the child's autonomy is at stake. A parent can be involved in play with the child without being highly intrusive, if the parent follows the child's interest, pace, and signals.

Specific behaviors characterizing intrusive interactions include (a) failing to modulate behavior that the child turns from, defends against, or expresses negative affect to; (b) offering a continuous barrage of stimulation, food, or toys; (c) not allowing the child to influence the pace or focus of play, activities, interaction, or feeding; (d) taking away objects or food while the child still appears interested; (e) not allowing the child to handle toys he/she reaches for; (f) insisting that the child do something (play, eat, interact) in which he/she is not interested; and (g) not allowing the child to make choices, (h) poking the child with toys, fingers, etc.

Intrusiveness includes excessive use of commands and directive statements, turning the play activity into an obedience/compliance task where the focus is on getting child to do what the
parent wants rather than what the child wants.

Parent actions which are clearly in the child's best interests, such as keeping child from getting tangled in wires, keep child from touching equipment, and removing a child from danger.

Ratings of intrusiveness must be evaluated from the perspective of the child.

1 = Not at all to very little intrusiveness. This rating should be given to parents who display almost no signs of intrusive behavior.

1.5

2 = Low intrusiveness. This rating should be given to parents who display low levels of intrusiveness. There is some evidence of intrusiveness, but it is not typical. The parent may initiate interactions with and offer suggestions to the child which occasionally are not welcomed. The parent sometimes continues his/her activity after the child engages in defensive behavior, but does not escalate the activity.

2.5

3 = Moderate intrusiveness. This rating should be given to parents who display intrusiveness with moderate frequency. Or, for parents who rarely interact, a substantial proportion of their interactions are intrusive.

3.5

4 = High intrusiveness. This parent's interactions with the child are consistently and typically intrusive. During their interaction, the parent controls the interaction, allowing the child little self-direction in his/her activities. During the time that they are interacting, the parent allows the child little autonomy, and essentially negates the child's experience.

(Close to Original) 3. PARENT DETACHMENT/DISENGAGEMENT

The detached parent appears emotionally uninvolved or disengaged, and unaware of the child's
needs for appropriate interaction to facilitate involvement with objects or people. This parent
does not react contingently to the child's vocalizations or actions, and does not facilitate the
child's explorations. There is little joining in the child's play, participating in "conversations" or
even awareness of what the child is doing. Detached parents "miss" the child's looks to them or
vocalizations to them, or other cues that call for parent attention and involvement. When they do
interact, their timing is often out of synchrony with the child's affect and responses (although not
with the overwhelming barrage of stimulation that intrusive parents present). Simply allowing
the child to play by him/herself is not necessarily a sure sign of detachment; this can be
appropriate at times, such as when the child is playing happily or contentedly and the parent
checks in with the child visually. The detached/disengaged parent lacks the emotional
involvement in his/her child that characterizes a sensitive parent. He/she appears uninterested in
the child.

A parent receiving a high rating for detachment is considered to be insensitive. A low rating for
detachment (if engaged) can reflect either sensitivity or intrusiveness.

Detachment can be marked by (a) the parent sitting apart from his/her child, not watching his/her
child's activities, and looking bored or aloof, or is primarily engaged with other people or objects
(e.g., television) in the room; (b) rarely making eye contact or rarely talking to the child; (c) not
responding to the child's vocalization, smiles, or cues for engagement or attention; (d) being
unaware of the child's capabilities and appropriate activities; (e) ignoring or being apparently
unaware of the interesting things the child does; and (f) not using the child's name when
speaking to him or her. This scale contains both qualitative and quantitative components. A
parent who interacts consistently with the child but does so in a perfunctory or indifferent
manner with little or no emotional involvement would be rated high on detachment.
Additional notes: High ratings are indicative of parent seeming just not to care and not making any real effort to engage. High ratings do not require overt negative regard. High ratings indicate withdrawal from interacting with child. Analogous to marital interactions when a spouse withdraws and shuts down.

1 = Not at all to very little detachment. This rating should be given to parents who display almost no signs of detachment or underinvolvement. When interacting with the child, the parent is clearly emotionally involved. These parents can be sensitive or intrusive.

1.5

2 = Low detachment. This rating should be given to parents who display low levels of detachment. While the parent is sometimes noninvolved, he/she is clearly more involved than not.

2.5

3 = Moderate detachment. This rating should be given to parents moderate levels of detachment. The parent is relatively more noninvolved than involved.

3.5

4 = High detachment. The child is without parent attention almost all of the time. In the minimal instances of involvement, the parent's behaviors are simple, mechanical, stereotyped, repetitive, and perfunctory. The parent is clearly not emotionally involved with the child, and appears to be "just going through the motions."

L (Reverse concept) 3. PARENT ENGAGEMENT

The engaged parent appears to be engaged with, and aware of, the child's needs for interaction to facilitate involvement with objects or people. In layperson’s words, the parent is “into being with” the child. This parent reacts contingently to the child's vocalizations or actions, and
facilitates the child's explorations. In layperson’s terms, the parent converses, chats, talks to, plays with, and appears to want to interact and be with the child (even if he/she may be intrusive or insensitive). There is joining in the child's play, participating in "conversations" or even awareness of what the child is doing. The engaged parents seek out and wants the child to look to them. The engaged parents pays attention to child's looks at them, vocalizations to them, or other cues that call for parent attention and involvement. When they do interact, they are “in sync” and reciprocally playing, talking or interacting (although not with the overwhelming barrage of stimulation that intrusive parents present). The engaged parent may often display the emotional involvement in his/her child that characterizes a sensitive parent. He/she appears be very interested in the child. Often but not necessarily this code will overlap with high positive emotion (e.g., very playful while also smiling) It is likely that to get a “4” the child may also need to be high on engagement given that high engagement by parent depends partly on child’s reciprocity.

Engagement can be marked by (a) the parent sitting close to his/her child, watching his/her child's activities, and looking very interested in child rather than objects (e.g., toys) in the room; (b) making eye contact or talking to the child; (c) responding to the child's vocalization, smiles, or cues for engagement or attention; (d) attempting to play with child and use toys to be playful (not only teaching); (e) being apparently aware of the interesting things the child does; and (f) using the child's name when speaking to him or her. This scale contains both qualitative and quantitative components.

Additional notes: High ratings are indicative of parent seem to care a lot and are making a real effort to engage. High ratings do not require warmth (though this is likely). Low ratings indicate withdrawal from interacting with child. Analogous to marital interactions when a spouse
withdraws and shuts down.

1 None to very little engagement.

1.5

2 Low engagement

2.5

3 Moderate

3.5

4 = High

4. PARENT STIMULATION OF DEVELOPMENT (a.k.a. teaching)

This scale measures the degree to which the parent tries to foster the child's development. A stimulating parent may take advantage of even simple play tasks to stimulate development, and will consistently engage in a variety of activities that can facilitate learning. The parent will make deliberate attempts to encourage the child's development, achievement, and learning.

Behaviors characterizing stimulation include (a) attempting to focus the child on an object or task; (b) focusing the child's attention on the perceptual qualities (sounds, colors, movement, etc.) of objects; (c) verbally responding to or expanding on the child's verbalizations or vocalizations; and (d) encouraging the child to actively participate in activities. However, parents who simply focus or encourage a child should not be given the highest scores. Higher scores should be reserved for those parents who (a) describe or label toys, objects, and activities; (b) or demonstrate how things work; (c) stimulate the child's verbalizations or vocalizations and expand on them; (d) encourage and reinforce the child's attempts at mastery, or challenge the child to try something new; (e) present activities in an organized sequence of steps; (f) teach the
child or give him/her an opportunity to experiment with materials that illustrate or teach concepts; (g) ask questions that require problem solving; (h) label and interpret the child's experiences, (e.g. "You think that's funny"); and so on.

Activities involving strictly physical stimulation such as rough and tumble play, bouncing, and tickling are not considered as stimulating development per se, but it is possible for a parent to provide stimulation in these contexts if the parent expands on these experiences with verbal labels. This scale does not measure those activities that are only social (smiling) or caretaking (soothing), but stimulation can occur in these contexts as well.

Stimulation must involve effortful interaction with the child in the contexts described above. Simply providing a child toys is not to be considered stimulating. The focus of this scale is on the amount and quality of activities that may ultimately enhance perceptual, cognitive, linguistic, and physical development. All qualitative judgments must be considered in relation to the quantity of stimulation provided by the parent: How many of the available opportunities for stimulation were taken advantage of? A rating of 1 should be given to those parents who provide almost no stimulation of development. If a parent spends a brief portion of the time in very cognitively stimulating interactions with a child but provides that child with no stimulation for the remainder of the time, he/she would receive a rating of 2. A parent might also receive a 2 for several instances of lower level stimulation. A rating of 4 should be given to those parents who work at providing exceptionally advantageous stimulation in terms of language, object manipulation, conceptual development, and pretend play. This is not a rating of the sensitivity with which the cognitive stimulation is provided but purely the quantity and variety of cognitive stimulation as described above.

1 = Not at all to very little stimulation. The parent makes almost no attempts to teach the child
anything or provide any stimulation. He/she may give the child each toy but does not use them as opportunities for learning. The parent may ignore the child's activities or interact perfunctorily.

1.5

2 = Low stimulation. This rating should be given to parents who provide infrequent or weak stimulation. The parent's conscious and purposeful attempts to engage the child in development-fostering experiences are limited. He/she may label or demonstrate materials, but does so perfunctorily and/or with minimal elaboration.

2.5

3 = Moderate stimulation. This rating should be given to parents who provide adequate stimulation but could reasonably be expected to provide more and higher-quality stimulation. The parent does make some effort to provide stimulation, but does not consistently take advantage of opportunities to do so. Stimulation is not the main agenda. The parent may find some new ways to engage the child with toys, for example, but these ways are limited in number. Actions are likely to be simply repeated rather than thoughtfully varied. Parents who provide a rich linguistic environment but do not demonstrate the potential of toys or objects would receive this rating.

3.5

4 = High stimulation. This rating should be given to the parent who is consistently stimulating and takes advantage of many activities as opportunities for stimulation. The parent provides frequent stimulation through "lessons," explanations, activities, or toys. Teaching or fostering development is a primary intent of the parent's frequent interactions with the child. The parent thoughtfully varies and elaborates on these activities, providing numerous opportunities which
are exceptionally advantageous to the child. He/she provides rich stimulation in terms of language, and embellishment of the potential of the physical world.

5. PARENT POSITIVE REGARD TO THE CHILD (a.k.a. “Warmth, affection”)
This scale rates the parent's positive feelings toward the child expressed during interaction with him/her. Positive feelings (emotions) are shown by (a) speaking in a warm tone of voice; (b) hugging or other expressions of physical affection; (c) smiling; (d) laughing with the child; (e) enthusiasm about the child; (f) praising the child; and (g) general enjoyment of the child. Positive regard is also evident when the parent listens, watches attentively, looks into the child's face when talking to him/her, has affectionate physical contact, and is playful.

Ratings on this scale are based on both quality and quantity of positive regard.

1 = Not at all to very little positive regard. This rating should be given to parents who display almost no positive regard. This rating can also be used for positive expressions (laughing, smiling) that appear to be inappropriate to the situation or an inaccurate reflection of the parent's feelings. The parent may be expressionless or flat, or negative.

1.5

2 = Low positive regard. This rating should be given to parents who display infrequent or weak signals of positive regard. The intensity and/or frequency of behavioral indicators are low.

2.5

3 = Moderate positive regard. This rating should be given to parents who typically display positive regard. More frequent and intense positive affect is shown than in the 2 rating, but the parent is not as consistently positive as those scored as a 4.

3.5

4 = High positive regard. This rating should be given to parents who are exceptionally positive,
in terms of facial and vocal expressiveness, and behavior. Affect is positive and spontaneous.
The parent shows a range of expressions and behaviors which are all clearly positive. He/she clearly "delights" in the child.

6. PARENT NEGATIVE REGARD TO FOR THE CHILD

This scale rates the parent's negative regard for the child. Both frequency and intensity of negative affect toward the child are considered. Some markers of negative regard include (a) disapproval; (b) tense body; (c) negative voice when correcting; (d) abruptness; (e) tense facial muscles and strained expression; (f) harshness; (g) threatening the child or punishing without explanation; and (h) excessive roughness when touching the child.

Ratings on this scale are composed of both qualitative and quantitative evaluations. The amount and intensity of negative affect exhibited is evaluated in relation to the duration of the observation period.

1 = No negative regard to very little. This rating should be given to parents who do not display negative regard for the child either in words or in expressions. No evidence of anger, frustration, impatience, disgust, general dislike, or other indicators of negative regard is observed in the parent's face or voice. The parent may be expressionless or flat, or positive.

1.5

2 = Low negative regard. This rating should be given to parents who display minimal to low negative regard. There is some evidence of low-intensity negative regard.

2.5

3 = Some negative regard. This rating should be given to parents who regularly display negative regard. Multiple instances of low-intensity negative regard or some evidence of more-intense negative regard is observed.
3.5

4 = Moderate to high negative regard. This rating should be given to parents who are often negative. Feelings of negative regard are expressed persistently at moderate levels or at times strongly.
APPENDIX A, SECTION IV

Parental overprotective - self report & report about other parent

1. I insist upon keeping my baby close to me at all times, within my eyesight and in the same room as I am.
2. I consider myself a ‘real mother hen.’
3. I prefer that my baby sleeps in the same room as me at night.
4. When I leave my baby with a baby-sitter, I miss him/her so much that I cannot enjoy myself.
5. I can never bring myself to leave my baby with a baby-sitter.

Mom report on Dad’s overprotectiveness of baby

1. My (spouse) insists upon keeping my baby close to him/her at all times, within his/her eyesight and in the same room as him/her.
2. My (spouse) considers him/herself a ‘real mother hen.’
3. My (spouse) prefers that my baby sleeps in the same room as his/her at night.
4. When my (spouse) leaves our baby with a baby-sitter, he/she misses him/her so much that he/she cannot enjoy myself.
5. My (spouse) can never bring him/herself to leave my baby with a baby-sitter.

Parental Hostility towards infant – self-report and Report about other parent

1. I have been angry with my baby when he/she was particularly fussy.
2. When my baby cries, he/she gets on my nerves.
3. I have raised my voice with or shouted at my baby when he/she was particularly fussy.
4. I have spanked my baby when he/she was particularly fussy.
5. I have lost my temper when my baby was particularly fussy.
6. I have left my baby alone in his/her bedroom when he/she was particularly fussy.
7. I have shaken my baby when he/she was particularly fussy.

Mom report on Dad’s hostility towards infant

1. My (spouse) has been angry with my baby when he/she was particularly fussy.
2. When our baby cries, he/she gets on my (spouse) nerves.
3. My (spouse) has his/her voice with or shouted at our baby when the baby was particularly fussy.
4. My (spouse) has spanked our baby when he/she was particularly fussy.
5. My (spouse) has lost his/her temper when our baby was particularly fussy.
6. My (spouse) has our baby alone in his/her bedroom when he/she was particularly fussy.
7. My (spouse) has shaken my baby when he/she was particularly fussy.
APPENDIX A, SECTION V

Demographics

Child Gender: __________

Parent Gender: __________

What is your highest educational background?

___Less than 7 years

___Junior high school

___Partial high school (10th-11th grade)

___High school graduation

___Partial college/post high school training (1 year or more)

___Standard college graduation

___Graduate/professional degree

What is your approximate, combined annual, gross household income?

___less than $25,000 ___$25,001-50,000 ___$50,001-75,000 ___$75,001-100,000 ___$100,001-130,000 ___more than $130,000
<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How easy or difficult is it for you to calm or soothe your baby when he/she is upset?</td>
<td>1-7</td>
<td>Very easy, About average, Difficult</td>
</tr>
<tr>
<td>2. How easy or difficult is it for you to predict when your baby will go to sleep and wake up?</td>
<td>1-7</td>
<td>Very easy, About average, Difficult</td>
</tr>
<tr>
<td>3. How easy or difficult is it for you to predict when your baby will become hungry?</td>
<td>1-7</td>
<td>Very easy, About average, Difficult</td>
</tr>
<tr>
<td>4. How easy or difficult is it for you to know what’s bothering your baby when he/she cries or fusses?</td>
<td>1-7</td>
<td>Very easy, About average, Difficult</td>
</tr>
<tr>
<td>5. How many times per day, on the average, does your baby get fussy and irritable – for either short or long periods of time?</td>
<td></td>
<td>Never, 1-2 times per day, 3-4 times per day, 5-6 times per day, 7-9 times per day, 10-14 times per day, &gt; 15 times per day</td>
</tr>
<tr>
<td>6. How much does your baby cry and fuss in general?</td>
<td>1-7</td>
<td>Very little; less than average baby, Average amount, about the same as average baby, A lot; much more than average baby</td>
</tr>
<tr>
<td>7. How easily does your infant get upset?</td>
<td>1-7</td>
<td>Very hard to upset - even by things that upset most babies, About average, Very easily upset by things that wouldn’t bother other babies</td>
</tr>
<tr>
<td>8. On the average, how much attention does your baby require, other than for caregiving (feeding, diaper changes, etc.)?</td>
<td>1-7</td>
<td>Very little; much less than average, Average amount, A lot; much more than the average baby</td>
</tr>
<tr>
<td>9. How does your baby typically respond to a new person?</td>
<td>1-7</td>
<td>Almost always responds favorably, Responds favorably about half the time, Almost always responds negatively at first</td>
</tr>
<tr>
<td>10. How does your baby typically respond to a new place?</td>
<td>1-7</td>
<td>Almost always responds favorably, Responds favorably about half the time, Almost always responds negatively at first</td>
</tr>
<tr>
<td>11. How well does your baby adapt to things (e.g., bath, solid food, new person, new place) eventually?</td>
<td>1-7</td>
<td>Very little; much less than average, Average amount, A lot; much more than the average baby</td>
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<tr>
<td>Question</td>
<td>1</td>
<td>2</td>
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<td>12. When left alone, our baby plays well by him/herself.</td>
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<td>13. When your baby gets upset (e.g., before feeding, during diapering, etc.), how vigorously or loudly does he/she cry and fuss?</td>
<td>1</td>
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<td>14. How persistent is your baby in trying to get your attention when you are busy?</td>
<td>1</td>
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<td>15. How active is your baby in general?</td>
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<tr>
<td>16. How much does your baby smile and make happy sounds?</td>
<td>1</td>
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<tr>
<td>17. How does your baby respond to disruptions and changes in everyday routine, such as when you go to church or a meeting, on trips, etc.?</td>
<td>1</td>
<td></td>
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<td></td>
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<tr>
<td>18. How changeable is your child’s mood?</td>
<td>1</td>
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<tr>
<td>19. How excited does your child become when people play or talk to him/her?</td>
<td>1</td>
<td></td>
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<td></td>
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<tr>
<td>20. Please rate the overall degree of difficulty your baby would present for the average mother.</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

RA-1 Time 3 - Quantitative Data - Home Visit Protocol

Instructions for parent-infant interaction

(_RA-1) Parent-infant Script (Talk slowly & clearly & in conversational tone!)

"Now, we would like you to spend about 10 minutes playing and spending time with (baby’s name) the way you normally do. We have three requests. First, please stay in this area and (point to area) and do not move around a great deal or to other places in the house. Second, please try to play and interact normally, but try to keep both of your faces in view of the camera. For example, if you play with toys or a book, try not to block the baby’s face from the camera. We can get views of the sides of your faces, but we do ask, though, that your backs are not facing the camera. Third, try to act as natural as possible and not ‘perform’ for the camera. Now let’s talk about where and how you usually interact with (baby’s name) – do you prefer to play with (baby’s name) on the floor, in your arms or lap, on a bouncer seat? What kinds of activities and toys do you prefer to use? (after parent answers these questions, get parent and baby situated as naturally and comfortably as possible. See notes above if parent likes to play with baby on floor).

Once parent and baby are in typical positions say “Before we start, here are a couple of other points to keep in mind. I am going to leave the room so I will not distract you or your baby. (RA2 name) will remain neutral throughout the taping, so she will not be giving you any responses to your interaction. She/He will let you know when the 10-minutes are completed.

As you know, we have tried to pick a time when (baby’s name) is not hungry, but if you think you need to stop and feed him/her in the next 10 min, please just let her know and we can take a break and try to videotape more later. In addition, if for any reason, you want to take a break, just let her know. Do you have questions? Are you ready?

Additional prompts that may be needed during interaction
- If baby is getting hysterical & has cried very intensely for 1-2 min. and parent doesn’t seem like he/she knows one has the option to stop tape: "If you like, we can take a break right now and try videotaping again later."
- If baby seems hungry and parent wants or starts to feed baby: "It looks like (baby name) might be hungry. Let’s take a break right now and try to videotape more later after he/she is finished eating and is comfortable."
- Any other situation where parents seems uncertain or as if he/she needs a reminder: "You can do whatever you think your baby needs.......If you like, we can take a break right now and try videotaping again later."

VI. Semi-Structured Child Care Interview

During the T3 visit, there are likely to be several 5-20 min. breaks where one or both parents are not completing surveys or involved in a family interaction. During these times, RA-1 should initiate a brief semi-structured interview to obtain information about in home and out of home child care arrangements involving both parents and any other caregivers. If a natural opportunity does not come up, this interview can take place at the end of the closing interview about happy times with baby. The goal of the interview is to obtain enough information to find out what the normal routine of the family is every day so we can confirm that the total number of hours per week that each parent indicates he/she and parent spends with baby is correct, and to document how much help parents have from other people in taking care of the baby.

6/8/2007
Seeking Married Couples to Share their Story of Becoming First-Time Parents
New Arrivals-Passage to Parenthood Study, BGSU

* What
A BGSU research team is looking for married couples who are willing to share their story of their relationship, having a baby, and becoming parents. We will follow you for about 15 months to discover how you and your spouse deal with the passage to parenthood spiritually, physically, mentally and emotionally, and how your reactions impact your relationship, parenting and child.

* Where & When
We'd come to your home once during your pregnancy, and three times during your child's first year - around 3 months, 6 months, and 12 months. Each visit would last 2.5 to 3 hours. You would fill out surveys and be videotaped talking to your partner and interacting with your baby.

* Why
The information you share will help society better understand how parents experience pregnancy, the birth of a child, and becoming a parent. The risks to you are no greater than those normally encountered in everyday life.

* Gifts Certificates - total of $400
As a token of appreciation for your time and effort, each couple will select a gift certificate from one of several stores (e.g., Babies R Us, Kroger's, Meijer's) at each home visit.
1st visit = $75  2nd visit = $100  3rd visit = $100  4th visit = $125

* To learn more about the project - please call or email us, or fill out the information below, fold up page, and mail back to us.
Our phone: 419-372-BABY(2229)  Toll Free: 1-877-702-BABY(2229)
Our email: napps@bgsu.edu
(If you want us to contact you, fill out below & fold & mail back to us)
Name:
Address:
Day Phone: _______________ Night Phone:
Your email address(es):
# APPENDIX D

## BGSU

Bowling Green State University

<table>
<thead>
<tr>
<th>HSDB MEMBERSHIP</th>
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<tbody>
<tr>
<td>2004-2005</td>
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<tr>
<td>Joseph Jacoby, HSDB Chair</td>
</tr>
<tr>
<td>Sociology</td>
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<td>372-8167</td>
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<tr>
<td><a href="mailto:jjacoby@bgsu.edu">jjacoby@bgsu.edu</a></td>
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<tr>
<td>D. Wayne Bell, M.D.</td>
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<td>Wood Health Corp.</td>
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<td>552-6225</td>
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<tr>
<td><a href="mailto:dwaynebellmd@aol.com">dwaynebellmd@aol.com</a></td>
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<tr>
<td>Cheryl Conley</td>
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<tr>
<td>Gerontology</td>
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<td>372-9349</td>
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<tr>
<td><a href="mailto:conley@bgsu.edu">conley@bgsu.edu</a></td>
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<tr>
<td>Julie Burke</td>
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<td>Interpersonal Communication</td>
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<td>372-2408</td>
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<td><a href="mailto:jiburke@bgsu.edu">jiburke@bgsu.edu</a></td>
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<tr>
<td>L. Fleming Fallon, Jr., M.D.</td>
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<td>Public Health</td>
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<td>372-8316</td>
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<tr>
<td><a href="mailto:lfallon@bgsu.edu">lfallon@bgsu.edu</a></td>
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<tr>
<td>Mary Harre</td>
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<td>Psychology</td>
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<td>372-2328</td>
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<tr>
<td><a href="mailto:mharre@bgsu.edu">mharre@bgsu.edu</a></td>
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<tr>
<td>Vikki Kranz</td>
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<tr>
<td>Women's Studies</td>
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<td>372-2620</td>
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<tr>
<td><a href="mailto:vkrane@bgsu.edu">vkrane@bgsu.edu</a></td>
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<tr>
<td>Colleen Mandell</td>
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<td>Intervention Services</td>
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<td>372-7390</td>
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<tr>
<td><a href="mailto:mandell@bgsu.edu">mandell@bgsu.edu</a></td>
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<tr>
<td>J. Devin McCauley</td>
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<td>Psychology</td>
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<tr>
<td>372-3367</td>
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<tr>
<td><a href="mailto:mccaulry@bgsu.edu">mccaulry@bgsu.edu</a></td>
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<tr>
<td>Rich Rowlands</td>
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<tr>
<td>Office of Research Compliance</td>
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<td>372-7716</td>
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<tr>
<td><a href="mailto:hsrb@bgsu.edu">hsrb@bgsu.edu</a></td>
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<tr>
<td>Jason Schmitt</td>
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<td>Communication Studies</td>
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<td>372-3417</td>
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<tr>
<td><a href="mailto:schmitt@bgsu.edu">schmitt@bgsu.edu</a></td>
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<tr>
<td>Robin Varramonti Angliman</td>
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<td>Family &amp; Consumer Sciences</td>
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<td>372-2637</td>
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<tr>
<td><a href="mailto:rvar@bgsu.edu">rvar@bgsu.edu</a></td>
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</table>

### September 9, 2005

**TO:** Dr. Annette Mahoney  
Psychology

**FROM:** Richard Rowlands  
HSRB Administrator

**RE:** Human Subjects Review Board Project No.: H06E040FFB

**TITLE:** New Arrivals - Passage to Parenthood Study (NAPPS)

**REVIEW DATE:** September 7, 2005

**RESEARCH CATEGORY:** Full Board Review

The BGSU Human Subjects Review Board (HSRB) has completed its review of your project involving research with human subjects.

Your project has been **approved as submitted**. This approval expires on September 6, 2006. You may begin subject recruitment and data collection.

The final approved version of the consent document(s) is attached. Consistent with federal OHRP guidance to IRBs, the consent document(s) bearing the HSRB approval/expiration date stamp is the only valid version and copies of the dated document(s) must be used in obtaining consent from research subjects.

You are authorized to use human subjects for 12 months, but only in the manner described in your proposal. If you seek to make any changes in your project activities or procedures (including increases in the number of participants), those changes must be approved by the HSRB prior to their implementation. If any anticipated adverse reactions develop during the course of your project, you must temporarily suspend your research and notify the Chair of the HSRB.

Please notify the Board in writing (fax: 372-6916 or e-mail: hsrb@bgsu.edu) when you have completed your project. If you have any questions, please contact the Chair of the HSRB or me at 372-7716. Good luck with your research project.

**COMMENTS:**

1. Very thorough, well-organized application. Well done!
2. On the screening form for use with childbirth classes:
   - The last “Yes/No” question at the top has an extra “child” (same for phone screening)
   - Suggestion - add “- Stop Here -” between “…..questions,” and “you can turn in…”
3. Stamped original hard copy of consent form is coming to you via campus mail.

C:

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**RECEIVED TIME** SEP. 9, 5:05PM  
**PRINT TIME** SEP. 9, 5:10PM
The Role of Parental Knowledge & Self-efficacy in Parent Behavior  89

August 4, 2006

TO:  Dr. Annette Mahoney  
     Psychology  

FROM:  Richard Rowlands  
        HSRB Administrator  

RE:  Continuing HSRB Review for Project H05E040FFB  

TITLE:  New Arrivals - Passage to Parenthood Study (NAPPS)  

This is to inform you that your research study indicated above has 
received continuing Human Subjects Review Board (HSRB) review and 
approval. This approval is effective September 1, 2006 for a period of 
12 months and will expire on August 31, 2007. You may continue with 
the project.

The final approved version of the consent document(s) is attached. 
Consistent with federal OHRP guidance to IRBs, the consent 
document(s) bearing the HSRB approval/expiration date stamp is the 
only valid version and, on September 1, 2006, supercedes all 
previously approved versions. You must use copies of the 
date-stamped document(s) in obtaining consent from research 
subjects.

Please communicate any proposed changes in your project procedures 
or activities involving human subjects, including consent form changes 
or increases in the number of participants, to the HSRB via this office. 
Please notify me, at 372-7716, upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can 
be of assistance as your project proceeds.

Comments: Stamped original consent form coming via campus mail.
August 9, 2007

TO: Dr. Annette Mahoney
Psychology

FROM: Richard Rowlands
HSRB Administrator

RE: Continuing HSRB Review for Project H06EO40FFB

TITLE: New Arrivals - Passage to Parenthood Study (NAPPS)

This is to inform you that your research study indicated above has received continuing Human Subjects Review Board (HSRB) review and approval. This approval is effective September 1, 2007 for a period of 12 months and will expire on August 31, 2008. You may continue with the project.

Please communicate any proposed changes in your project procedures or activities involving human subjects, including consent form changes or increases in the number of participants, to the HSRB via this office. Please notify me, at 372-7716, upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments:

C:
August 5, 2008

TO: Dr. Annette Mahoney
    Psychology

FROM: Richard Rowlands
    HSRB Administrator

RE: Continuing HSRB Review for Project H06E040FFB

TITLE: New Arrivals - Passage to Parenthood Study (NAPPS)

This is to inform you that your research study indicated above has received continuing Human Subjects Review Board (HSRB) review and approval. This approval is effective September 1, 2008 for a period of 12 months and will expire on August 31, 2009. You may continue with the project.

Please communicate any proposed changes in your project procedures or activities involving human subjects, including consent form changes or increases in the number of participants, to the HSRB via this office. Please notify me, at 372-7716 or hsrb@bgsu.edu, upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments:

C:

[Signature]

Date: 8-15-08

From: Rich Rowlands

To: Dr. Annette Mahoney

Dept: ORC

Phone: 2-7716

Fax: 2-6916

RECEIVED TIME AUG. 5, 9:30AM PRINT TIME AUG. 5, 9:31AM
August 7, 2009

TO: Dr. Annette Mahoney
Psychology

FROM: Hillary Harms, Ph.D.
HSRB Administrator

RE: Continuing HSRB Review for Project H06E040FFB

TITLE: New Arrivals - Passage to Parenthood Study (NAPPS)

This is to inform you that your research study indicated above has received continuing Human Subjects Review Board (HSRB) review and approval. This approval is effective September 1, 2009 for a period of 12 months and will expire on August 31, 2010. You may continue with the project.

Please communicate any proposed changes in your project procedures or activities involving human subjects, including consent form changes or increases in the number of participants, to the HSRB via this office. Please notify me, at 372-7716 or hsr@bgsu.edu, upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments:

C:
August 27, 2010

TO: Dr. Annette Mahoney
Psychology

FROM: Hillary Harms, Ph.D.
HSRB Administrator

RE: Continuing HSRB Review for Project H06E040FFB

TITLE: New Arrivals - Passage to Parenthood Study (NAPPS)

This is to inform you that your research study indicated above has received continuing Human Subjects Review Board (HSRB) review and approval. This approval is effective September 1, 2010 for a period of 12 months and will expire on August 31, 2011. You may continue with the project.

Please communicate any proposed changes in your project procedures or activities involving human subjects, including consent form changes or increases in the number of participants, to the HSRB via this office. Please notify me, at 372-7716 or hsrb@bgsu.edu, upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments:

C:
December 8, 2006

TO: Dr. Annette Mahoney
Psychology

FROM: Richard Rowlands
HSRB Administrator

RE: Human Subjects Review Board Project No.: H07E136FE7

TITLE: New Arrivals-Passage to Parenthood Study (NAPPS) Time 4: Nov. 23, 2006

REVIEW DATE: December 8, 2006

RESEARCH CATEGORY: Expedited #7

The BGSU Human Subjects Review Board (HSRB) has completed its review of your project involving research with human subjects.

Your project has been approved as submitted. This approval expires on December 7, 2007. You may begin subject recruitment and data collection.

The approved version of the consent document(s) is attached. Consistent with federal OHRP guidance to IRBs, the consent document(s) bearing the HSRB approval/expiration date stamp is the only valid version and copies of the dated document(s) must be used in obtaining consent from research subjects.

You are authorized to use human subjects for 12 months, but only in the manner described in your proposal. If you seek to make any changes in your project activities or procedures (including increases in the number of participants), those changes must be approved by the HSRB prior to their implementation. If any anticipated adverse reactions develop during the course of your project, you must temporarily suspend your research and notify the Chair of the HSRB.

Please notify the Board in writing (fax: 372-6916 or e-mail: hrsrb@bgnet.bgsu.edu) when you have completed your project. If you have any questions, please contact the Chair of the HSRB or me at 372-7716. Good luck with your research project.

COMMENTS:
1. Stamped original consent document is coming to you via campus mail.
2. The font size on the consent document is very small and somewhat hard to read. You may wish to consider increasing font size so that the consent document doesn’t look like it is all in “fine print” since there is extra room on the back of the page, it might fit.

C:
December 4, 2007

TO: Dr. Annette Mahoney
Psychology

FROM: Richard Rowlands
HSRB Administrator

RE: Continuing HSRB Review for Project H07E136FE7

TITLE: New Arrivals-Passage to Parenthood Study (NAPPS) Time 4: Nov. 23, 2006

This is to inform you that your research study indicated above has received continuing Human Subjects Review Board (HSRB) review and approval. This approval is effective December 8, 2007 for a period of 12 months and will expire on December 7, 2008. You may continue with the project.

The final approved version of the consent document(s) is attached. Consistent with federal OHRP guidance to IRBs, the consent document(s) bearing the HSRB approval/expiration date stamp is the only valid version and, on December 8, 2007, supersedes all previously approved versions. You must use copies of the date-stamped document(s) in obtaining consent from research subjects.

Please communicate any proposed changes in your project procedures or activities involving human subjects, including consent form changes or increases in the number of participants, to the HSRB via this office. Please notify me, at 372-7716, upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments:
Stamped original of consent documents are coming to you via campus mail.

C: