

Parental Perception of Effectiveness
of Q-Sort Methodology in
Measuring Attachment in Children
With Atypical Behaviors

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Dissertation Submitted To Faculty of
Virginia Polytechnic Institute & State University
In Partial Fulfillment of Requirements for Degree of

Doctorate of Philosophy

In

Family & Child Development

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April 27, 1995

Blacksburg, Virginia

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(ABSTRACT)

The effectiveness of the Attachment Behavior Q-Sort in measuring attachment in children with atypical behaviors was examined in this study. Data collected from interviews, structured and unstructured observation, and parental sorting of the Q-Sort by ten families provided insight about the effectiveness of the instrument and attachment behaviors. The Maternal Behavior Q-Sort was also completed by the investigator to provide additional information about maternal qualities in this population. Results of this study indicate the Attachment Behavior Q-Sort with modification of some statements may be effective in measuring attachment behaviors of some members of this population. Because this instrument uses aspects of mobility to measure attachment behaviors, its usage with children who have mild to severe limitations in physical mobility is very questionable. Additional findings indicate social support may be a factor in influencing the interaction patterns of mothers and thus may also impact on the development of the attachment relationship.

ACKNOWLEDGEMENTS

To everything there is a season and a time to every purpose under the heaven.....Ecclesiastes 3:1

This author would like to express sincere gratitude to those many individuals who have provided assistance with this research project. Without the guidance and direction of Janet Sawyers, Committee Chairperson, Gloria Bird, Vicki Fu, Mark Benson, and John Burton, Committee Members, there would have been no structure for this project. Without the enthusiasm of Rhea Essa, the initial idea for this research would have never begun to flourish. Without the support of Ann Darby, Daun Jackson, Beverly Mamone, and Debbie Shuck, there would have been no study participants. Without the ten wonderful families who shared their life experiences with me, there would have been no substance. Without the "daily" hugs from my son Joel, I would not have had the energy to endure this project. Without the love and encouragement of my husband, Dana, and sister, Judy, the achievement of this goal would have been impossible. Above all, my sincerest gratitude is given to my heavenly father who opened doors that appeared closed, provided support in times of frustration, and increased my endurance in times of stress. To each of these individuals, I am deeply indebted for their role in assisting me to complete this project.

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Chapter One

Introduction

The dialogue of cooing and smiling is one of the earliest interactions between the infant and their parents. From the moment of birth, infants show behaviors which appear to have the function of bringing them into closer proximity and interaction with the caregiver. "Ethological attachment theory (Bowlby, 1969) assumes infant-mother attachment is a product of interaction over time, a function of the behaviors each brings to the relationship and the effects those behaviors have on each member" (Egeland & Farber, 1984, p. 753).

Researchers have proposed that "optimal" patterns of attachment are fostered by maternal sensitivity (i.e., consistent with perception, accurate interpretation, and contingent and appropriate response to infant signals) which encourages well-timed, synchronous, and mutually rewarding interactions (Isabella & Belsky, 1991; Isabella, Belsky, & von Eye, 1989; Pederson, Moran, Setko, Campbell, Ghesquire, & Acton, 1990; Smith & Pederson, 1988). The capacity of both the infant and parent to make contributions which both elicit and respond to behaviors in this interaction has been defined as critical for the development of attachment behavior (Bretherton, 1985).

Typically, infants are born with adaptive ways to be attentive of people and environmental stimulation and

equipped with a repertoire of behaviors to effectively capture adult attention (Brazelton & Crammer, 1990). However, infants who are developmentally delayed or disabled (often referred to as infants with atypical behaviors) experience interactions with parents differently than infants with typical behaviors (Hansen & Ulrey, 1988). Factors in this population which have been found to be clinically significant in disrupting synchronous parent-child interaction include reduced or altered cuing capacity (Capuzzi, 1989; Foley, 1986; Rosenberg & Robinson, 1988), delayed locomotion (Foley, 1986; Hansen & Ulrey, 1988), disturbances of state and temperament (Foley, 1986), high incidence of illness (Foley, 1986) and general developmental delay (Foley, 1986).

While these factors represent obstacles in the interaction between the infant and their parent, the actual significance is demonstrated by analysis of their effect on the formation of the attachment behavior. According to Blacher and Meyers (1983), evidence suggests attachment between young children who are disabled and their mothers may be dulled, delayed, or even absent. Foley (1986) indicates this interactional style causes the mother to drift into mechanical mothering which is characterized by passive proximity and progressive shorter periods of interaction. Maternal ministrations and play attempts become singular, stereotyped events which are functional activities

rather than opportunities for effective interchange. Zirpoli and Bell (1987) propose reductions in parent-child interactions may be the outcome of previously unrewarded interactional attempts with children with severe disabilities. Of still further significance is the data reported by Frothi (1981) which suggests parents whose experiences have been with an infant who displays atypical behaviors (such as a child who is disabled) show an exaggerated and often negative pattern of responses to aversive infant stimuli, thus increasing their likelihood of abuse.

Since attachment is significant to both the physical and emotional well being of the child, the question of how to measure attachment is of importance. A review of the literature notes the Ainsworth Strange Situation (Ainsworth, 1979) has predominantly been utilized as the mechanism for investigating attachment. While this instrument is considered to be effective in measuring attachment of children with typical behaviors, it has been noted to be inadequate for studying various categories of children who display atypical behaviors (Blacher & Meyers, 1983; Fields, 1987; Stahlecker & Cohen, 1985). Blacher and Meyers (1983) who closely examined this phenomena (in studies from 1971 - 1981) concluded there does not seem to be a systematic workable process for studying attachment behaviors of young children with disabilities.

Within the last decade, Waters and Deane (1985) have designed a Q-sort methodology for the purpose of assessing attachment behaviors of children ages one to five years. This instrument, the Attachment Behavior Q-Sort, consists of descriptions of infant's behaviors which the parent sorts into three piles (characteristic, neither characteristic nor uncharacteristic, and uncharacteristic). It encompasses a broad range of secure base and exploratory base behaviors, affective response, social referencing, and other aspects of social cognition. Because the assessment depends on the parent's analysis of infant behaviors as opposed to observing the child in a semi-structured laboratory playroom, it has the advantage of incorporating the parent's knowledge of the child's capabilities in a variety of environments into the assessment process.

The instrument is reflective of a variety of abilities of the child and therefore has the potential of being a more reliable indicator for assessing attachment in the child with atypical behaviors. While the Attachment Behavior Q-Sort appears to provide a solution to measurement of attachment behaviors in children with atypical behaviors, its usage with this population requires close scrutiny. In addition, since this instrument is designed to be completed by the parent of the child, a comprehensive evaluation of the effectiveness of the Attachment Behavior Q-Sort with children who display atypical behaviors must include

parental insight regarding the strength and weakness of this instrument as related to its proficiency as an indicator of attachment behaviors in their child. Further insight into the attachment relationship between the child who displays atypical behaviors and their parent may also be gained via indepth interviewing and interactional observation of this dyad.

Research Questions

The purpose of this study was to evaluate the effectiveness of the Attachment Behavior Q-Sort in measuring attachment behaviors of children who display atypical behaviors. The specific research questions were:

- 1) How does having a child who displays atypical behaviors influence the parent's categorization of statements for the Attachment Behavior Q-Sort?
- 2) What are the attachment behaviors which are identified by parents of children who display atypical behaviors?
- 3) What are the attachment behaviors which are observable in parents of children who display atypical behaviors?
- 4) Does the Attachment Behavior Q-Sort effectively measure attachment behaviors in children who display atypical behaviors?

Chapter Two

Literature Review

Overview

Ethological attachment theory proposes attachments develop within the context of, and are influenced by, infant-mother interactions (Bowlby, 1982). Since interaction is viewed as influencing attachment, parent-child dyads where the child display atypical behaviors have the potential for significant alteration in attachment, thus the importance of techniques to properly assess attachment in this population is of notable concern. Therefore this research study's primary purpose was to examine the effectiveness of the Attachment Behavior Q-Sort in the measurement of attachment behaviors in children who display atypical behaviors. Of significant concern to this study is the fact that while research has been completed with regard to attachment and children who display atypical behaviors, the findings predominantly address the deficiencies of the attachment relationship and do not effectively indicate the factors within the relationship which have enhanced attachment. Thus, an additional focus of this research was to closely examine what factors were indicators of attachment in children with atypical behaviors. In order to establish a basis for this study, the review of the literature concentrated on explanation of attachment theory, antecedents of attachment, and research on attachment in

children who display atypical behaviors.

Attachment Theory

The investigation of attachment must begin with a careful analysis of the theory itself. Bowlby is recognized by many as the pioneer of attachment theory (Goldsmith & Alansky, 1987). In his theory, Bowlby (1982) postulated attachment developed as the infant's behavioral system interacted with the environment, especially from interaction with the principle figure in the environment, namely the mother. The infant-mother relationship was conceptualized as a biological functioning system in which the infant was viewed as possessing a repertoire of behaviors which focus on survival. Components of this behavioral system are classified as perceptual, effector, and signal equipment. Specifically, perceptual equipment refers to the infant's senses and the way in which the infant orients to another figure; effector equipment refers to body parts such as hands, feet, head and mouth which are used in the infant-mother interaction; and signal equipment refers to behaviors during interaction such as crying, smiling, babbling, and arm gestures. Each of these components are viewed as functioning together to create patterns which encourage attachment.

Bowlby (1982) further postulated the infant is genetically biased toward establishing an attachment to the caregiver. The attachment relationship which develops with

the caregiver has been defined as progressing through four phases. The preattachment phase begins at birth and ends when the infant is around 8-12 weeks of age. During this phase, the infant has limited ability to discriminate one person from another. The second phase, which lasts until the infant is six months of age, is characterized as attachment-in-the-making phase as expansion of attachment behaviors occurs with focus on a primary attachment figure beginning to develop. The third phase, defined as extending through the second year of life, is characterized by the infant beginning to use the mother as a secure base from which environmental exploration is initiated. The fourth and final phase which begins during the third year of life signals the time period when the attachment relationship becomes less dependent.

Measurement of Attachment. Empirical research on attachment has primarily used Ainsworth's Strange Situation (Ainsworth, 1979) as a means of studying behaviors and processes involved. This assessment is based on the hypothesis that the infant's feelings of security are the ontogenic function of the attachment system. The procedure involves observing an infant (who is between 12 - 24 months old), a caregiver, and a friendly, but unfamiliar adult in a series of eight semi-structured episodes in a laboratory playroom (a sequence of separations and reunions between infant and each of the two adults). It is believed that

over the eight episodes, the child experiences increasing distress and greater need for proximity. The extent to which the child copes with this need and strategies they use to do so are considered to indicate quality of attachment. Scoring of a videotape of the episodes results in the infant being classified into one of three groups (A, B, C) and 8 subgroups (A1, A2, B1, B2, B3, B4, C1, C2). The B group infants are considered securely attached because they greet the parent upon reunion and use the parents as a secure base from which to explore their environment. While group A and C infants are called insecure because their behavior deviates from this pattern. These infants are either classified as avoidant (A) because they tend to avoid their parents or resistant (C) because they exhibit angry or rejecting behaviors. Several recent studies have described a fourth group known as insecure-disorganized (D) (Carlson, Cicchetti, Barnett & Braunwald, 1989; Cicchetti, 1987). The salient feature of this pattern of attachment is the lack of coherent strategy. In addition, infants in this group have been described as engaging in odd behaviors which are inexplicable except in the context of fear or confusion in the presence of the mother. These studies have noted the occurrence of this pattern is relatively high in maltreated infants.

The Ainsworth Strange Situation procedure was developed with explicit reference to an attachment behavioral control

system. The separation-reunion episodes of this procedure were designed to reproduce mild to moderate stressful challenges to the attachment behavioral system. Some individuals (Waters & Deane, 1985; Lamb, 1987) believe the behaviors assessed with the Strange Situation are signs or predictors of the control system's ability to organize behaviors toward an adult. In order to more comprehensively examine attachment relevant behavior, the Attachment Behavior Q-Sort was developed by Waters and Deane (1985). With this technique, the child's security of attachment is determined by an item by item correlation of the sort of the infant's behavior as it compares with a description of the "hypothetical more secure child."

The Attachment Behavior Q-Sort has been used in various studies of attachment behavior. For example, Park and Waters (1989) used the Attachment Behavior Q-Sort to examine whether the security of attachment to the mother is related to the quality of a preschoolers' best friendships. Howes, Hamilton, and Althusen (1993) used the Attachment Behavior Q-Sort in their investigation of the relationship of children towards a non-familial caregiver. While Vaughn, Stevenson-Hinde, Waters, Kotsaftis, Lefever, Shouldice, Trudel, and Belsky (1992) used the Attachment Behavior Q-Sort to investigate the relationship between temperament and attachment security.

Additional studies have examined the usefulness of this

instrument with different cultures. Specifically, Gao (1993) conducted a study which focused on comparing Q-Sort descriptions of Chinese and American mothers. While other studies have examined the validity (Teti, Nakagawa, Das, & Wirth, 1991) and reliability (as compared to Ainsworth Strange Situation) (Howes, Rodning, Galluzzo, & Myers, 1988; Vaughn & Waters, 1990) of the Attachment Behavior Q-Sort.

Perhaps the most interesting research has been the studies which are assessing infant attachment using the Attachment Behavior Q-Sort and maternal sensitivity using the Maternal Behavior Q-Sort (Moran, Pederson, Pettit, & Krupka, 1992; Pederson & Moran, 1993; Pederson, Moran, Sitko, Campbell, Ghesquire, & Acton, 1990). The Maternal Behavior Q-sort is patterned after the Attachment Behavior Q-Sort except the 90 items focus on maternal behavior. Pederson and Moran (1993) indicate their initial studies provide evidence of the utility of the Maternal Behavior Q-Sort and the link between contemporaneous measures of infant attachment and maternal sensitivity. These investigators further state that in combination the two Q-Sorts are capable of capturing meaningful variation in maternal and infant interactive behavior.

Antecedents of Attachment

Attachments are considered to be specific to individual infant-caregiver pairs, in as much as they are based on patterns of behavioral exchange that the dyad has

established (Isabella, Belsky, and von Eye, 1989). Patterns of behavior vary according to environmental experiences and the cumulative effect of interactions between the infant and the caregiver. Research during the past few decades has focused on identification of behavioral antecedents which influence the differing patterns of attachment. Specifically, antecedents related to maternal characteristics and attributes, infant characteristics, and contextual factors associated with the exchange have been investigated.

Maternal Characteristics And Attributes Related to Attachment. The mother as caretaker has been the predominant focus of most of the research completed on attachment relationships. Perhaps the most significant findings have been related to maternal sensitivity. Ainsworth (1979) indicates sensitive maternal responsiveness to infant signals is a fundamental precursor to variation in patterns of attachment. Ainsworth determined mothers of securely attached infants: responded effectively to infant signals in feeding situations in the first three months of life; were playful, expressive and contingent in their face to face interactions so their infants vocalized to them and smiled; picked up and held their infants with tenderness, care and affectionate behaviors; and enjoyed close bodily contact with their infants.

While Ainsworth conducted initial studies on maternal

sensitivity, numerous other researchers have completed studies in this area. Grossmann, Grossmann, Spangler, Suess, and Unzn's (1985) completed a cross national replication of Ainsworth's Baltimore study. In their investigation, infant-mother dyads were observed dyads in their home environment for a time period of one year. The purpose of this study was to examine the relationship between maternal sensitivity and the infant's strange situation classification. Some predictive associations were noted between maternal sensitivity and infant behavior patterns.

Maternal sensitivity was also the focus of the studies by Smith and Pederson (1988) who analyzed sensitivity and attachment classifications in 48 infant-mother dyads. This study examined mother's responsiveness to infants while the mother completed the task of answering a questionnaire. Results of this study indicated 94% of infants were correctly classified as securely or anxiously attached on the basis of their mother's behavior, thus supporting Ainsworth's and other's proposition that maternal sensitivity and quality of attachment are closely related.

Further analysis of the relationship of maternal sensitivity to attachment was completed by Pederson, Moran, Setko, Campbell, Ghesquire, and Acton (1990) in their study of infant-mother dyads. Using the Waters and Deane Attachment Behavior Q-Sort and the Maternal Behavior Q-sort,

this study revealed mothers of more secure infants were more frequently characterized as noticing their infant's signals and using these signals to guide behavior. Mothers in this study were also more knowledgeable about their infants and appeared to enjoy the infant more than mothers of less secure infants. In addition, researchers noted the sensitivity demonstrated was positively correlated with maternal education. Later studies by Pederson and Moran (1993) further examined maternal sensitivity in 41 infant-mother dyads. Results of this study also supported earlier findings that maternal sensitivity correlated with infant's security of attachment.

Most recently, Isabella (1993) examined the interactional origins of the secure, insecure-resistant, and insecure-avoidant patterns of attachment. In this study of 32 mother-infant dyads, naturalistic observations were conducted over a period of one year. Results of this study indicated mothers of secure one year old children were observed to have been more sensitively responsive at 1 and 4 months and less rejecting at 1 and 9 months than mothers of insecure infants. Additional findings indicated insecure-resistant attachment relationships were to be fostered by mothers who were highly insensitive and rejecting as the first year proceeded. In addition the assumption that overstimulation fosters avoidance received virtually no support. The investigator did, however, indicate on the

basis of current study findings that negative, physically controlling, and interfering maternal behaviors foster insecure-avoidant relationships. These insecure-avoidant relationships were noted to have occurred only when the infant experienced increasing amounts of this type of pattern of maternal behavior and when the experiences occurred during a significant time in the child's development. Perhaps the most significant finding was related to patterns of rejection as mothers of avoidant infant were noted to become increasingly more rejecting than other mothers within the study.

While maternal sensitivity to infant cues and signals has been linked in several different studies to the security of attachment, other aspects of maternal involvement and interaction have also been analyzed. Belsky, Taylor and Rovine (1984) studied infant-mother interactions to determine their reciprocal nature. Data collected via observations of interactions of parents and infants revealed securely attached infants had experienced levels of reciprocal interaction and maternal stimulation which were considered to be reflective of sensitive care while resistant infants had experienced less responsive care than securely attached infants.

Goldberg, MacKay-Soroka, and Rochester's (1993) study of 30 infant-mother dyads focused on patterns of maternal responses to infant signals. This study revealed mothers of

secure infants responded to the full range of infant affective events while those of avoidant and resistant infants responded more selectively. Mothers of avoidant infants were the least responsive and in particular ignored negative affect expressed by the child.

Examination of the importance of sensitivity, responsiveness, and reciprocity in infant-mother interactions has led other researchers to investigate innate sources of these qualities. For example, Egeland and Farber's (1984) sub-study within a longitudinal study of 267 infant-mother dyads focused on both infant and maternal characteristics within the attachment relationship. This study identified mothers of securely attached infants as consistently more cooperative and sensitive with their infants than those who were anxiously attached. Anxious/avoidant infants were noted in this study to have mothers who had negative feelings about motherhood, were tense, irritable, and treated their infants in perfunctory manner. These researchers concluded given the ongoing nature of attachment relationships that maternal personality would assume greater importance the longer the mother and child were together. In addition, this study demonstrated the attachment relationship is responsive to change in either partner's behavior.

Other researchers such as Crowell and Feldman (1991) have focused on Bowlby's (1982) hypothesis that children

draw on their experiences with parents to form an internal working mental representation or working model of self which influences their relationships with others throughout the lifespan. In their study of 64 mother-child dyads, data collected supported the hypothesis that a mother's internal model of relationships selectively and qualitatively affects her responsiveness and sensitivity to her child. Mothers who were classified as secure showed warmth and support during challenging interactions with their child and gave clear, helpful assistance to encourage learning and mastery. In contrast, mothers who were in detached category were less emotionally supportive and helpful to their children and assisted in a controlling style which was cool and remote.

Infant Characteristics Related to Attachment. Research on infant-caregiver interaction has primarily focused on the characteristics of the mother as she interacts with her child. Some studies such as the one conducted by Thompson, Connell, and Bridges (1988) have, however, examined infant distress or temperament. In this study of 43 infant-mother dyads it was noted that emotional reactions, particularly those related to distress, played a central role in attachment system functioning in the Strange Situation. Their findings indicate temperamental fear influences the child's social interactive behavior both directly and indirectly through the intensity of the separation distress.

Temperament and its relationship to attachment was also

the focus of a study by Belsky, Fish, and Isabella (1991). Their study of 148 infant-mother dyads revealed infant's change to lower levels of negative emotionality and to higher levels of positive emotionality were observed when the parents (mother or father) were psychologically healthier (higher positive affect or self esteem), marriages were more positive or less negative, infant-mother interaction patterns were more complementary and harmonious. In contrast, changes to higher levels of negative emotionality and lower levels of positive emotionality were associated with less optimal parental personality, marital characteristics, and other interactional processes. Attachment related analysis revealed changing patterns of infant emotionality may both reflect and be derived from developing attachment relationships as well as being a determinant of them.

Vaugh, Stevenson-Hinde, Kotsaftis, Lefever, Shouldice, Trudel, and Belsky's (1992) studies of six different samples (total of 457 children) also revealed significant associations between temperament and attachment. The investigators indicated the results of their studies helped to clarify relationships between the domains of attachment and temperament rather than to affirm distinctions between the two.

Sroufe's (1985) review of the literature on temperament and attachment classification did not support temperament as

a single determinant of attachment, but rather a partial determinant. Sroufe concluded responsiveness may actually influence the expression of temperament and consequently the development of attachment.

Contextual Factors Associated With Interaction. While numerous research studies have focused on examining individual characteristics of mothers and infants, some investigators have examined specific contextual factors associated with interaction. Significant research has focused on identification of social interactional rhythms which occur between infant-mother dyads. Lester, Hoffman, and Brazelton's (1985) study of 20 term and 20 preterm infant-mother dyads identified temporal patterning as a fundamental property of early face-to-face infant-mother interactions. By age 3 months, the sequential nature of social interaction was observed to be made up of periodicities in behavioral units. This study attempted to qualify behavioral periodicities or cycles during face to face interaction. Behavioral periodicities were found to range from 10-45 seconds in length and be coordinated in rhythm, thus facilitating the development of synchrony in the interaction. The behavioral periodicities could be seen both in terms of cycles within each member of the dyad and as synchrony between the mother and infant. A difference noted in synchrony between term and pre-term infants was speculated to be due to the effects of prematurity.

Specifically the regulatory functioning of the premature infant's nervous system is immature thus their ability to process input from the environment and develop effective communication skills is diminished.

Additional studies on synchrony within the caregiver-infant relationship have been conducted by Isabella, Belsky, and von Eye (1989). In their study of 30 infant-mother dyads, synchronous interactions in 1 and 3 month old infants were noted to be predictive of later secure attachment. This study also was supportive of previous findings that mothers of secure infants were more responsive to their infant's vocalizations and distress signals than mothers of insecure infants.

Further research on the relationship of synchronous interaction and attachment was completed by Isabella and Belsky (1991). Their study of 53 infant-mother dyads revealed infants who had developed secure attachments had previously been observed as interacting in disproportionately well-timed, reciprocal, and mutually rewarding manners whereas dyads who developed insecure relationships were disproportionately characterized by interactions in which mothers were minimally involved, unresponsive to infant signals and intrusive. Thus these tendencies were seen as supportive of interactional synchrony as an antecedent of attachment quality.

In other research, contextual factors within the

social environment have been studied by examining social support, analysis of impact of maternal health problems, and family antecedents of attachment. The Jacobson and Frye (1991) study of 46 infant-mother dyads examined the influence of maternal social support on the development of attachment. Data collected suggested social support appeared to be necessary in promoting secure attachments at all levels of maternal ego functioning in the sample.

Capuzzi's (1989) investigation of social support and attachment specifically targeted investigating this phenomena in parent-infant dyads where the child had a disability as compared to dyads without a disability condition. This longitudinal study revealed there were significant differences in attachment when infants were 1 month of age. Mothers of infants who had disabilities exhibited fewer attachment behaviors. No differences were noted at 6 and 12 months of age. Further findings indicated the presence of social support appeared to reduce the stress of having an infant with a disability and thus facilitated maternal attachment.

The analysis of impact of maternal health problems was extensively studied by Ijzendoorn, Goldberg, Kroonenberg, and Frenkel (1992). In this meta-analysis study, mothers were surmised to play a more important role than the child in shaping the quality of infant-mother attachment relationship. Of further significance were the study's

findings which indicated children cannot compensate for the lack of maternal responsiveness and are vulnerable to insecure forms of attachment.

Still another aspect of contextual factors has been examined through the analysis of family antecedents and their relationship to attachment (Fish, Stifter, & Belsky, 1993). The results of this investigation of 76 infant-mother dyads revealed individual differences in infants, mothers as well as family contextual variables measured neonatally influenced the process of early interaction. Findings indicated the mother's characteristics were more influential than the infant's characteristics during the interaction. The contextual variables which distinguish optimal from less optimal interactions were also largely predictable. For example, mothers with positive personalities and mothers with higher levels of education were more likely to be in dyads with responsive, positive interaction. Additional variables noted in positive interactions were appropriate levels of support from the husband and the existence of positive relationships between the mother and father.

Research on Attachment In Children Who Display Atypical Behaviors.

A variety of aspects of attachment have been investigated in studies of children who display atypical behaviors. Collectively, these studies may be classified as

focusing on factors related to responsiveness/sensitivity and behavioral patterns between parents and children.

Responsiveness/Sensitivity. Studies on responsiveness/sensitivity have been conducted by numerous researchers. Brooks-Gunn and Lewis (1984) investigated the influence of three infant characteristics (chronological age, mental age, and disability) on mother's interactions with their child who displayed atypical behaviors. This study revealed mothers were more responsive proportionately to their infant's behavior as their children became more mature mentally, but not as they aged chronologically. Differences were also noted in the amount of behavior demonstrated by infants who belonged to specific disability groups. For example, infants with cerebral palsy exhibited less behavior than did infants with Down's syndrome and infants with developmental delay. Disability group membership was also noted to be related to maternal responsiveness. Specifically, mothers of infants who were developmentally delayed were proportionately more responsive than mothers of the other two groups of infants.

Wasserman, Allen, and Solomon (1985) also used a research design which made comparisons based on membership within a specific disability group. Their study compared the functioning of 14 mother-child dyads in which infants had physical anomalies with 14 mother-child dyads in which infants had been premature. Analysis of their abilities in

semi-structured situations revealed both groups of children performed poorly in social initiative, focused play, language production, and in intelligence testing. Mothers of these children were noted to be more initiating in interaction but less responsive to continuation of interaction than the study's control group mothers.

Zirpoli and Bell (1987) proposed a model to explain why children who display atypical behaviors might be perceived as responsive or unresponsive by their parents and caregivers. They proposed perceived unresponsiveness may be more critical than the disability per se. In addition, intense interactions early in the child's development may be related to high levels of initial caregiver motivation for interaction which subsides and is replaced with reduced caregiver-child interaction resulting from previously unrewarded exchanges and subsequent lowered levels of expectations for the child.

Lojkasek, Goldberg, Marcovitch, and MacGregor (1990) searched for influences on maternal responsiveness using comparisons by disability group membership. In their study of 40 preschool children with Down's syndrome , 29 children who were neurologically impaired, and 40 children who were developmentally delayed with unknown etiology, data collected revealed parental age was the most powerful predictor of maternal responsiveness. The older mothers in the study were noted to be more responsive. With regard to

responsiveness, mothers who scored responsive had children who were also rated as responsive, thus the relationship was found to be bi-directional and reciprocal in nature.

Promptness and appropriateness of responses was further examined by Moran, Pederson, Pettit, and Krupa (1992) in their study of 19 mothers and their infants who were developmentally delayed and were participating in an infant stimulation program. A significant relationship was found between security of attachment and degree of sensitivity exhibited by the mother. These researchers proposed the existence of a theoretical link between sensitivity and security of attachment. Furthermore, they explained sensitivity and attachment security were not trait like characteristics of an individual, but were actually constructs of the relationship. Pederson and Moran (1993) suggest caregiver behavior of the mother i.e. sensitivity cannot be a characteristic of the mother in isolation, but rather is a reflection of the current interaction between the mother and infant and of the current state of the relationship between the two. These investigators suggest this conceptualized link between maternal sensitivity and infant security requires consideration of this relationship as an "organized whole" as opposed to a causal model. The "organized whole" concept explains the interaction between the mother and infant as a goal directed system while the causal model indicates the events in the interaction occur

as separate components which are dependent on each other. In this goal directed system, the actions of each interactant reciprocally influences those of the other. The past history of interaction between the two is defined as shaping future actions which in turn modifies the relationship ad infinitum in time. Thus from a systems theory perspective, Pederson and Moran state it makes no sense to assume that maternal sensitivity causes attachment security as it is the relationship itself and not the behavior or the characteristics of the component interactants which determines security of attachment.

Behavioral Patterns Between Parents and Children.

Studies which have focused on specific qualities of the relationship between the parent and the child who displays atypical behaviors have primarily examined the organization of behaviors of individuals involved in the interaction. Blacher and Meyers (1983) completed a review of fourteen studies performed between 1955 and 1981 on attachment relationships between parents and children who displayed atypical behaviors. Their review of this literature suggested attachment between young children who displayed atypical behaviors and their mothers or caretakers was possibly delayed, dull, or even absent. These investigators challenged the use of the Ainsworth procedure to analyze behaviors and whether the concept of stages or developmental sequence in attachment could actually be applied to

populations who were atypical.

Levy-Shiff's (1985) comparison study of the functioning of families with children who were mentally disabled as compared to a developmentally matched sample with children who had no mental disability revealed deviations in behavior patterns in the study population. Mothers of children who were mentally disabled were noted to direct less behavior toward the child, communicate less frequently with the child and to have more exchanges with their spouses about the child. This pattern of interaction supports the opinion there is an alteration in normal exchanges between parent and child.

Other researchers such as Foley (1986) examined the nature of the patterns of interaction which occur between children who display atypical behaviors and their parents. Findings of this study of 17 mother-infant dyads revealed the presence of specific disability conditions appear to compromise the child's capacity to participate fully in a range of typical mother-child interactions, even in the presence of a competent mother. He also noted the child who is disabled is more likely to be deficient in behaviors which promote and sustain interaction and reciprocity in the interaction. He identified five factors which were clinically significant in disrupting typical mother-child interactions in observed dyads: reduced or altered cuing capacity, delayed locomotion, disturbance of state and

temperament, high incidence of illness and general developmental delay. Foley concluded disruption in patterns of interaction delayed progression through the stages of attachment. He described the attachment phase in children who displayed atypical behaviors as being characterized by an initial honeymoon period motivated by the child's survival which dissolved as the child was unable to produce synchronous and sufficient feedback to sustain an interactional style. The resulting interactional style was described as a mechanical mothering where feeding and diapering became functional tasks rather than opportunities for affective interchange.

Organization of behaviors of mothers and infants during interaction has also been examined in regard to maternal directiveness. Marfo's (1992) study of 25 mothers and their children with developmental delays revealed mothers tended to be more directive with children who were less cognitively competent and children who were less active in initiating or responding to an interaction. He interpreted these findings as supporting the hypothesis that high directiveness may reflect an interactional strategy which mothers adopt to increase their child's activity levels.

Measurement of Attachment In Children Who Display Atypical Behaviors.

The question of how to measure attachment in children who display atypical behavior in has been investigated by

several researchers. A review of attachment formation literature on children who display atypical behaviors which completed by Blacher and Meyers (1983) indicated researchers, who performed studies 1971-1981, had utilized three procedures: observation, structured procedure, and the Ainsworth Strange Situation. The analysis of these methodological procedures revealed the Ainsworth Strange Situation has been used extensively with infants who have Down's syndrome, but had not been validated for use with children with more severe disabilities or children who have more than one type of disability. Furthermore, these authors concluded there does not seem to be a systematic workable procedure for studying attachment behaviors of young children with disabilities.

Stahlecker and Cohen (1985) examined infant-mother attachment in 24 dyads where the infant was neurologically impaired. Using the Ainsworth attachment paradigm, this study was an examination of the extent to which physical impairment affected the development of infant-mother relationship. While the investigators concluded the Strange Situation, with minor adaptation, was a useful paradigm for studying early social relationships of children with motor impairment and their parents, numerous limitations were noted with this technique. For example, since the Strange Situation assessment relies heavily on specific behaviors exchanged by the caregiver and the infant such as reaching,

clinging, approaching, lifting arms, etc., infants who could not display these behaviors could not be classified, thus no discussion of attachment relationships could be completed.

Additional criticism of the use of the Strange Situation with infants who have a disability was summarized in an article by Tiffany Fields (1987). In this summary, comparisons were made with using this paradigm with infants who displayed typical behaviors and infants who displayed atypical behaviors. Limitations were noted regarding the difficulty and sometimes inability to classify all infants according to Groups A, B, C, or D. Additional concerns were related to the validity of the findings during interaction as actually being related to the attachment paradigm. Specifically, concerns were addressed on how infants who display atypical behaviors differ from infants who display typical behaviors during interaction, but cannot be discriminated from each other with regard to attachment.

Considering the difficulty experienced in the use of the Ainsworth Strange Situation in studying populations who are atypical, there existed a compelling need for studying alternative strategies for assessing attachment behaviors of children who display atypical behaviors. Waters and Deane (1985) Attachment Behavior Q-Sort is a strategy for assessing attachment which relies on the parent's categorization of infant behaviors. Since the assessment depends on the parent's analysis of infant behaviors, it

allows a more comprehensive assessment of behavior as opposed to an analysis based upon one observation. The construct validity of this measurement has not only been tested by Waters and Deane (1985), but has been closely scrutinized by other investigators (Teti, Nakagawa, Das & Wirth, 1991; Vaughn & Waters, 1990). It had not, however, been evaluated for use with children who display atypical behaviors, therefore an implicit need existed for the investigation which was completed.

Chapter Three

Methodology

Research Design

Based on the research goals, a multiple embedded case study design (Yin, 1984) was used to investigate the research questions. While the primary focus of the study was to examine the effectiveness of the Attachment Behavior Q-Sort in measuring attachment behaviors in children with atypical behaviors, the completion of this investigation yielded information about the instrument and the nature of interactions between these children and their mothers. The multiple embedded case study design allowed for review of subunits as related to the interactions between the child and mother, specifically factors considered to be antecedents of attachment, as opposed to only focusing on the whether or not the Attachment Behavior Q-Sort was effective for the measurement of the security of attachment.

With this study, strategies of multiple methodology triangulation (Denzin, 1989) were utilized. This approach was implemented in the research design through the use of interviewing, collection of quantitative data from the Q-sorts, and observation. This allowed a kaleidoscope effect whereby interview data collected about the effectiveness of the Attachment Behavior Q-Sort was combined with data regarding parental insight about attachment behaviors observed in children who display atypical behaviors. In

addition, both quantitative and qualitative analysis of the Q-sorts contributed further insight regarding attachment. The subsequent combining of interview and quantitative data with the information gathered during observation of parent-child interactions completed the symmetrical design to capture the essence of the attachment relationship between children who display atypical behaviors and their parents.

The study was modeled after a previously conducted pilot study. The pilot study provided insight as to whether an investigation of usage of the Attachment Behavior Q-Sort with children who display atypical behaviors was worthy of further analysis. The pilot study also facilitated the refinement of strategies essential to data collection with regard to the proposed study.

Sample Selection Process

The target population for this study was children who displayed atypical behaviors and were between the ages of 1 and 5 years of age. A total of 10 children and their parents were solicited for participation in this study. A child who displayed atypical behaviors was defined as one who was between the chronological age of 1 and 5 years and who had been defined as developmentally delayed in regard to social, gross motor, and/or language development. Children who display atypical behaviors who also had an intense medical problems (requiring hospitalization more than two times in the preceding six months) were not included within

the study population. Participants for this study were solicited from families currently or previously enrolled in FMRS Mental Health Council's Early Intervention Program. The focus of this program is on teaching parents techniques to assist their child in progressing toward accomplishment of developmental milestones.

Participants were told the purpose of the study was to determine the effectiveness of the Attachment Behavior Q-Sort in measuring their child's attachment behaviors. After an explanation of the study, volunteers were requested. The written consent of all participants was obtained on a Consent Form (Appendix A) by the investigator. Individuals were informed they were under no obligation to participate in the study and they could withdraw their consent to participate at any time. Individuals were also assured of anonymity.

Instrumentation & Scoring

Three methodologies were used in collecting data: interviewing, observation, and collection of quantitative data from Q-Sorts. An explanation of each of these methodologies follows.

Interviewing of Parents. The interviewing of parents was conducted using the principles of long interviewing (McCracken, 1988) and ethnographic interviewing (Spradley, 1979) techniques. Principles related to long interviewing technique which were adopted included techniques of focusing

and structuring of questions. Ethnographic interviewing techniques which were used included ethnographic questioning techniques (descriptive, structural, and contrast questions) and methodologies to ensure sensitivity to the language used by study participants.

A total of two interviews were conducted in the study participants' home. Both interview sessions were audiotaped. During the first interview, the focus was on orienting the family to the study including an explanation of the study and answering of specific questions. The parents' viewpoint on origin and progression of their child's experience with having developmental delays and characteristics and behaviors they saw as indicating attachment were identified. Questions regarding aspects of social support were also asked during this interview. See Appendix B for examples of question used to obtain information about the types of assistance being received (financial, services for the child, professionals who have been helpful, etc.); affect (expressions of respect, love, etc.); and affirmation (endorsement of one's behavior, perceptions, etc.) (Capuzzi, 1989; Norbeck, Lindsey, & Carrieri, 1981, 1983).

The second interview was conducted one week later. The focus was on discussing the Attachment Behavior Q-Sort. Specific attention was given to the parent's explanation of how they categorized their child using this instrument.

Additional discussion covered the parent's perception of the need for changes or additions to the Attachment Behavior Q-Sort in order to more accurately characterize their child. (Appendix B).

Observation of Parent-Child Interaction. During the interviewing sessions, the investigator assumed the identity of participant as observer (Denzin, 1989). In this role, the investigator attempted to establish a rapport with the family to facilitate exchange of information. While the time period to develop this relationship was brief, the intensity of the nature of the study focus facilitated this process. The total of time for both observations ranged from 4-5 hours.

In this role of participant as observer, the investigator observed both structured and unstructured interactions between the parent and child. The structured interaction involved the parent demonstrating the use of a toy to their child. The selection of the toy was based on consideration of the child's defined developmental age, suggestions from the parent during the initial telephone interaction, and consultation with an early intervention specialist regarding a developmentally appropriate toy. The purpose of using the toy during the structured observation was to allow the investigator the opportunity to observe the parent as they introduced the child to a new and different object. Alterations and modifications the parent made when

interacting with the child's as related to the child's physical, mental or social limitations were noted. The investigator closely assessed the parent-child interaction in regard to presence of factors which have been defined as antecedents of attachment (i.e. sensitivity, responsiveness, etc.) During the toy interaction, the investigator maintained a position which discouraged the child from including the investigator in the interaction.

Behaviors of the parent and child interaction were recorded in narrative formate via use of a field notebook which had been organized according to a design used by Isabella (1993) in a study of mother-child interaction. In this notebook, the pages were divided lengthwise into two sections, maternal behaviors were noted on one side and infant behaviors were noted on the other side. The sequence of behaviors were maintained in two ways. First, successive behaviors were listed vertically on the page so it was possible to determine sequence merely by position of the notation on the page. Second, any time the behavior of one member of the dyad was perceived as a contingent response to a previous behavior of the partner, a diagonal line was drawn between the relevant notations to indicate contingency. Following the home visit, the audiotape of the interview was used to identify two minute intervals on the narrative record. Each two minutes of interaction was referred to as an episode and was coded using the categories

listed in Appendix C.

The process was audiotaped and involved continuous time sampling of the interaction. A priori categories of behaviors were defined to facilitate observer awareness and for the purpose of describing the events within the interaction. Fish's (1993) categories for maternal behavior (facilitation of attention, sensitivity, intrusiveness, positive affect, negative affect, and response to crying) and child behaviors (focused attention, social responsiveness, positive affect, and negative affect) were used to heighten observer awareness of significant components of interaction between the dyad. The data from structured observations was written in a narrative format and scored using a coding system (Appendix C). Coded data was placed in contingency tables. While the toy interactions varied in length, only a 10 minute interval of the interaction was reported in the contingency tables.

Unstructured interactions between the parent and child were observed during the two interview sessions. Following each interview, the investigator made narrative notes about events which occurred during the home visit. Recording of these notes were guided by Pederson and Moran's (1993) approach to debriefing. Specifically, this approach involved analysis of the parent's response to positive and negative affective cues from the child, accessibility to the child in the context of the visit, and anticipation of the

child's needs. The child's behavior was described based on the child's affective sharing, proximity and comfort seeking with the parents, and exploratory behaviors. The data collected from unstructured observations was grouped into the previously mentioned areas and coded according to frequency of the observation of the behavior. The coding system was based on awarding a score ranging from 0, no behavior observed, to 3, above average amount of behavior observed.

Q-Sort Methodologies. The Q-Sort methodologies which were in this study included the Attachment Behavior Q-Sort and the Maternal Behavior Q-Sort. The Attachment Behavior Q-Sort (Waters & Deane, 1985) consists of 90 items which cover a broad range of secure base and exploratory behaviors, affective response, social referencing, and other aspects of social cognition. Each item in the Attachment Behavior Q-Sort consists of an item title and more specific descriptive statements printed on individual cards. In order to complete the Attachment Behavior Q-Sort, the parent was instructed to sort the items (listed on the card) into 9 piles (designations of which range from most characteristic to least characteristic of their child). Items most characteristic of the child were placed on one end of the distribution (Piles 9, 8, & 7) and most uncharacteristic were placed at the opposite end (Piles 3, 2, & 1). Items which could not be scored either

characteristic or uncharacteristic were placed in center piles (6, 5, & 4). The placement of an item in the sort determines its score. For example, items judged most characteristic items received a numerical score of 9, while items considered most uncharacteristic received a score of 1.

The procedure for completing the Q-Sort was explained to the parents and they were encouraged to ask questions about this procedure. In order to further explain the Q-Sort, a schematic of how to place the items in various piles was provided on a large piece of plastic. The parents were requested to become familiar with the descriptions on the cards, observe their child, and within one week to provide a completed Q-Sort to the investigator. The time frame of one week was recommended by the designer of the instrument.

Attachment Behavior Q-Sort descriptions were scored at the level of individual items and also in terms of broadly defined constructs. The procedure for scoring was based on the criterion scoring method suggested by Everette Waters (1994). In this method, the Q-Sort scores of the child were correlated to an established criterion sorts of a "hypothetical most secure child" and a "hypothetical dependent child" provided by Dr. Waters.

The Maternal Behavior Q-Sort (Pederson & Moran, 1993; Pederson, Moran, Sitko, Campbell, Ghesquire, & Acton, 1990) is patterned after the Attachment Behavior Q-Sort. This 90

item Q-Sort focuses on maternal behavior. Specific attention is given to the mother's ability to detect and recognize signals or situations which may require her response, mothers prompt and appropriate response to these situations, maternal affect, attentiveness, interaction style, communication style, and ability to identify interesting things in the child's environment. Once completed, the Q-Sort provides a maternal sensitivity score. The investigator completed the Maternal Behavior Q-Sort after each interview had been conducted. The two sorts were compared for consistency and to determine whether any discrepancies were apparent. Minimal discrepancies were noted, however, when these were present, the investigator used the score from the second observation as opposed to the first observation. In some instances, behaviors were not observed or consistency in a behavior was not determined until the second home visit. The Q-Sort of the mother was then correlated with an established criterion sort of a "hypothetical most sensitive mother" provided by Dr. Pederson.

Data Collection Procedure

Based on sample requirements in regard to age of the child and the presence of a developmental delay, a group of children were identified. Potential children for the study were identified by the investigator in collaboration with program director of the Early Intervention Center. Once the

potential participants were identified, individual families were approached by the investigator via telephone call and follow-up home visit. During the home visit, the study was explained and voluntary participation was solicited. Families who agree to participate signed a consent form. Once the family had indicated a willingness to participate in the study, the investigator began the first interview. The interview followed the guidelines identified in Appendix B. During this visit, both structured and unstructured observation of the parent and child interacting were conducted. The structured observation involved the parent demonstrating the use of a toy, provided by the investigator, to their child. The dyad was observed as the parent showed the child how to play with the toy. The investigator used a previously defined narrative approach in recording the events which occurred in this interaction. At the conclusion of the interview, the mother was also given the Attachment Behavior Q-Sort and requested to complete the sort prior to the next scheduled interview with the mother. The total time for this first interaction between the mother and the investigator ranged from 2-3 hours. Following this visit, the investigator completed the Maternal Behavior Q-Sort.

The second interview was conducted within one week of the initial interaction. During this visit, unstructured observation and the interview on the Attachment Behavior Q-

Sort were completed (Refer to Appendix B for interview structure). The investigator also completed the Maternal Behavior Q-Sort following this visit.

Data Analysis

The four research questions for the study were analyzed through scoring and coding of the Attachment Behavior Q-Sort and the Maternal Behavior Q-Sort, and coding of structured and unstructured observations. Additional analysis of interview, observation and Q-Sort data was completed using open and axial coding techniques and through the designing of thinking units. Open and axial coding techniques facilitated the breaking of data into segments with phenomena being identified and categorized (Strauss & Corbin, 1990). While thinking units provided a mechanism for development of sorting files for data.

In order to facilitate the analysis of the data from the Attachment Behavior Q-Sort and the Maternal Behavior Q-Sort, a mechanism was designed to examine grouping of statements in the Q-Sorts. The process used to group this data is described in the following steps:

- 1) each of the 90 statements of the two Q-Sorts were listed and the score for each individual statement which was provided by the designer of the instrument for the hypothetical most secure or dependent child and hypothetical most sensitive mother was placed beside the statement;

- 2) the point score assigned by the parent or investigator to each Q-Sort statement for the child or mother was then placed next to the statement, for example, item number 1 in the Attachment Behavior Q-Sort had a hypothetical most secure child score of 8, this score was listed and the study participant's score was placed next to it; this procedure was completed for each Q-Sort statement;
- 3) once all scores of the 90 item Q-Sorts were recorded for all study participants, the scores were reviewed to determine placement of the scores in the groupings of "unlike," "neither like or unlike," or "like"; scores between the range of 1-3 were placed in the "unlike" grouping, scores with ranges of 4-6 were placed in the "neither like or unlike" grouping, and scores with ranges of 7-9 were placed in the "like" grouping; the score provided by the designer of each Q-Sort was also placed in a grouping according to its point value

Following the grouping of the Q-Sort statements, open and axial coding techniques and thinking units were used to identify categories for the content of the statements of both Q-Sorts. This process involved examination of the content of each of the 90 statements of the Attachment

Behavior Q-Sort and the Maternal Behavior Q-Sort. Thinking units were determined and a total of seven categories were defined for the Attachment Behavior Q-Sort (Table 1, Appendix D) and four categories were defined for the Maternal Behavior Q-Sort (Table 2, Appendix E). Descriptive definitions for each Q-Sort is located in Appendix F.

In order to make comparisons between families about the placement of statements in "unlike," "neither like or unlike," and "like" groupings, statements were totalled for each of these groupings and placed in the appropriate Q-Sort category. Table 3 (Appendix G) and Table 4 (Appendix H) provide information about total grouping numbers for each category of the Attachment Behavior Q-Sort and Maternal Behavior Q-Sort, respectively.

To facilitate Q-Sort cross case analysis of all families as compared to hypothetical Q-Sorts, a system for comparing the study participants as a group was designed. In order to determine a group score for the study population, the following steps were completed:

- 1) each of the 90 statements were listed and the score for each individual statement which was provided by the designers of the Q-Sort instruments was placed next to the statement;
- 2) the point score assigned by the parent or investigator for each Q-Sort statement for the child or mother was then placed next to the

statement, for example, item number 1 in the Attachment Behavior Q-Sort had a hypothetical most secure child score of 8, this score was listed with the individual children's scores for this item for each of the 10 children in the study i.e. 5, 8, 5, 2, 7, 3, 7, 4, 7, 9 were placed after the score of 8;

- 3) once all participant scores of the 90 item Q-Sort were recorded, scores were then reviewed to determine the average grouping for each of the Q-Sort statements; for example, from the numbers listed in step 2, 5 scores were in the "like" grouping, 3 scores were in the "neither like or unlike" grouping, and 2 scores were in the "unlike" grouping; the score provided by the designers of each Q-Sort was also placed in a grouping according to its point value;
- 4) in order to facilitate the comparison of all children's or mother's scores to the score of the statement provided by the designer of the instruments, a total group score for each of the 90 statements in each Q-Sort was computed; this score was determined by counting of the total number of scores in "unlike," "neither like or unlike," and "like" groupings and assigning an overall grouping score for each item; for example,

in order for a score to be assigned, the statement had to have 50% or 5 out of 10 study participants had to agree on the grouping, i.e. the example given in step 2 would be considered to be within the "like" grouping because five of the ten scores had been placed in the "like" grouping; thus the 10 individual scores were reduced to one score which was then compared to the hypothetical sort of the specific Q-Sort being examined; statements where no consensus could be determined about the score were labeled as a mixed response.

Following the assignment of group scores for each of the 90 Q-Sort statements, statements were totalled and categorized into "unlike," "neither like or unlike," and "like" groupings according to categories of the Q-Sort. This information was placed in table to allow the comparison of the hypothetical sorts and total participant group score in each of the Q-Sort categories. Tables 5 (Appendix I), 6 (Appendix J), and 7 (Appendix K) provide this information for the Attachment Behavior Q-Sort and the Maternal Behavior Q-Sort.

The analysis techniques specifically used for each of the research questions for this study are as follows:

- 1) How does having a child who displays atypical behavior influence the parent's categorization of statements for the Attachment Behavior Q-Sort?

This question was analyzed via data collected during the interview sessions with the parent and by analysis of parent's grouping of Attachment Behavior Q-Sort statements

- 2) What are the attachment behaviors which are identified by parents of children who display atypical behaviors?
This question was analyzed via data collected during the interview sessions with the parents and by analysis of the parent's grouping of Attachment Behavior Q-Sort statements.
- 3) What are the attachment behaviors which are observable in parents of children who display atypical behaviors?
This question was analyzed via data collected during structured and unstructured observations in the home environment. Also, the investigator's sort of the Maternal Behavior Q-Sort was analyzed via correlation with the "hypothetical sensitive mother." Additional analysis of the investigator's grouping of Q-Sort statements was also completed.
- 4) Does the Attachment Behavior Q-Sort effectively measure attachment behaviors in children who display atypical behaviors?

This question was analyzed via data collected during interview sessions and structured and unstructured observations in the home environment. Further analysis of the parent's sort of the Attachment Behavior Q-Sort

was completed through correlation with the "hypothetical most secure child" and the "hypothetical dependent child." Analysis of grouping of Q-Sort statements was also completed. Additional correlations were also completed between the Attachment Behavior Q-Sort and the Maternal Behavior Q-Sort scores.

Chapter Four

Analysis of Data

Overview

This research study utilized a multiple embedded case study design to investigate the research questions. In order to provide a comprehensive explanation of the data collected, multiple narratives describing each case study are provided within this chapter. In addition to these individual case narratives, a segment of this chapter also addresses the results of cross case analysis. During the interviewing of families, extensive data was collected. The information presented in this analysis is limited to findings about the attachment relationship between the parents and children in the study. To assure confidentiality, pseudonyms were used in discussions about participants.

Family Narratives

Hill Family. The Hill family consists of two parents who are approximately twenty-five years of age and their eighteen month old twin daughters. The family lives in a rural section of Mercer county in a brick house with the father's parents and younger brothers. This family along with other adult members of the household are jointly purchasing the house where they reside.

Birth History & Medical History. The twin daughters were born 10 days prior to their expected due date. One

twin, Amber, weighed 5 pounds 9.2 ounces and the other twin, Ashley, weighed 4 pounds 3.8 ounces. Ashley experienced numerous medical complications including a congenital heart anomaly and two intracranial hemorrhages. She was diagnosed at 3 weeks of age with cerebral palsy and cortical visual impairment. Following a 10 week hospitalization, Ashley was released to go home. Amber experienced no problems at birth nor has she demonstrated any delays in meeting developmental milestones.

Developmental Ability. The study focused on the Ashley who had been diagnosed as having cerebral palsy. She is unable hold her head up, roll over, sit up or make voluntary purposeful movement which would facilitate her mobility. Ashley does not socially smile or appear to respond by reacting to any visual cues, although the mother indicates the Ashley has a specific facial expression which has a recognizable meaning. Ashley does not make any meaningful sounds other than whimpering or crying when she is upset. Ashley's mental age is between one and two months.

Social Support. Questioning about the social support of this family revealed minimal financial stress because of the husband's employment as an electrical engineer and the family receives some financial assistance because of Ashley's disability. Assistance with Ashley's care is provided by both grandparents who also reside in this home. Mrs. Hill has no close friends. She describes emotional

support needs as being met by her husband and through interaction with her mother-in-law. Mrs. Smith also confides in the early intervention therapist who visits the home weekly.

Toy Interaction. A toy was selected with Mrs. Hill's assistance to utilize during the mother-child toy interaction, however, Mrs. Hill refused to demonstrate how she introduces new toys to Ashley. This mother explained how she would position Ashley near the toy so Ashley could observe the toy, but the mother would not demonstrate this positioning of the child.

Completion Of Attachment Q-Sort. Mrs. Hill also did not complete the Attachment Behavior Q-Sort which was left at the home for one week. When the investigator returned, Mrs. Hill and the investigator discussed grouping the statements into three stacks. Mrs. Hill verbalized frustration regarding how many of the behaviors listed did not describe her child, specifically behaviors indicating mobility of the child or language ability of the child.

Parent Verbalization Of Attachment Behaviors.

Discussions with Mrs. Hill regarding attachment behaviors of the child indicated Mrs. Hill was highly sensitive to nonverbal cues such as the child's body movement, special types of cuddling, and need for shaking the child to facilitate comfort of the child. Mrs. Hill indicates when Ashley is hospitalized she must remain with Ashley because

she becomes tense and will not sleep. Mrs. Hill feels the Ashley recognizes the strange environment and is fearful. The grandmother commented on how well Ashley responds to her mother and how her daughter-in-law meets Ashley's physical and emotional needs. When the Mrs. Hill leaves Ashley at home with the grandmother, there is no noticeable change in the Ashley's behavior.

Moore Family. The Moore family is a nuclear family consisting of two adults and two children, a 4 year old daughter, Sara, and a 19 month old son, Keith, who share a house with the maternal grandmother. This family lives in a remote segment of Raleigh county in a small wood frame home. They are currently purchasing the house which is next to the dwelling where they currently reside.

Birth History & Medical History. The target child in this family, 19 month old Keith, was born following six months gestation. He weighed 2 pounds 7 ounces at birth and remained in the hospital for 7 weeks until he attained adequate body weigh. No complications were noted during this initial hospitalization. Mrs. Moore first noticed Keith was significantly delayed in achievement of developmental milestones at age 7 months. Her pediatrician voiced no concern regarding Keith's abilities, so the mother sought additional medical opinions. At age 14 months, Keith was diagnosed with cerebral palsy.

Developmental Ability. Keith is able to hold his head

up without support but is unable to sit without support or to crawl. He is able to turn from the back to abdomen with assistance. He does not extend his arms to 180° angle, but has significant voluntary grasp reflex. With regard to vocalization, Keith can imitate sounds and will repeat words. He exhibits some purposeful communication such as saying "Mickey Mouse" for a favorite toy. When placed in the floor on a blanket, Keith will play with toys and entertain himself. Keith is very social, smiles spontaneously and frequently laughs aloud and coos. He will use a whimpering fussy cry to elicit behaviors from his parents. He is experiencing problems with strabismus and is scheduled for corrective eye surgery. Keith's mental age is difficult to assess as his limited motor ability indicates gross motor levels of a 5-6 month old child while language ability and social responsiveness indicate abilities between the ages of 10 - 12 months.

Social Support. The Moore family lived in another state until approximately two years ago when they returned to West Virginia to provide care for Mrs. Moore's mother. The family is currently residing in the same home with this individual and are buying the house next door. Mrs. Moore indicated she and her husband were both once employed with high paying jobs. Currently Mrs. Moore does not work and Mr. Moore's job provides significantly less income. The family is also receiving benefits related to the Keith's

disability. When questioned regarding who provides the family with assistance with the child's care, the Mrs. Moore indicated family members didn't tend to visit them, nor when they did visit, were they helpful with Keith. Mrs. Moore indicated she had one sister who would occasionally take care of Keith. Mrs. Moore describes emotional support needs as being met by her husband and through interaction with her sister. Mrs. Moore indicated she had recently enrolled Keith in center based intervention activities at a local mental health center because she felt Keith was becoming too attached to her. Keith currently participates three days per week in the center based activities. Mrs. Moore indicated this seems to have helped Keith in being a little less dependent on her. Mrs. Moore also discussed her relationship with Keith's teacher at the center. Numerous positive comments were made about the teacher.

Toy Interaction. Mrs. Moore selected a battery operated rolling ball for the toy interaction. Mrs. Moore facilitated the attention of Keith during this interaction by repositioning Keith and also bringing the toy into close proximity. Mrs. Moore was noted to socially smile frequently during the interaction and no intrusive behaviors were exhibited. Keith was very attentive to the toy exhibiting both social responsive behaviors and frequent smiling. At one point during the interaction, Mrs. Moore left the room to get a kleenx and Keith became very upset

and began to cry. Crying ceased once Mrs. Moore returned to the room.

Completion Of Attachment Q-Sort. Mrs. Moore completed the Attachment Behavior Q-Sort with the assistance of Keith's father. Mrs. Moore verbalized frustrations with the written directions for the Q-Sort. Additional complaints with regard to this instrument were frustrations with placement of statements into stacks. Specifically, Mrs. Moore indicated items which occurred only sometimes were difficult to categorize. She indicated these items often were placed into the "neither like or unlike" the child grouping. She also expressed frustration with statements which referred to the child being mobile and those indicating communication of a specific nature. Since Keith does not display these abilities, she had to place many of these into the "neither like or unlike" the child grouping. Mrs. Moore verbalized that some statements with rewording could have been more appropriately placed to be descriptive of Keith. Because of this problem, Mrs. Moore was unable to place only ten statements in each pile. Mrs. Moore also expressed frustration with statements which had two descriptive phases within the statement. She indicated one segment of the statement would apply to Keith while the other statement did not because of the use of a word which was suggestive of Keith's particular disability.

Parent Verbalization Of Attachment Behaviors. When

discussing attachment qualities of Keith, Mrs. Moore quickly listed several ways she knows Keith is attached to her. She stated Keith frequently cries when she leaves the room and she has noticed when she returns to the room that he will respond by becoming very excited and happy. Mrs. Moore further stated when she held Keith, he will spontaneously kiss her and cuddle very close to her body. She also discussed how he uses nonverbal cues which only she is able to understand. When questioned as to how she know her interpretation of these cues is correct, Mrs. Moore responded that Keith would become content after she responded to the cues. Mrs. Moore indicates that most recently Keith has ceased crying when she leaves him in the care of other people.

Parker Family. The Parker family is a five member nuclear family with two adults and three children, ages 9 years, 5 years and 3 $\frac{1}{2}$ years. This family resides in a small unfinished wood frame house within the city limits of a large town in Raleigh county.

Birth History & Medical History. The study focused on 3 $\frac{1}{2}$ year old James in this family. James was born following a normal full term pregnancy. At the age of 6 months, James began to experience medical problems which were later found to be related to a genetic urological problem. James was diagnosed with a urea cycle defect and is only one of 1000 children in the United States with this

condition. This condition must be constantly monitored and controlled through medication and dietary modifications. The diagnosis was immediately made, but not prior to extensive neurological damage to the brain and also cortical visual centers. James was hospitalized for 10 weeks during this time period and frequently returns to the hospital because of his fragile medical condition. Because of the extensive neurological damage, James has been labeled as having cerebral palsy. Mrs. Parker describes this as a "garbage can" term which the medical society has placed on her child to assist in his receiving financial benefits. James had a gastrostomy tube insert approximately one year ago for continuous sleep time feedings. He takes a limited amount of foods by mouth. James displays constant seizure activity which his mother describes as actually being three separate types of seizure patterns. All three types were exhibited during both interviews. James has periods of being very alert, but frequently sleeps for extended time periods.

Developmental Ability. James is unable to hold his head up without support, roll over, or sit without support. Segments of his body were noted to have contractures which caused unusual posture of his body. He socially smiles and according to the parents has smiles which have different meanings according to the situation. No purposeful movements were noted with regard to hand or body movement.

The parents indicate James sees and hears although no eye engagement patterns were noted. He makes utterances, but no vowel sounds or words were noted. James' mental age is between 1-2 months.

Social Support. Considerable time was spent discussing the social support of this family. Currently Mr. Parker is off from work related to medical problems which appear to be questionably related to the stress levels in the home. Mr. Parker is currently attempting to return to work once his company's medical doctor releases him to return. When James was first diagnosed with medical problems, Mr. Parker's mother had been just diagnosed with bone cancer and Mr. Parker's father died during the child's initial diagnostic hospitalization. Mrs. Parker's family lives in Florida and comes to visit as often as possible. While this family verbalizes their parents support them with James' care, the family also acknowledges they receive limited assistance because of the various problems previously noted. Mrs. Parker identifies a best friend who has been the one person who has always been there when they needed her. During the second home visit, this friend (Marsha) was at the family's home. Marsha spoke freely of her love and concern for this family. She also shared her insight in regard to the behaviors of the child in this study. Mrs. Parker also described how she has taught Marsha how to interpret James' nonverbal behaviors and cues.

The Parker family also identified how other parents who they had met during James's initial hospitalization still call them and come to see them. Mrs. Parker indicated that during their James' surgery last year, one of the families came to the hospital and stayed with them while James underwent surgery.

Mrs. Parker discussed at length her interactions with the medical profession since the diagnosis of her son. Mrs. Parker stated she had become very proficient in managing the dietary modifications which were essential for James. She spoke of feeling as though she and her son's primary physician were partners in meeting the special needs of James.

Toy Interaction. The toy which was selected for the interaction was a battery operated music box which would be placed on James' crib. The music box had two separate bars which James could be taught to push to cause either music or animal sounds. Mrs. Parker was delighted with the toy. Mrs. Parker facilitated the attention of James during the toy interaction by positioning James in a posture which made it easier for James to reach the toy. Since James has postural contractures which interfere with maintaining gaze in a specific area, Mrs. Parker constantly had to reposition James and also move the toy to be within his visual path. Because of this constant concern with James' position, Mrs. Parker was intrusive and often manipulative in her

behaviors. James smiled when the toy was introduced and also at other points during the interaction. James' constantly seizures activity frequently disrupted the toy interaction. It should be noted that one type of seizure activity displayed James ends with him smiling, thus creating problems with interpretation of some of the interaction between James and his mother and the toy. Prior to the end of the interview and much later after the actual toy observation, Mrs. Parker took James and positioned him between her legs and again attempted to interact with James with the toy. In this position, James' back was leaned against his mother's chest, thus decreasing any social exchange between the mother and child. Mrs. Parker expressed frustration about the difficulty in handling James because of his postural contractures.

Completion of Attachment Q-Sort. Mrs. Parker attempted to place the Q-Sort statements into the separate groupings. She indicated James' father assisted somewhat with this activity. Mrs. Parker verbalized tremendous frustration and anger at the Q-Sort statements. During my interview regarding the Q-Sort considerable time was spent reviewing each statement with suggestions made to rewording of the statements so they might be more descriptive of James' behavior. Mrs. Parker indicated James' limited mobility and problems with language resulted in numerous statements not being applicable to him. This created so much problem for

Mrs. Parker that statements were only sorted into three groupings: "like my child," "unlike my child" and "neither like or unlike my child." Mrs. Parker indicated she was not able to further divide the statements into separate piles. Mrs. Parker also indicated she believed the sort contained trick questions because she noticed that some of the cards had similar statements which had minimal rewording of the statement. An additional complaint voiced was related to some statements being difficult to interpret. Mrs. Parker did express appreciation of the statements which had further descriptions to facilitate the placement of the statement into low or high ranges of the three major categories. She believed it would be helpful to have this on each of the cards as opposed to a few random cards. At the conclusion of the interview which focused on the Q-Sort activity, Mrs. Parker expressed appreciation for the investigator taking time to reword statements and explore ways in which they might be more useful in describing James' behavior. Mrs. Parker disclosed that the experience with the Q-Sort had made her reconsider how much time she devotes to meeting other than physical needs of James. She confided that prior to the insertion of the gastrostomy tube she spent many hours each day just feeding James and had since then began to wonder now that she had additional time if she shouldn't consider spending more time in one-one interaction with James. She stated she often wondered if she worked just

five more minutes on activities with James how much more improvement she might see in his abilities.

Parent Verbalization Of Attachment Behaviors.

Discussion of attachment behaviors of James focused on Mrs. Parker's interpretation of the non-verbal cues from James. Mrs. Parker gave detailed explanations of what changes in body posture, fussy behaviors and eye contact meant regarding the needs and wants of the child. Mr. Parker also supported his wife's comments regarding these behaviors and shared some insight regarding his interpretation of some of James' nonverbal behaviors. In discussing attachment behaviors with regard to James, Mrs. Parker indicated she felt there was a special bond between James and her. She described this bond as being different than the relationship she felt with her other two children. She expressed the opinion that this bond existed because she felt James truly needed her and that no one could take her place with him because of the physical tasks she did for him (primarily related to medications and preparation of special tube feeding formula) and also because of her ability to interpret his nonverbal cues. When James is left in the care of other individuals, there is no noticeable change in his behavior such as crying.

Roberts Family. The Roberts family consists of a divorced mother and her 4 ¹/₂ year old son, Patrick. This family lives in low income housing within the city limits of

a town in Raleigh county. Ms. Roberts is a third year student in a baccalaureate nursing program.

Birth History & Medical History. Patrick was born two weeks past the expected due date via a normal vaginal delivery. He weighed 8 pounds 10 ounces at birth and achieved developmental milestones at an appropriate age until he was approximately 2 years old. At this time, Ms. Roberts and other extended family members noticed Patrick was not progressing with regard to language development. He was also noted to be very aggressive in his interaction with other children. Ms. Roberts took Patrick to a mental health center where an evaluation was completed. Patrick was diagnosed as developmentally delayed and early intervention services were begun. Patrick was also referred for a hearing evaluation which revealed significant hearing impairment related to accumulation of fluid behind his eardrum. Surgery was performed to correct the excessive fluid in the ears. At this time, Patrick is currently enrolled in a public preschool special needs class. Most recently it has been noted that Patrick has episodes of staring and not responding to voice commands of his teacher. He is currently undergoing evaluation to investigate possible petit mal seizure activity. He has also begun to exhibit more aggressive and violent behavior toward other students and adults who supervise him. His current cognitive abilities indicate he is mildly mentally impaired.

Developmental Ability. While Patrick demonstrates all gross motor and fine motor skills of a typical 4 year old, he has been noted to be somewhat clumsy when he runs which is not typical for children of this age. Ms. Roberts indicates significant improvement with regard to his language ability. Patrick says 3-4 word sentences with appropriate usage of sentence parts. However, often he is difficult to understand words. Ms. Roberts can interpret words which Patrick says unclearly. Patrick was noted to respond well to his mother in regard to typical communication and commands. He did not respond very well to any of his mother's attempts to discipline him. Ms. Roberts believes this is related to how much time Patrick spends with his grandparents specifically the grandfather who does not discipline the child and who chastises Ms. Roberts for disciplining her child.

Social Support. The Roberts' family lived in another state until approximately three years ago when the mother and father separated. Ms. Roberts initially moved back into her family's home and only recently divorced Patrick's father and was able to obtain her own apartment. The Roberts family receives financial assistance via the Department of Human Services. Ms. Roberts has no car and thus must depend upon her family for all transportation needs. When questioned regarding who was most helpful in meeting Patrick's needs, Ms. Roberts indicated that while

her parents and her sister would often babysit the child, she found her grandmother to be the one who was most supportive of her. It should be noted that this mother's family of origin has sufficient income to offer financial assistance, but they do not assist in payment of any household or college expenses. Ms. Roberts describes emotional support needs as being met by her grandmother and a friend who lives in the adjoining apartment. Ms. Roberts expressed frustration with her parents' interference with disciplining of Patrick. She stated this only seemed to make her want to isolate herself from her family. She further indicated her grandmother was always there when needed and really seemed to care about both she and Patrick. Ms. Roberts indicated her friend who lived next door had a son Patrick's age and often these two families would get together for the children to play.

Toy Interaction. The toy selected by Ms. Roberts for this interaction was an insect toy which had numerous interchangeable parts. Ms. Roberts indicated Patrick numerous leggo toys which he enjoyed. During the toy interaction, Ms. Roberts facilitated the attention of Patrick by sitting in close proximity to him and offering toy parts to Patrick to assist in assembling the insect. Ms. Roberts offered supportive comments to Patrick as he attempted to connect toy parts. She also praised Patrick for simple task completion and made numerous positive

comments about his abilities. No intrusive behaviors were noted during the interaction. Patrick's attention would sometimes wander to the television which was playing during the interaction, however, Patrick often seemed very intense with putting the toy together. Because of the type of toy and the positioning of Ms. Roberts and Patrick little social responsiveness was noted from Patrick.

Completion Of Attachment Q-Sort. Ms. Roberts indicated the Attachment Behavior Q-Sort was not very difficult to do. She said in some areas it was a little difficult to get only ten statements in a pile, but otherwise no major problems were noted. She did indicate some of the statements as they were written seemed to have too many words. She suggested some minor revisions need to be completed to make these statements more precise. Ms. Roberts also indicated the statements which had more than one descriptive level were helpful in selecting the appropriate range for statement placement. When questioned regarding the statements which referred to language skills, Ms. Roberts indicated she experienced no problem with determining where to place the statement. Ms. Roberts did, however, indicate statements which indicated Patrick understood a command, etc. did create problems as she often did not know if Patrick really had the ability to understand some things or just isn't complying.

Parent Verbalization Of Attachment Behaviors. During

discussion about attachment behaviors of Patrick, Ms. Roberts indicated that Patrick often tells her he loves her. She says he will sometimes say this after she tells him she loves him or sometimes he will spontaneously come to her and tell her he loves her. Ms. Roberts also related an incident which happened when Patrick was staying with his father in another state. She indicated when Patrick's father allowed him to telephone her, the first comment Patrick made was "I want to come home." Ms. Roberts felt this definitely told her Patrick was attached to her. When Patrick is left at school or day care, he no longer cries when Ms. Roberts leaves.

Taylor Family. The Taylor family is a nuclear family consisting of two adults and a 2 ¹/₂ year old child. This family lives in a rural section of Fayette county in a small wood frame house.

Birth History & Medical History. Joseph, the child in this family, was born via Caesarean delivery three weeks premature. He weighed 5 pounds 5 ounces at birth. He experienced some problems with neonatal jaundice following his delivery, but required no extensive medical treatment. All developmental milestones were accomplished at appropriate time periods until the age of 1. At this time, his parents noticed Joseph stopped saying words such as "ma..ma" and "bye..bye." The parents also realized Joseph was making monotone sounds with no indication of attached

meaning. The family took Joseph to a mental health center where a complete evaluation was performed on him. A developmental pediatrician from a major medical center was brought to the mental health center to evaluate Joseph. Joseph was diagnosed as being autistic at approximately 2 years of age. The parents indicated they had never heard of autism and were overwhelmed with this diagnosis. They also indicate many family members and friends refused at first to believe Joseph was autistic. Since the initial diagnosis, the family has been extensively evaluated by medical teams from a major medical university and are currently implementing a treatment approach with Joseph.

Developmental Ability. Joseph is age appropriate in regard to gross and fine motor skills. His language skills are significantly delayed with his currently verbalizing no recognizable words. His mother indicates Joseph is able to communicate with her through the use of some gestures.

Social Support. Both of Joseph's parents are employed outside the home. Mr. Taylor owns a car wash and Mrs. Taylor works at a convenience store. The paternal and maternal grandparents assist with Joseph's care. However, regular babysitting activities are handled by the sister of Mrs. Taylor who cares for Joseph when his mother works. Mrs. Taylor describes emotional support needs as being met by her husband and through interactions with her sister.

Joseph attends a center based early intervention

program five days per week. Since the parents must provide Joseph's transportation to this school, Mrs. Taylor has considered quitting work. She has been discouraged from doing this by the numerous medical providers who are working with this family. Mrs. Taylor verbalized praise of Joseph's school teacher. She stated Joseph's teacher seems to really care about him and trying to provide assistance to the family.

Toy Interaction. When questioned regarding the toy to bring for the toy interaction, Mrs. Taylor suggested one of the storybooks which made sounds. She indicated Joseph was attracted to objects which made sounds or played music. During the toy interaction, Mrs. Taylor placed Joseph in her lap and read the storybook to him. While this position was ideal for this activity, it limited the amount of eye contact which could occur during this interaction. However, it was noted that when Joseph seemed pleased with the sounds made by the book, he would turn his head around and look at his mother's face. Mrs. Taylor read the book with expression and engaged Joseph in pushing buttons to elicit sounds. Both mother and child were noted to frequently smile during this interaction.

Completion Of Attachment Q-Sort. The Attachment Behavior Q-Sort was completed by both parents. Mrs. Taylor indicated she had some difficulty in completing the sort. She, however, indicated the difficulty she experienced was

more because of the fact that she had recently noticed a change in Joseph's behavior. She stated Joseph seemed more attached to her and wanted her to hold him more than in previous months. Mrs. Taylor indicated she did notice some statements had segments which were descriptive of Joseph, but that the second portion of the statement was not descriptive of him. Mrs. Taylor indicated that the statements which referred to Joseph's language did not create any problems because Joseph uses so many gestures which she understands.

Parent Verbalization Of Attachment Behaviors.

Discussion regarding the attachment behaviors of Joseph revealed his mother had noticed significant difference in this within the last few months. Mrs. Taylor indicated she often found herself picking Joseph up more often and hugging him. She said this had resulted in Joseph's now seeking her more often and wanting her to hold him. It was noted during the home visits that Joseph would often spontaneously go to his parents and either hug them or kiss them. Mrs. Taylor indicated she believed Joseph's behavior indicated that he was attached to her. She stated this was a definite change in Joseph's behavior, but felt it was not related to the treatment plan which was being currently implemented. Mrs. Taylor also discussed her ability to interpret Joseph's nonverbal cues regarding his both his physical and emotional needs. When Joseph is left in the care of others, he does

not cry for his parents.

Walker Family. The Walker family consists of two parents and two sons, ages 4 and 6 years of age. This family lives in a trailer in small community in Raleigh county. The mother's parents live next door to this family.

Birth History & Medical History. The youngest son, Roger, was the participant in this study. Roger was born by Cesarean delivery following a normal pregnancy. He weighed 8 pounds 10 ounces at birth. When he was 5 weeks of age, Roger began experiencing problems with apnea (cessation of breathing). He was taken to the hospital emergency room on numerous occasions for this problem, but never hospitalized nor connected to any type of respiratory monitoring device. The family became so tense with these frequent episodes of apnea that the mother would sleep with Roger in order to monitor his breathing. At approximately 1 year of age, Roger stopped having episodes of apnea. Mrs. Walker indicated Roger was a little slow in accomplishing developmental milestones of sitting up and walking. She reported she noticed when Roger was 2 years of age he still was not talking. Her regular pediatrician was not alarmed by Roger's language delay so Mrs. Walker took Roger to a mental health center for an evaluation. This evaluation indicated Roger was developmentally delayed. Roger is currently enrolled in a public preschool special needs class. His current cognitive abilities indicate he is

mildly mentally impaired.

Developmental Ability. Roger's gross motor abilities are appropriate for his age. His mother indicates she and the teacher have recently become concerned because they have noticed how awkward Roger is with feeding himself. He constantly spills his foods and has difficulty in manipulating utensils. He is currently being evaluated regarding his fine motor skills. Roger's language ability has improved dramatically as he now uses 3-4 word sentences. He often says words which are slurred or difficult to interpret. His mother indicates concern with Joseph's behavior, specifically how he often seems withdrawn and doesn't always want to interact with other children, especially if the mother is near him. Mrs. Walker states Roger seems to just want to stay near her and interact with her. Mrs. Walker also expressed concern over how violent Roger's behavior can be at times, especially with regard to animals.

Social Support. In this family, both the father and mother work are employed at minimum wage jobs. Mrs. Walker currently works only 20 hours per week and attempts to schedule her work hours when her husband is home to babysit the children. The family had a Medicaid card for their children but recently have been denied this. Roger has numerous allergy problems which have not been properly treated in recent months because of the lost of this health

care benefit.

Mrs. Walker indicated family members assist with the children as needed. She further explained that during the week, her sister would babysit the children as needed while on the week-ends, Mrs. Walker's parents assist as needed. Mrs. Walker describes emotional support needs as being met by her parents and sister. Reference was made to her husband being supportive, but numerous comments by Mrs. Walker indicated she tended to share her feelings more freely with her parents and sister. Mrs. Taylor described a very close bond with her son's school teacher. She made positive comments about how interested Roger's teacher was in his welfare and how she felt supported by this teacher.

Toy Interaction. The selected educational toy had a wand that would light when the child selected the appropriate response to a counting or alphabet activity. Both Mrs. Walker and Roger were very pleased with this toy. During the interaction, Mrs. Walker facilitated Roger's attention by getting into the floor with him to play with the toy. Mrs. Walker's attention to the toy and her expressed pleasure in the toy seemed to cause Roger to also be excited with the toy. Since the toy required both Mrs. Walker and Roger to look down at the toy to play, little eye contact was noted to occur. Playing with this type of toy typically does not elicit many smiles or laughter from the parent or child. However, it was noted that Mrs. Walker

offered frequent positive feedback and expressions of praise to Roger as he selected appropriate answers.

Completion Of Attachment Q-Sort. The Attachment Behavior Q-Sort was completed by Mrs. Walker. She indicated no problems with regard to completing the sort. Mrs Walker indicated she was able to get only ten items per stack which caused some frustration. She also indicated she found she wanted to place statements in only the like or unlike stacks and found it difficult to place items in the neither like or unlike stack.

Parent Verbalization Of Attachment Behaviors. Mrs. Walker indicated numerous behaviors in regard to attachment behaviors of Roger. She expressed concern that Roger was too attached to her because he only wanted to be near her. According to Mrs. Walker, Roger does not seem to like his father and had frequently stated this. Mrs. Walker indicated she knew Roger was attached to her because he constantly hugged and kissed her. During the interview sessions, it was noted that Roger was frequently coming to the mother and either kissing her or holding onto her body. Mrs. Walker stated she sometimes felt Roger did this because when Roger was an infant, she had to work long hours each day and frequently worked 60 hours per week. She also discussed her ability to interpret Roger's nonverbal cues regarding his emotional needs. Mrs. Walker indicates Roger at one time would cry when she left him, but he no longer

exhibits this behavior.

Brooks Family. The Brooks family is a nuclear family consisting of two adults and two daughters, ages 3 years and 15 months. This family lives in a small wood frame house within the city limits of a town in Raleigh county. The father lives within walking distance of his place of employment.

Michelle, age 15 months, was born 15 weeks premature and weighed 1 pound 7 ounces at birth. Michelle was hospitalized for three months following her birth. She experienced complications with respiratory functioning and was on a ventilator for 27 days. Mrs. Brooks noticed when Michelle was 7 months of age that she seemed to be very tight in her body posture. The parents were informed that Michelle had cerebral palsy and more specifically that she had spastic quadriplegia. Mrs. Brooks indicated she and her husband were shocked. She explained that some of their family members refused to accept that there was any problems with Michelle. Michelle functions at the level of a 3 month old with regard to gross and fine motor skills and 6 month level with regard to language ability. She has been wearing glasses since the age of 6 months.

Developmental Ability. Michelle is able to support her head and demonstrates some control of her shoulders. She is unable to sit alone, roll over or stand. Her fine motor ability is very limited and Michelle does not use her right

hand. When sitting supported, Michelle's trunk appears to pull back somewhat on the right side of her body. Because of Michelle's rigid posture, it is difficult to sit her on your lap in an upright sitting position. Michelle appears most comfortable when she is allowed to sit with her back leaned against your chest and her legs extended. She frequently socially smiles and is very responsive to interactions with other individuals. Michelle enjoys babbling but says no words.

Social Support. Questioning regarding social support of this family revealed that when Michelle was born, the family immediately qualified for financial assistance because of their income level and Michelle's birth weight. This income combined with the father's salary appears to sufficiently meet the financial needs of this family. When questioning Mrs. Brooks about who assists her in meeting Michelle's needs, Mrs. Brooks expressed anger regarding her mother-in-law and her lack of supportive with regard to Michelle. Mrs. Brooks indicated her mother-in-law only acknowledges their 3 year old daughter as her grandchild and ignores Michelle. Mrs. Brooks further explained that her own mother was very good with Michelle. Mrs. Brooks indicated her mother keeps Michelle every Friday night at her home, thus allowing Mrs. Brooks some free time to do the things she enjoys. No other individuals were mentioned as providing assistance with regard to child care. Mrs. Brooks

describes emotional support needs as being met by her husband and her mother. During our discussion of this topic, Mrs. Brooks primarily focused on how supportive and helpful her mother was with Michelle's care.

Toy Interaction. The toy which Mrs. Brooks selected for the interaction was a mirror music box which had a small handle which a child could grasp. To facilitate Michelle's attention with regard to playing with the toy, Mrs. Brooks positioned Michelle on her lap with Michelle's back against Mrs. Brooks' chest. While this position is the one which is most comfortable for Michelle, it is especially difficult for Michelle to turn to look at her mother when she is placed in this position. Mrs. Brooks kept the interaction at a slow pace and allowed Michelle to respond to the toy. At one point Mrs. Brooks took Michelle's affected arm and pulled it over to force her to elicit a sound from the musical mirror. Michelle did not cry or demonstrate expression of dislike when forced to do this behavior. Michelle interacted with the toy by smiling and cooing. When Michelle turned away from the toy, her mother looked at the investigator and said, "She often gets easily bored with her toys." When questioned regarding what Mrs. Brooks did when Michelle seems bored with a toy, Mrs. Brooks responded that she would get other toys and attempt to interest Michelle in those toys.

Completion of Attachment Q-Sort. The Attachment

Behavior Q-Sort was completed by Mrs. Brooks. She stated she had no difficulty in completing the sort. She decided to follow the investigator's suggestion and completed the sort on her 3 year old child prior to performing it on Michelle. Mrs. Brooks indicated she found this to be very helpful. Mrs. Brooks commented that numerous statements in the Q-Sort referred to mobility. Since Michelle was not mobile, Mrs. Brooks tried to evaluate whether or not Michelle actually did the behavior regardless of whether or not she could move. Mrs. Brooks she was able to reword many statements which were characteristic of Michelle by using this technique. She stated, however, there were numerous statements which completely referred to tasks related to mobility and she was unable to reword these statements. Mrs. Brooks indicated she placed these statements in the neither like or unlike stack. Mrs. Brooks indicated she also noted several statements were not applicable to Michelle merely because Michelle was not mentally capable of comprehending the task indicated while other statements could not be applied to Michelle even if she had no disability.

Parent Verbalization Of Attachment Behaviors. When questioned regarding attachment behaviors of Michelle, Mrs. Brooks explained this had to be considered with her child on the basis of what a typical 4 month old child could do. She indicated she recognized Michelle really functioned at this level. Mrs. Brooks stated she felt Michelle preferred her

over everyone else. She further stated she could occasionally get Michelle to do things for her that no one else could get her to do such as lifting her arms for her to pick her up. Mrs. Brooks indicated she felt she was more sensitive as to how to hold and position Michelle and that Michelle recognized this. Mrs. Brooks indicated she had taught her mother how to interact with Michelle and how to interpret many of Michelle's nonverbal cues.

Johnson Family. The Johnson family is a nuclear family consisting of two adults and two children, a son age 22 months and a newborn daughter. The family lives in a very remote isolated area of Fayette county in a small wood frame house.

Birth History & Medical History. The 22 month old son, Kevin, was the participant in this study. Kevin was born one week past his anticipated delivery date. His birth weight was 10 pounds 11 ounces. Immediately following his birth, he experienced problems with breathing and was diagnosed with pneumonia. He was placed in the Neonatal Intensive Care Unit for approximately one week. After this time, Kevin was discharged from the hospital. Kevin was taken home and within five days readmitted to the hospital with a diagnosis of spinal meningitis. During this hospital stay, Kevin experienced numerous complications and had to have a shunt inserted to drain excessive spinal fluid from around the brain. Kevin was hospitalized for 3 months

because of this illness. According to the parents, Kevin has always been slow in achieving developmental milestones. He is currently functioning at approximately a 16 month level with regard to gross and fine motor skills. His language ability is at approximately 9 - 10 months.

Developmental Ability. Kevin is able to walk and to run. His gait is, however, noticeably clumsy and awkward. He has bilateral inward rotation of both feet which may be causing some difficulty with regard to gait. This is currently being evaluated. He is able to grasp objects and manipulate most large objects as he desires. His language ability is very delayed. He communicates with a pattern of noises as opposed to saying any words or exhibiting any purposeful utterance. Kevin is constantly moving and engaging in activities. Kevin wears corrective glasses.

Social Support. This family receives benefits via the Department of Human Services. The father works part time for the state in a specially funded program. The family has health care via Medicaid funding. The home where they reside is owned by another family member. Questioning revealed the family rarely seeks assistance from others with regard to needs they may have or for assistance with babysitting. Both maternal and paternal grandparents willingly assist with any needs regarding child care. This family has never allowed Kevin to stay overnight with anyone, however, the parents frequently stay with the Mrs.

anyone, however, the parents frequently stay with the Mrs. Johnson's parents. When the mother recently delivered their second child, the paternal grandmother was allowed to come to the house to stay there with their 22 month old son. Mrs. Johnson describes emotional support needs as being met by her husband, her parents, and her in-laws. No mention was made of any close friends.

Toy Interaction. The toy which the mother selected for the toy interaction was a mailbox stack toy. When the investigator visited this family, Mrs. Johnson was feeding and caring for the new baby which had arrived the previous week. Because Mrs. Johnson was breast feeding the newborn infant and very busy meeting her needs, Mr. Johnson performed the toy interaction with Kevin. During this interaction, Mr. Johnson attempted to facilitate the attention of Kevin by positioning the toy at an appropriate level for Kevin and by using verbal stimulation to keep Kevin interested in the toy. Kevin seemed very interested in the toy and in learning how to operate the mailbox. Neither Mr. Johnson nor Kevin smiled or laughed during this interaction. Mr. Johnson seemed very tense and nervous with this interaction.

Completion Of Attachment Q-Sort. The Attachment Behavior Q-Sort was completed by Mrs. Johnson. She indicated she had no problems with doing the sort. She indicated she forgot the verbal instructions given to her so

these directions to be simple and sufficient in explaining how to perform this task. Mrs. Johnson indicated no problems with statements which focused on the mobility of the child. She did, however, experience some difficulty with those statements which deal with Kevin's language ability. She expressed the opinion that the sort had numerous statements which were very descriptive of Kevin and thus facilitated her completion of the task.

Parent Verbalization Of Attachment Behaviors. When questioned regarding attachment behaviors of Kevin, the parents report Kevin frequently comes to them and kisses or hugs them without any reason. Mrs. Johnson states Kevin's language is very unclear, but she has learned to interpret much of what he says. She also indicates she determines his needs by analyzing his nonverbal behaviors. Specific examples of this were given. The parents indicate if they leave Kevin with someone else he will often fuss for a short time period, but will then begin to play.

Foster Family. The Foster family is a single parent family which has four children, ages 1 year, 12 years, 15 years, and 17 years. This family lives in a small community within Fayette county. Annie (age 1 year), who is the study participant, is not the biological child of this mother, but is the child of a cousin of the mother. Annie's biological mother and father are currently serving prison terms of 3 years. Annie has resided with the Foster family since she

was 3 months of age.

Birth History & Medical History. Annie was born following a normal delivery. She has Down's Syndrome and a congenital heart anomaly. Annie has already had surgical repair of the heart anomaly and has experienced no complications related to this defect. Annie is delayed in all areas of her development with her developmental ability level currently being that of a 6 month infant.

Developmental Ability. Annie's gross motor abilities include sitting alone for extended time periods and rolling over abilities. Annie child can not walk. She also has some limited abilities with regard to fine motor skills. Annie is a very social child who frequently smiles and interacts well with individuals. She can not say any words, but will babble some sounds.

Social Support. This family receives assistance via the Department of Human Services. The 17 year old daughter also works at Wendy's. Ms. Foster indicates she has numerous helpers who assist her with Annie. All three children, her sister, and Ms. Foster's mother babysit and assist with Annie's care. Also every week-end, Annie's father's sister takes Annie to her home to spend the night. Annie is frequently taken to the prison to visit the biological mother and father. In the home where the child currently resides, Ms. Foster has placed numerous photographs of Annie's biological parents in locations which

are accessible and visible to her. When questioned about how Annie responds to her biological mother, Ms. Foster mother indicates Annie seems to like her biological mother but will cry to return to Ms. Foster's arms.

Ms. Foster describes her emotional support needs as being met by a male friend and also her extended family. Different members of this family seem to provide various types of assistance.

Toy Interaction. Ms. Foster selected a battery operated rolling ball for the toy interaction with Annie. Ms. Foster facilitated Annie's attention by positioning her in close proximity to Ms. Foster so she could assist Annie in manipulation of the ball. Ms. Foster also frequently repositioned Annie to facilitate interaction with the toy. Annie seemed interested in the toy and often smiled and was very responsive to the toy. Ms. Foster exhibited no intrusive behaviors during the interaction.

Completion Of Attachment Q-Sort. Ms. Foster verbalized extreme difficulty with completing the Attachment Behavior Q-Sort. On the day of my visit, she had only partially completed the sort. She indicated she had sought the help of her boyfriend in completing the sort, but that both of them had found it was difficult to complete. Ms. Foster and the investigator completed the sort together. There were several stacks which did not have ten cards in the stacks, either they had more than this number or less. Ms. Foster

expressed frustration with statements which referred to the Annie being able to move or to talk. She felt these were not descriptive of Annie even when the statements were reworded. She also found many of the statements were difficult to read or contained too many words.

Parent Verbalization Of Attachment Behaviors. When questioned about attachment behaviors of Annie, Ms. Foster indicated Annie would often hug her or cuddle closer to her. She also indicated Annie would follow her from room to room when Annie was placed in her walker. Ms. Foster also mentioned time periods when she recognized Annie preferred her to other people or when she could calm Annie and no one else could. She also explained how she could interpret nonverbal cues from Annie to meet both physical and emotional needs.

Smith Family. The Smith family is a nuclear family consisting of two parents and their 12 month old daughter, Mandy. The father in this family has a 19 year old son from a previous marriage. This family lives in a wood and brick house within the city limits of a large town in Raleigh county.

Birth History & Medical History. Mandy was born two months prior to her expected due date. She weighed 2 pounds at birth and was hospitalized for approximately 2 months. Mrs. Smith reported numerous health care problems which arose during this hospitalization. Mandy was not placed on

a ventilator, but did require additional oxygen therapy.

Developmental Ability. Although Mandy is developmentally delayed because of her prematurity, she seems to have progressed well with regard to meeting developmental milestones. She is age appropriate for all gross motor skills except walking. She is very mobile exhibiting crawling and cruising behaviors. She is experiencing no problems with fine motor skills as demonstrated by her ability to feeding herself. Her language skills are well developed as she constantly babbles and says numerous words. No other delays are noted.

Social Support. Mr. Smith is currently off from work because of a back injury. He is undergoing therapy and does not know when he will be returning to work. When Mandy is left with a babysitter, she is left with Mrs. Smith's sister. Neither maternal nor parental grandparents were indicated to be helpful in meeting the needs of the family. Mrs. Smith describes emotional support needs as being met by her husband. Mandy's parents verbalize positive comments about each other. Numerous situations were described which indicated a strong emotional bond existed between these individuals.

Toy Interaction. Mrs. Smith chose two toys for the mother-child interaction. One toy was a small puppet and the other toy was a set of stacking blocks with a small chicken which could be hidden under the blocks. It was

obvious during this interaction that Mrs. Smith mother often plays with Mandy as the mother and child seem to have a play ritual where the mother assumes a certain position and the child sits facing the mother. During the play interaction, both Mrs. Smith and Mandy seem to play with an almost business like behavior. Mandy intensely investigates all parts of toys and manipulates the toys to determine the variety of ways they can be used in play. Since her interaction is so intense, there is not a tremendous amount of smiling or laughing during the interaction, but was a considerable amount of activity involved.

Completion Of Attachment Q-Sort. Mrs. Smith completed the Attachment Behavior Q-Sort with minimal difficulty. She did, however, indicate that numerous statements were confusing and needed to be reworded to best facilitate their placement. Mrs. Smith was unable to only place 10 statements in each of the stacks, thus the numbers in each stack varied. Mrs. Smith also expressed some frustration with statements that indicated more than one behavior of the child.

Parent Verbalization Of Attachment Behaviors. When questioned about the attachment behaviors Mandy, Mrs. Smith reported Mandy would often throw her arms around her mother's neck and kiss her. Mrs. Smith also indicated that when Mandy is really upset, that she is the only one who can calm Mandy. Mrs. Smith also described how Mandy will often

hold onto her mother and make a sound like a purring noise which Mrs. Smith interprets as indicating Mandy is content. Mrs. Smith also describes in detail her ability to interpret nonverbal cues displayed by Mandy. Mandy also follows her mother from room to room and sometimes cries when she is left with Mrs. Smith's sister.

Cross Case Analysis of Characteristics of Sample

An overview of the families participating in the study is provided in Table 8 (Appendix L). A total of 6 male children and 4 female children and their families participated in the study. These children were between the chronological age of 12 months and 4 1/2 years of age. Birth history of the children revealed four children had been born prematurely while the remaining six children were born within the appropriate gestation time period (38-42 weeks gestation). The gestation ages at birth for the total sample ranged from 25 weeks to 42 weeks gestation.

Children varied greatly regarding the age at which the child had been defined as being developmentally delayed. For example one child was diagnosed at birth while another child was not diagnosed until 2 1/2 years of age. In several instances the diagnosis of development delay was initiated by parent self referral to a health professional or mental health center. Although the children in this study had numerous medical diagnoses, primary diagnoses are as follows: four children had cerebral palsy, three were

defined as mildly mentally impaired with language delay, one child was autistic, one child had Down's Syndrome and another child was labeled simply as gross motor developmental delay.

Of significance to this study is the length of time seven of the children were hospitalized as related to medical problems or premature birth during the first year of life (range of 7 to 12 weeks). Comments from families varied about this time period of hospitalization. Parents of children who were not in the neonatal intensive care unit stayed with their child, while parents who children were in the intensive care units visited at least daily, and in many instances visited their child several times per day. Some parents expressed positive comments about their interactions with hospital staff during this time period, however, both the Hill and Smith families verbalized concern over the adequacy of the care their child received.

All but two of the families participating in the study were nuclear families. The remaining two families were single parent families. The total number of individuals residing within the households varied from 2 to 8 people. Eight of the ten families receive federal/state financial assistance with medical care. With regard to social support, four families mentioned receiving support from someone other than a member of their extended family. Mothers described friends, families of other chronically ill

children, grandparents and husbands as sources of physical assistance with child care and emotional support. Grandparents were a predominant source of support of seven of the ten families. Additional questioning about other dimensions of social support revealed mothers predominantly were viewed by their family members as being the "expert" about their child's needs in regard to activities of daily living and also with regard to the child's health, developmental problems and interpretation of nonverbal cues. Respect and admiration were voiced by family members or friends who were present during some of the interviews with the mothers of the study participants.

Cross Case Findings Related To Research Questions

The four research questions for the study were analyzed through coding and scoring of the Q-Sorts and structured and unstructured observations. Analysis of interviews, observations and Q-Sort data were completed through the use of open and axial coding techniques and designing of thinking units. The results of this analysis follows.

Research Question 1

How does having a child who displays atypical behavior influence the parent's categorization of statements for the Attachment Behavior Q-Sort?

In completing the analysis of the comments related to the research question, the initial area of focus was with regard to parental perception of the degree of difficulty

encountered when completing the Q-Sort activity. A total of four families indicated the Q-Sort was very difficult to complete while the remaining six families indicated little or no difficulty in completing the task.

All but two of the families were able to complete the Q-Sort without assistance from the investigator. The mother in the Hill family who did not complete the Q-Sort prior to the investigator's second visit stated that she had not had time to complete the Q-Sort. The investigator assisted the mother in categorizing the statements into "unlike," "neither like or unlike," and "like" groupings. Because of the extensive medical problems of the child in this family, the investigator had to reword numerous statements to facilitate the mother's analysis of whether or not the child exhibited the behavior without regard to limitations caused by the child's disability. During this process the mother verbalized frustration regarding how many of the statements did not apply to her child. The mother in the Foster family had attempted to complete the Q-Sort but seemed overwhelmed and confused as to how to complete the sorting activity. This mother indicated she had sought assistance from her boyfriend in completing the sort, but had still been unable to accomplish the task. The sort was then completed with the assistance of the investigator. While the majority of families were able to complete the Q-Sort without the assistance of the investigator, it should

be noted that families who had children who had significant motor impairment indicated considerable frustration about not being able to use these statements to describe their child. The Moore family and the Parker family both verbalized anger and frustration about this. Extensive time was devoted to discussing in depth with these families the purpose of the study and how their insight regarding this project was very important.

Numerous families indicated they experienced significant difficulty in placing only 10 statements per individual pile. Two of the participant families could only sort the Attachment Behavior Q-Sort into the initial three pile of "unlike," "neither like or unlike," and "like" my child. With these sorts, the middle score for each score range was assigned to statements in each pile. For example, statements in the "unlike" pile were all assigned a score of 2, statements in the "neither like or unlike" pile were assigned a score of 5, and statements in the "like" pile were assigned a score of 7.

Additional concerns with regard to difficulty experienced in grouping individual Q-Sort statements are as follows:

- 1) families expressed difficulty with behavioral statements which had two descriptive phases within the statement, especially when one segment of the statement contained a word suggestive of the

particular disability of their child. For example, the statement "Child wants to be the center of the mother's attention. If mom is busy or talking to someone, he interrupts." Parents often indicated they agreed with the first segment of this statement, but made reference to their child's inability to interrupt as related to the child's physical mobility or language ability.

- 2) families voiced complaints with regard to some statements being very confusing to read and also to interpret. Specifically parents voiced complaints about the following two statements:
54. "Child acts like he expects mother to interfere with his activities when she is simply trying to help him with something."
74. "When mother doesn't do what child wants right away, he behaves as if mom were not going to do it at all."
- 3) families indicated if their child had been more mobile or had more language ability then they believed this would have significantly changed their placement of statements in particular piles.
- 4) families found the cues provided on some of the statement cards by the designer of the instrument were helpful in determining location of the statement within the range for the grouping. For

example several of the statements indicated criteria for scoring the statement within low or middle ranges of the specific grouping.

The second area of focus for analysis of the data collected was to examine what factors influenced the parent's placement of statements within the various groupings. Analysis resulted in the following findings with regard to factors which parents verbalized as having influenced their selection of the grouping for placement of statements:

- 1) The grouping of "neither like or unlike" my child was utilized for statements of behaviors which occurred on an infrequent basis and also behaviors which were not descriptive of the child.
- 2) The grouping of "neither like or unlike" my child was utilized for statements which the child was not capable of performing as related to the disability of the child. For example, if the statement indicated a behavior which required walking and the child could not walk then the statement would be placed in this grouping.
- 3) Parents indicated the grouping of "like" statements was very easy to do while the grouping of behaviors which was unlike their child was more difficult to perform.
- 4) Parents would often read a behavioral statement

and target particular words which were suggestive of a disability of their child. Once the word was targeted, the statement would be placed in the "neither like or unlike" grouping. Discussion with the parents after the completion of the Q-Sort revealed it was possible to reframe some statements to facilitate the mother's analysis of whether or not the child exhibited the behavior without regard to limitations caused by the child's disability.

The third area of focus for data analysis was the qualitative analysis of how the parent actually categorized Attachment Behavior Q-Sort statements into the "unlike," "neither like or unlike," and "like" groupings. The coding scheme previously outlined in the methodology section provided the structure for analysis of this data. A review of individual families categorization of Attachment Behavior Q-Sort statements in "unlike," "neither like or unlike," and "like" groupings as compared to the hypothetical secure child was completed (Table 3, Appendix G). In examining individual families' grouping of statements as compared to the hypothetical secure child groupings, various increases and decreases were noted for the groupings. To facilitate the examination of the changes in groupings, a criteria of 50% increase in group number as compared to the hypothetical secure child was established. Considering this criteria,

the following observations were noted:

- 1) In the requiring mobility category, the Hill, Moore, and Parker families demonstrated higher usage of the "neither like or unlike" grouping. The child's primary medical diagnosis in each of these families was cerebral palsy. The Smith family demonstrated higher usage of "like" grouping in this category.
- 2) In the emotions of child category, all 10 families demonstrated higher usage of the "like" grouping.
- 3) In the "relationship with adults" category, 9 out of 10 families demonstrated higher usage of the "like" grouping.
- 4) In communication patterns category, the Hill, Parker, Roberts, and Brooks families demonstrated higher usage of the "neither like or unlike" grouping. The child's primary medical diagnosis in three of these families was cerebral palsy.
- 5) In ability to understand category, the Roberts and Walker families demonstrated higher usage of the "unlike" grouping while the Hill, Parker, Brooks, and Foster families increased use of the "neither like or unlike" grouping. In this category, the Johnson family demonstrated higher usage of both "unlike" and "neither like or unlike" groupings. The primary medical diagnosis of the children in the Roberts, Walker and Johnson families was mildly mentally impaired. The

children in the Hill, Parker, and Brooks families primary medical diagnosis was cerebral palsy while the child in the Foster family was diagnosed with Down's Syndrome.

- 6) In activities involving the mother category, the Moore, Parker, and Smith families demonstrated higher usage of the "like" grouping. The Moore and Parker family children had primary medical diagnosis of cerebral palsy while the Smith family's child was diagnosed as developmentally delayed.
- 7) In preference toy/activity category, the Moore, Roberts, and Foster families demonstrated higher usage of "unlike" grouping while the Parker, Taylor, and Brooks families demonstrated higher usage of "like" grouping.

A cross case analysis of all the families as compared to the hypothetical secure child was essential. This analysis offered a mechanism for determining consensus regarding statements which families consistently placed in different groupings than those indicated for the hypothetical secure child. The coding scheme previously reviewed in the methodology section for the development of a system to compare the study participants as a group provided the structure for this analysis. A comparison of study participant's group sort of Attachment Behavior Q-Sort statements in "unlike," "neither like or unlike," and "like"

groupings to the hypothetical secure child's sort was complete (Table 5, Appendix I). An analysis of this data reveals the categories of requiring mobility, communication patterns, ability to understand, and activity involving the mother had 50% increases in the "neither like or unlike" group while the categories of emotions of the child and child's relationship with other adults had increases in the "like" group. It is also noted that 20 statements had mixed responses (mixed response grouping indicates less than a 50% agreement was noted with regard to placement in grouping of "unlike," "neither like or unlike," and "like"). The category of emotions of the child had the largest number of mixed responses.

Since the categories of requiring mobility and emotions of the child revealed changes of 5 statements each, these categories were further analyzed via thinking units. A total of five thinking units were defined for the category of requiring mobility (Table 9, Appendix M) and four thinking units were identified for the category of emotions of the child (Table 10, Appendix N). Comparison tables (Table 10, Appendix O and Table 11, Appendix P) were completed to display the study participant's placement of these numbered statements for categories of requiring mobility and emotions of the child. In the requiring mobility category, a total of eight statements were noted to shift into the "neither like or unlike grouping."

Collectively these items are tasks which require the ability to perform the gross motor ability of walking. In the emotions of the child category, a total of five statements were noted to shift into the "like" grouping. Of the statements which shifted into the "like" grouping, three were related to interaction between the child and adults other than parents, one statement was related to the temperament of the child, and one statement was related to the child's ignoring of bumps and falls.

As previously stated the category of emotions of the child also had the largest number of mixed responses. A total of 7 statements in this category had less than 50% agreement as to grouping status of these items. Of the 7 statements, three statement described the child exhibiting emotions such as anger, fear, and happiness, three statements described the child as exhibiting emotions through crying or fussing, and one statement described the child as being upset about the mother's behavior. Of the statements in the category of emotions of the child which had mixed responses, it should be noted that two of the statements also made reference to the child being able to move. For example, statement number 2 states "When the child returns to the mother after playing, he is sometimes fussy for no clear reason."

Research Question 2

What are the attachment behaviors which are identified

by parents of children who display atypical behaviors?

The analysis of this research question first focused on reviewing the data collected during the interviews with families. The investigator in the first interview asked parents to describe how they knew their child loved them. During the second interview parents were asked to explain how they knew their child was attached to them. The responses to both questions yielded the same information. These responses from this questioning are summarized as follows:

- 1) parents reported they were able to satisfactorily interpret their child's nonverbal cues as related to child's physiological and emotional needs
- 2) mothers indicated when their child was very upset that they were the only ones who could comfort the child
- 3) parents described how the child would display kissing or hugging behaviors toward the parent
- 4) mothers indicated the child would often follow them in the home from room to room
- 5) parents described special cuddling or holding behaviors which the child enjoyed; sometimes indicating the child would elicit these behaviors
- 6) mothers indicated the child would verbalize "I love you" to them
- 7) parents would describe crying episodes or other behaviors which occurred when the child was left in the

care of someone else.

The previously stated responses are a summary of the behaviors indicated by the ten families participating in this study. In order to examine the frequency with which the behaviors occurred in each family, a table was designed (Table 13, Appendix Q). Each of the seven behaviors described by the families is listed and an "X" is used to indicate whether this behavior was described by the study family. The range of behaviors occurring in the study families is from 1-7, with the Parker family indicating only one behavior while the Walker family indicated all seven behaviors had been noted. With regard to frequency of the behavior, comfort by cue which referred to the ability of the parent to interpret the nonverbal cues of their child was indicated by 9 out of 10 families with cuddle or holding behaviors being indicated by 7 out of 10 families. Behaviors of calming by mother, displaying affection, and crying or displaying other behaviors when left were also noted to occur with a minimum of 5 out of the 10 families.

The primary process for qualitative analysis of the parent's placement of Attachment Behavior Q-Sort statements into "unlike," "neither like or unlike" and "like" groupings has been previously discussed (Refer to Research Question 1). During this discussion, it was noted that parent's placement of statements on the Attachment Behavior Q-Sort into categories of requiring mobility and emotions of the

child varied from the sort of the hypothetically most secure child. Specifically with regard to requiring mobility, parents tended to use less statements where the behaviors indicated the child could walk while parents used more statements which were descriptive of emotions of the child.

Research Question 3

What are the attachment behaviors which are observable in parents of children who display atypical behaviors?

The analysis of this question was completed via data collected during structured and unstructured observations in the home environment and by quantitative and qualitative analysis of the Maternal Behavior Q-Sort.

Both structured and unstructured observations were conducting during two home observations. The data collected from the structured observation which involved the parent demonstrating the use of a toy to their child was recorded via audiotaping and investigator completion of narratives about the interaction. In order to interpret the data collected about the maternal behavior during these interactions, the observation was coded using Fish's (1993) categories for maternal behavior (facilitation of attention, sensitivity, intrusiveness, positive affect, negative affect and response to crying) (Appendix C). A summary of scores for maternal behavior of all study participants is presented in Table 14 (Appendix R). Overall mothers were noted to demonstrate appropriate, well timed facilitative behavior

which encouraged the child's interest in the toy. Please note the Johnson family father performed the toy activity as opposed to the mother. Also note that with the Hill family, the mother did not participate in a structured toy interaction. Parents also frequently repositioned their child and brought the toy into close proximity with scores in facilitates attention ranging from 2-3, out of a possible 3. During this interaction 7 of scores were above 2.6 indicating these individuals were consistently facilitating the manipulation of the toy by the child. Sensitivity scores of the mothers/father ranged from 1-3 out of a possible 3. Mothers in the Roberts, Taylor, Walker, and Brooks families had scores above 2.8 out of a possible 3 in sensitivity. These individuals were observed to demonstrate good timing in pacing the interaction with the child to allow for exploration of the toy, frequently offered verbal praise or support of the child's efforts and recognized when their children were bored with the toy. Intrusive behaviors during this interaction were observed only in the interaction between Mrs. Parker and her son. This mother also experienced difficulty in maintaining her son in a position which facilitated interaction with the toy. The child's postural body contractures interfered with his being able to maintain visual contact with the toy.

The affective behavior of the mothers during the toy interactions was noted to vary greatly with scores ranging

from 0-1.8 out of a possible 2. In both the Roberts family and Walker family, the type of toy used during the interaction appeared to influence the amount of smiling which occurred. These toys were task centered activities as opposed to toys which promote spontaneous smiling or laughter. The father in the Johnson family seemed to be nervous during the interaction and this may have influenced his affective behavior score.

Unstructured observation data was measured via the Maternal Behavior Q-Sort with both quantitative and qualitative analysis being completed and through application of Pederson and Moran's (1993) approach to analyzing parent child interactions. The Maternal Behavior Q-Sort was completed by the investigator following each visit to the home. (It is important to note that the Maternal Behavior Q-Sort was designed to be used primarily with children below the age of 12 months. The designer of the instrument expressed the opinion to the investigator that he believed items could be modified to retain the same meaning or omitted as needed when used with older age populations. With regard to older age children some statements which reflected activities such as diaper changing were either modified or omitted as needed. With children who were more severely impaired, these statements were very appropriate and did not require modification or omission.)

The two separate Q-Sorts, which were completed by the

investigator, were compared for consistency to determine any major discrepancies. Following this comparison, each of the 90 statements were scored. The scores received for each of the 90 statements was then correlated with the mean scores for each statement as defined by the hypothetically most sensitive mother (scores for each Q-Sort statement were provided by the instrument's designer). Correlations for each participant family ranged from $r = .443900$ to $r = .778279$ as noted in Table 15 (Appendix S), thus indicating the study participant's behavior was strongly correlated to the score for the hypothetically most sensitive mother. Mothers', in the Hill, Walker, Brooks, and Foster families, Q-Sort correlations were above .7106. It should be noted typically families who were referred by individuals for participation in this study were frequently described as being highly sensitive to the needs of their child.

Additional quantitative analysis of the Maternal Behavior Q-Sort was completed by comparing study participant's mean score on this sort with the Maternal Behavior Sensitivity scores (Table 14, Appendix R) from the structured toy interaction (Table 16, Appendix T). Correlation testing was completed on these scores. Since Mrs. Hill did not participate in the structured toy interaction, she had no sensitivity score for this analysis, thus her Maternal Behavior Q-Sort score was omitted from

this testing. The correlation of the mean scores was $r = -.0612$, therefore indicating no relationship exists between the scores of the Maternal Behavior Q-Sort and the score for sensitivity which was determined during the toy interaction. Qualitative data analysis of the investigator's placement of Maternal Behavior Q-Sort statements was completed. The coding scheme previously outlined in the methodology section provided the structure for analysis of this data. A review of the investigator's categorization of Maternal Behavior Q-Sort statements in "unlike," "neither like or unlike," and "like" groupings as compared to the hypothetical sensitive mother was completed (Table 4, Appendix H). Examination of the investigator's grouping of statement for individual families as compared to the hypothetical sensitive mother revealed 50% increase in investigator's use of the "like" grouping in the category of mother's feeling about the child as compared to this grouping for the hypothetical most sensitive mother. Only one other category's groupings varied as compared to the hypothetical sensitive mother. In the category of communication between the child and the mother, the grouping of "neither like or unlike" was more frequently used in descriptions of Mrs. Moore. In this same category, the grouping of "like" was more frequently used in descriptions of Mrs. Johnson.

Further analysis of the Maternal Behavior Q-Sort was

completed via a cross case analysis of all the mothers as compared to the hypothetical sensitive mother. This analysis offered a mechanism for determining consensus about statements the investigator consistently placed in different groupings than those indicated for the hypothetical most sensitive mother. The coding scheme previously discussed in the methodology section for the development of a mechanism to compare study participants as a group provided the structure for this analysis. A comparison of the group Maternal Behavior Q-Sort statements in "unlike," "neither like or unlike," and "like" groupings to the hypothetical most sensitive mother (Table 7, Appendix K) revealed increases in two categories. In analyzing this data, the categories of mother's feelings about the child and communication between mother and child were noted to have increases in the "like" grouping.

Since the category of feelings about the child demonstrated significant increase in the "like" grouping, additional analysis via thinking units was completed. A total of three thinking units were identified for this category. Table 17 (Appendix U) displays the number of the Q-Sort statement and it's grouping with regard to the hypothetically most sensitive mother. A comparison table (Table 18, Appendix V) was also completed to show the investigator's placement of numbered Q-Sort statements for this category. This comparison revealed a total of 10

statements actually changed grouping. Five statements shifted from the "neither like or unlike" grouping to the "like" grouping. Four of these statements were related to emotions the mother displayed toward the child (i.e. positive mood, using touch to express affection, expressing delight over the baby, and setting aside of negative feelings about the baby). One statement addressed the mother's feeling about leaving the child with someone else. A total of three statement shifted from "neither like or unlike" to "unlike" the mother. These statements referred to emotions displayed toward the child, feelings about leaving the child with someone, and also feelings about the motherhood role. One statement which focused on the mother's awareness of how her moods affect the baby shifted from "like" to "neither like or unlike" grouping while another statement about the mother feeling overwhelmed and depressed shifted from "unlike" to "neither like or unlike" grouping.

The category of communication between the mother and child demonstrated a 35% increase in "like" grouping. This category was also further analyzed via thinking units. A total of five thinking units was defined for this category. Table 19 (Appendix W) displays the actual number of the Q-Sort statements and how they are grouped with regard to the hypothetically most sensitive mother as related to the thinking units for the category of

communication is presented. A comparison table (Table 20, Appendix X) was completed to show the investigator's placement of these numbered statements for this category. A total of five statements were noted to shift from the "neither like or unlike" grouping to the "like" grouping. Of the statements which shifted into the "like" grouping, two statements were related to giving praise or positive comments to the child, one was related to bringing a toy into reach of the child, one referred to the mother repeating words as if to teach the child, and one indicated the mother encouraged interaction with visitors. A total of three statements shifted from the "unlike" grouping to the "neither like or unlike" grouping. Of these statements, one was related to mother's verbalization of farewell to the infant, one indicated mother was critical in descriptions of the infant, and one statement indicated the mother interprets the baby signals according to her own wishes and moods. Three other statements shifted in groupings: one statement shifted from "like" to "neither like or unlike" which indicated the mother greeted the infant when she entered the room, one statement shifted from "unlike" to "like" which indicated the mother leaves the room without explanation to the infant, and one statement shifted from "neither like or unlike" to "unlike" which indicated the mother scolds the infant.

Further analysis of the unstructured observations made

during the visits to these homes was made via application of Pederson and Moran's (1993) approach to analyzing parent child interactions. A scoring system (scoring range from 0-3) was identified to assist in the analysis of the areas of parent's response to positive and negative cues from the child, accessibility to the child in context of the visit, anticipation of the child's needs and the child's behavior as described by child's affective sharing, proximity and comfort seeking with the parent, and exploratory behaviors. The results of this analysis is presented in Table 21 (Appendix Y) and Table 22 (Appendix Z). Maternal scores for the unstructured observation ranged from 2 - 2.6, thus indicating average to above average parental levels of responding to cues, accessibility to the child and anticipation of child needs. Above average response to cues from the child were noted in the Hill, Moore, Roberts, Brooks, Foster, and Smith families. The children in four of these families had a primary medical diagnosis of cerebral palsy.

Children's scores in the unstructured observation were noted to range from .3-2.7 out of a possible 3 indicating a variation from minimal to above average affective sharing, comfort seeking with parent, and exploratory behaviors. Affective sharing score was noted to be above average for the Walker's son. Exploratory behaviors of the child were scored 0 for the Hill and Parker families. Both of these

children have a primary medical diagnosis of cerebral palsy. Overall mean scores for the unstructured observation were below 1.7 for four families (Hill family, Moore family, Roberts family, and Brooks family), thus indicating these children demonstrated little or minimal amounts of affective sharing, comfort seeking with parent and exploratory behaviors.

The scores of the child's behavior during the structured toy interaction are presented in Table 23 (Appendix AA). Children's focused attention differed with each child (scores ranged from 1-3 out of a possible 3) with varying levels of social responsiveness being noted (scores ranged from .9-1.6 out of a possible 2). Focused attention scores were above 2.4 for children in the Moore, Taylor, Walker, Brooks, and Smith families. The Parker family's son, James, did not focus well during this interaction. Social responsiveness scores for Johnson and Foster family children indicate no responsive behavior was noted. The children in the Parker and Brooks families also demonstrated minimal responsiveness. No smiling or minimal smiling behaviors were noted in children in the Roberts, Walker, Johnson, and Foster families. The child in the Moore family briefly cried when his mother left the room, but no other children displayed negative affective behaviors.

Research Question 4

Does the Attachment Behavior Q-Sort effectively measure

attachment behaviors in children who display atypical behaviors?

The analysis of this question was completed via data collected during interview sessions, structured and unstructured observations in the home environment, and quantitative and qualitative analysis of the Attachment Behavior Q-Sort.

The Attachment Behavior Q-Sort was completed by all ten families in the study. A total of five Q-Sort were completed only by the mother, three Q-Sort were completed by both mother and father of the child, and two Q-Sort were completed by the mother and the investigator. The scores of Q-Sort statements were correlated with the scores of the statements for the hypothetically most secure child. Waters and Dean (1985) define the correlation coefficient between the construct definition and the description of the subject as being the subject's score. These scores ranged from $r = -.242183$ to $r = .512960$ (Table 24, Appendix BB). Group analysis of the correlation scores reveals: two scores indicate an inverse relationship, three scores indicate no relationship, three scores indicate a mildly positive relationship, and two scores indicate a moderately positive relationship when the scores were compared to the hypothetically most secure child. If the scores are examined with regard to the child's primary diagnoses the following grouping is noted: the four children with cerebral

palsy had scores ranging from $r=.085313$ to $r=.4298$; the three children defined as mildly mentally impaired had scores ranging from $r=-.079810$ to $r=.369404$; the child who was autistic had a score of $r= -.242183$; the child who had Down's Syndrome had a score of $r=.369404$ and the child who had gross motor developmental delay had a score of $r=.512960$. Considering the small sample size of this population, it is difficult to draw any definite conclusions as to the scores with regard to primary diagnosis.

The study participant's mean scores for the Attachment Behavior Security Sort and the Maternal Behavior Q-Sort (Table 16, Appendix T) were also correlated. There was a $r= -.0879$ correlation between the two Q-Sorts, thus indicating an inverse relationship between the security and the sensitivity Q-Sorts of the study participants which was not significant.

The designer of the Attachment Behavior Q-Sort has completed a sort for the hypothetically most secure child and also a dependency sort. The study participant's statement scores for the Attachment Behavior Q-Sort were correlated with scores for the hypothetical dependent child's sort (Table 24, Appendix BB). These scores ranged from $r= -.170402$ to $r=.424339$. Scores for the Moore family, Parker family, Roberts family, and Foster family indicated a nonsignificant inverse relationship between their children's scores and the dependency sort for the Attachment Behavior

Q-Sort. The Walker family's son had the only significant dependency score in this analysis ($r=.424339$).

In order to more clearly analyze whether there was any relationship between the Dependency sort and study participants sort, qualitative analysis of the Q-Sort statements of the Dependency sort was completed. The coding scheme and categorization which has been previously defined provided the structure for this analysis. A review of individual families categorization of statements in "unlike", "neither like or unlike" and "like" grouping as compared to the hypothetical dependent child was completed (Table 3, Appendix G). In examining individual families' grouping of statements, various increases were noted. A criteria of 50% increase in group number as compared to the hypothetical dependent child was established for this analysis. Considering this criteria, the following observations are made:

- 1) In requiring mobility category, the Roberts, Walker, and Foster families demonstrated higher usage of "like" grouping.
- 2) In emotions of the child category, the Moore and Foster families demonstrated higher usage of the "unlike" grouping. While the Foster and Smith families demonstrated higher usage of "like" grouping.
- 3) In relationships with adults category, all ten families demonstrated higher usage of the "like" grouping.

- 4) In communication patterns, the Moore, Parker, Walker, Brooks, Johnson, and Smith families demonstrated higher usage of the "like" grouping.
- 5) In ability to understand category, the Hill, Brooks, and Taylor families demonstrated higher usage of the "unlike" grouping. Increased usage of the "like" grouping for this category was noted for all families except the Johnson family.
- 6) In activities involving the mother category, all families except the Roberts and Parker families demonstrated higher usage of the "unlike" grouping. The Moore, Parker, Roberts, Walker, Johnson, and Smith families demonstrated higher usage of the "like" grouping in this category.
- 7) In the preference for toy/activity, all families but the Walker and Hill families demonstrated higher usage of "unlike" grouping. Also all families but the Hill family demonstrated higher usage of the "like" grouping for this category.

A cross case analysis of all families as compared to the hypothetical dependent child was performed. Considering the varying ways in which all of the categories were used in the dependency sort, this offered a mechanism for determining whether there was any consensus regarding the usage of groupings. The coding scheme previously defined in the methodology section was used for this analysis. Table 6

(Appendix J) indicated little overall consensus with regard to usage of groupings. This comparison does, however, indicate an increase in the hypothetically most dependent sort in the "neither like or unlike grouping" of 20 statements. While the increase in the "neither like or unlike grouping" for the hypothetically dependent child appears somewhat insignificant with regard to its usage with children who are typical in their behavior, it is worth consideration with regard to children with atypical behavior. As previously indicated, the "neither like or unlike" grouping was used frequently by the study participant parents for statements which were not indicative of their child's behavior as related to the disability of the child. .

Further review of this table reveals the "like" grouping was utilized most frequently by study participant parents for the placement of statements. While no significant increases were noted in any of the seven categories of the Attachment Behavior Q-Sort, a total of 20 mixed responses were noted. The category of emotions of the child was the primary area where 7 mixed responses were noted. A review of these mixed response statements was previously provided in the discussion of Research Question Number 1.

The data collected with regard to parent's definition of attachment behaviors, the structured and unstructured to

behaviors observed has been previously discussed in the narratives about the families and also in discussions of findings with regard to other research questions. Since the value of the Attachment Behavior Q-Sort effectiveness with children with atypical behaviors was under close scrutiny, the investigator retrospectively reviewed the notes about observations made during home interviews with consideration with the categories of the Attachment Behavior Q-Sort as a guide. A scoring scheme (range of 0-3) was designed which allowed a numerical value to be assigned for the frequency of the observation per category, thus allowing a comparison of each of the families per category (Table 25, Appendix CC). Families mean scores ranged from .4-2.7. The Hill and Parker families mean scores were below .7, thus indicating little behavior as related to the categories of the Attachment Behavior Q-Sort was observed. The Roberts, Taylor, Walker, Brooks, Johnson and Foster families had mean scores between 1.4-1.7 indicating little or minimal behaviors as related to the categories was noted. The Smith family had a mean score of 2.7, thus indicating above average behaviors in these categories were often observed.

Chapter Five

Discussion, Limitations,

Implications & Recommendations

The findings of this study are discussed within this chapter. Following this discussion, the limitations of the research, implications for practice, and recommendations for subsequent research are presented.

Discussion

Findings Related to Research Questions. The purpose of this study was to evaluate the effectiveness of the Attachment Behavior Q-Sort in measuring attachment behaviors of children who display atypical behaviors. This study as it was performed identified some significant findings for this sample.

The evaluation of the effectiveness of this instrument must first begin with examining whether or not parents were able to perform the sorting activities. While some frustration was expressed, all ten families (two requiring investigator assistance) were able to complete the Q-Sort. Confusion was noted with regard to the wording of some of the statements and also difficulty was expressed with regard to placement of only 10 statements in a pile, however, the primary frustration verbalized by parents was the difficulty they experience with statements which indicated or implied an activity which the child's disability limited or

prohibited. (Most specifically, tasks related to mobility of the child.) In many instances reframing or rewording activities which were completed during the second interview demonstrated this situation could have been alleviated. However, in instances where children are severely impaired this task became more difficult and in many instances was not possible.

The categorical analysis of the Attachment Behavior Q-Sort revealed the categories of requiring mobility (total of 21 statements) and emotions of the child (total of 27 statements) represented 48 of 90 statements in the Q-Sort, however, 21 of the 48 statements in these two categories were placed in the "neither like or unlike" grouping for the sort of the hypothetically most secure child. Of special concern is that of the total 27 statements about emotions of the child, 12 statements were placed in the "neither like or unlike" my child grouping, thus only 15 statements about emotions of the child were actually used to describe the hypothetically most secure child. Considering the physical limitations of 50% of the population in this study and the parental verbal description of attachment as being related predominantly to emotions and interpretation of cues from the child, it is questionable as to whether the Attachment Behavior Q-Sort scores are totally representative of the parent's perception of attachment behaviors of their children. However, since the individual scores of children

as measured by this instrument varied greatly, it is possible to assume for some children, these scores were quite accurate. Considering this observation, additional reflection on the attachment relationship of the study participants appears to be relevant.

Ideally researchers have proposed that "optimal" patterns of attachment are fostered by maternal sensitivity which encourages well timed, synchronous and mutually rewarding interactions. If attachment is considered as an equation whereby both members in the interaction must provide equal components to facilitate a balance, then thought must be given as to what factors might have been present to have encouraged the attachment relationship when both partners in the interaction are not equally capable of participation in the interaction.

In this study, the mothers were noted to demonstrate high levels of sensitivity (scores ranged from .443900 - .778279). The analysis of the unstructured observation using Pederson and Moran's (1993) approach to analyzing parent child interactions revealed at least five of the children had overall scores (Appendix Z) which were below a score of 2 (indicating less than average amount of affective sharing, comfort seeking with parent, and exploratory behaviors), thus indicating children were less likely to be reciprocal when interacting with their parents. This diminished potential for reciprocal interaction by the child suggests

the need to more closely examine what other contextual factors within the social environment might be responsible for the attachment behaviors in five of the study families where the Attachment Behavior Q-Sort scores ranged from .3145327 - .512960.

While the influence of social support on formation of attachment relationships has been studied, there are few studies on the relationship of social support to development of attachment in children with atypical behaviors. Capuzzi's (1989) study of this phenomena in parent-infant dyads where the child had a disability indicated the presence of social support appeared to reduce the stress of having an infant with a disability. With regard to this investigation, questions about social support were asked during the interviewing of study participants. Responses to these questions revealed mothers believed their family had adequate levels of financial support. Other aspects of social support such as affect and affirmation were also explored. Families described friends, families of other ill children, grandparents, and husbands as assisting with care and providing emotional support. Mothers often indicated they received praise, admiration, and respect from other family members regarding their "expert" knowledge concerning the child. Perhaps, the impact of this type of positive feedback and support needs to be more closely evaluated.

If the interaction between the mother and child is conceptualized utilizing a systems theory approach, the impact of social support can be examined from an environmental systems aspect. Bronfenbrenner (1986) indicates there are different environmental systems which can serve as an external influences on the family: mesosystem, exosystem, and chromosystem. Mesosystems refer to the variety of principle settings in which developmental processes can and do occur while exosystems refer to the environments which are external to the developing person but influence the parent (such as parents' circle of friends and acquaintances). The terminology of chromosystem is used to refer to the influence on a child's development over time in the environment in which they live. There are three types of exosystems that are especially likely to affect the development of the child, primarily thorough their influence on family processes. Of most significance to this research study is the exosystem component of parental support networks. Bronfenbrenner (1986) indicates mothers who received higher levels of support when their infants were one month old were more responsive and positive in interacting with the child three months later. Correspondingly, these babies acted more responsively and positively toward their mothers and gave clearer clues regarding their emotional state, needs, and desires. In addition, mothers who experienced help and comfort primarily

from the immediate family felt less stress and had more positive attitudes toward themselves and their babies. Considering this finding, questions arise as to how much emotional support and comfort the mothers within this study may have received from their immediate families. And more specifically, could this support have influenced their attitude toward themselves and their babies.

Bronfenbrenner (1986) also indicates in the realm of maternal behavior that mothers who received higher levels of social support respond more quickly when their infants cried and provided more adequate caretaking behaviors. In this study, mothers were often categorized by their family members as being the "expert" about their child's needs as related to activities of daily living, the child's health, and developmental problems. A total of 9 out of 10 mother's reported they were able to appropriately and accurately interpret the nonverbal cues of their child. Reflection on these findings allows one to question as to whether perhaps a feedback mechanism is established between the mother and her support network. It is possible that this feedback mechanism could become a substitute for the deficient reciprocal pattern of interaction between the mother and child which is essential to the development of the attachment relationship. The substitution of the support network in the attachment equation for the deficiency of one of the members in the interaction offers a potential

explanation for the subsequent development of attachment behaviors.

The conceptualization of attachment from a system's perspective is further supported by Pederson and Moran (1993) who favor this approach to that of viewing attachment as a "causal model." The "causal model" focuses on the social dynamics of the interaction between the parent and child as being concerned with complementary changes in the behavior of one partner. Pederson and Moran state "caregiver behavior" cannot in any meaningful sense be seen as a characteristic of the mother in isolation, but rather is a reflection of the current interaction between her infant and herself and of the current state of the relationship between the two. Considering this perspective, social support could influence not only the interaction patterns of the mother but also the development of the attachment relationship.

Limitations

The limitations of this study were numerous and effected both the internal and external validity of the study. Threats to internal validity of this study were primarily related to the small sample size. This sample contain only ten participants who were selectively requested to participate in the study. While the investigator did not specifically select the population, the referring agency targeted families who they had defined as being supportive

and cooperative to request their participation in the study.

Threats to external validity of the study are primarily related to diversity of the study population. Since participants represented such a variety of differing types of atypical behaviors, it is difficult to make assumptions or any generalizations with regard to the study findings.

Consideration must also be given to the threat of the Hawthorne effect with regard to this investigation. Because of the topic of this study, participants could have easily provided information which was not truly reflective of their child's behavior or demonstrated maternal behaviors not typically characteristic of their daily behavior.

Additional concerns with this research are related to the lack of information about what are attachment behaviors in children with atypical behaviors. The current literature focuses only on the deficiency of antecedents of attachment (reciprocal interaction patterns, etc.) in children with atypical behaviors. This approach fosters negativity and hinders identification of other factors impacting on the development of attachment.

This research provided only a beginning investigation of the usefulness of the Attachment Behavior Q-Sort with this population. The threats to both internal and external validity were numerous thus generalizations from the study findings may only be made with extreme caution.

Implications

The effectiveness of the Attachment Behavior Q-Sort in measuring attachment behaviors of children who display atypical behaviors was closely scrutinized in this study. The question which arises based on the findings of this study is the validity of using an instrument which uses aspects of mobility to measure the attachment behavior in children who may not be capable of exhibiting this ability.

A comparison of this instrument to the Ainsworth Strange Situation offers insight regarding this issue. The Strange Situation has demonstrated numerous deficiencies when utilized with children who have atypical behaviors (Fields, 1987; Stahlecker & Cohen, 1985). While this study indicated some problems with regard to the usage of this instrument, it has potential to be utilized with a variety of children who display atypical behaviors. Furthermore, modification and rewording of some of the statements could result in more accurate measurement of many of the concepts.

A further implication of this study was the question of whether or not encouragement of familial social support of the maternal capabilities might influence later development of attachment behaviors. While these findings are not conclusive, they suggest the need to consider offering encouragement and praise to the mother when working with families who have children who display atypical behavior in order to facilitate more positive maternal responses.

Recommendations

The following recommendations were made for future studies in regard to examining the usefulness of the Attachment Behavior Q-Sort with children with atypical behaviors:

- 1) The study needs to be replicated with consideration given to using a larger sample size and targeting children who have a specific medical diagnosis or level of functioning.
- 2) The study population's age level needs to be limited to children ages 12 - 36 months.
- 3) The study needs to include a specific instrument for obtaining more specific quantitative data about social support networks within the family.

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APPENDIX A

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participation
of Investigative Projects

Project Title: Parental Perception of Effectiveness of
Q-Sort Methodology In Measuring
Attachment Behaviors of Children Who
Display Atypical Behaviors

Principal Investigator: India Hosch

I. THE PURPOSE OF THIS RESEARCH/PROJECT

You are invited to participate in a study about parent's perceptions of attachment behaviors in their children. In this study, you will be asked questions about the history of your child's developmental problems, your daily routines, individuals who have been most supportive of you and you will be asked to share your perceptions of attachment behaviors of your child. You will also be requested to share your perception of the effectiveness of the Attachment Behavior Q-Sort in explaining your child's attachment behaviors. In addition, your sensitivity toward your child's expressed needs and emotions will be evaluated through observation and your response to questions about your child. The purpose of this research is not to provide any type of diagnoses or therapy for your child.

II. PROCEDURES

The procedures to be used in this research are two home visits where you will be interviewed (and audiotaped) and also asked to show your child how to play with an age appropriate toy which will be provided by the investigator. In addition, you will be requested to place a group of statements into categories based upon whether the statement explains a behavior your child might perform. The time and conditions required for you to participate in this project involve your allowing the investigator to come to your home on two separate occasions for approximately 2 hours for each visit. In addition, you will need to spend approximately 30 minutes sorting the statements into piles prior to the second home visit.

The possible risks or discomforts to you as a participant are inconvenience and disruption of the family's daily routine, accidental selection of an inappropriate toy, and discomfort with audiotaping. These risks have been minimized by allowing you to decide when the home visits will occur as they will be scheduled at your convenience.

In addition, the toy brought into your home will be selected with guidance from you and according to safety and developmental considerations of your child. The audiotaping of the interview will be completed using tapes which are long playing and do not frequently have to be changed. Audiotaping equipment will also be inconspicuously placed so as to decrease the visual reminders of taping.

III. BENEFITS OF THIS PROJECT

Your participation in this project will provide tremendous insight into the attachment behaviors of children. This insight will provide a basis for assisting professionals in becoming more sensitive to the expertise of parents regarding the behaviors of their child. No guarantee of benefits has been made to encourage you to participate in the study. The toy which you demonstrated to your child will be left in your home.

You may receive a summary of this research when it is completed if you so desire. In order to facilitate receiving this summary, please provide a self-addressed envelope to forward the information to you.

IV, EXTENT OF ANONYMITY AND CONFIDENTIALITY

The results of this study will be kept strictly confidential. At no time will the researchers release the results of the study to anyone other than individuals working on the project without your written consent. The information you provide will have your name removed and only a subject number will identify you during analysis and any written reports of the research.

All audiotapes will only be reviewed by the investigator, India Hosch, and will be erased after the completion of the project (estimated date May, 1995).

V. COMPENSATION

There is no monetary benefits being provided for participation in this study. However, the toy you demonstrated to your child will be left in the home. This research study will not provide any diagnoses or therapy for your child.

VI. FREEDOM TO WITHDRAW

You are free to withdraw from this study at any time without penalty. Your participation in other programs associated with FMRS Mental Health Council will in no way be

affected by withdrawal from this project.

VII. APPROVAL OF RESEARCH

This research project has been approved, as required, by the Institutional Review Board for projects involving human subjects at Virginia Polytechnic Institute and State University, by the Department of Family and Child Development and the program director of FMRS Mental Health Council.

VIII. SUBJECTS RESPONSIBILITIES

I know of no reason I cannot participate in this study. I recognize I have the following responsibilities during this study:

- 1) to participate in two scheduled home interviews with the investigator
- 2) to sort the descriptive statements of the Attachment Behavior Q-Sort so the statements describe behaviors of my child
- 3) to participate in an interaction with my child where I will show my child how to play with a new toy

Signature

IX SUBJECT'S PERMISSION

I have read and understand the informed consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project. I have been provided with a copy of the consent form.

If I participate, I may withdraw at any time without penalty. I agree to abide by the rules of this project.

Should I have any questions about his research or its conduct, I will contact:

Investigator

Phone

Faculty Advisor

Phone

Chair IRB
Research Division

Phone

APPENDIX B

Overview of Focus of Interviews

A total of two interviews were completed with during this study. During these interviews the principles of long interviewing (McCracken, 1988) and ethnographic interviewing (Spradley, 1979) were used. Specifically long interviewing techniques of focusing and structuring were used and ethnographic questioning techniques (including descriptive, structural, and contrast questions). The following paragraphs define these techniques, outline the areas of focus for the interviewing and provide sample questions which were used in discussions with the parents.

Definitions of Techniques

Focusing & Structuring: process of interviewing which diminishes indeterminacy and redundancy by having the investigator make special preparations for using predetermined topics for questioning; it is more deliberate type of questioning which has a particular focus; Example: This involved identification of direction, focus and question content area prior to actually going to interview a study participant.

Descriptive Questions: involved requesting the study participant to talk about their experiences; there are six major types of descriptive questions: grand tour, mini tour, example, experience, native language, hypothetical and

feeling or opinion; these type of questions allowed the investigator to collect extensive data and also learn the "language" of the individual;

Example: Tell me about a typical day with your child.

Structural Questions: involve asking questions about how study participant has organized the knowledge they have about a particular area; Example: Explain to me the feelings you have about being the parent of a child with special needs.

Contrast Questions: involves asking questions about the differences or contrasts between two or more objects or events.

Example: What is the difference you notice when you child is expressing they love something as opposed to expressing they hate something?

Areas of Focus For Interviewing

Interview # 1:

The purpose for the first interview was to orient the parent to the project, establish a rapport, define the family support system, and gain basic information about the child.

Topics for discussion included:

1) Introduction & Orientation to Project

- 2) History of Onset of Recognition of Having a Child With Special needs
 - a. Narrative of the experience
 - b. Identification of feelings associated with experience
- 3) Identification of Social Support System of the Family
- 4) Explanation of a Typical Day for Child & Parent
- 5) Discussion of Child's Expressed Emotions
- 6) Identification of Child's Attachment Behaviors As Noted by the Parent

Interview #2

The purpose of this interview was to discuss the parent's sorting of the Attachment Behavior Q-Sort. Topics for discussion included:

- 1) Identification of Descriptive Statements Which Were Characteristic and Not Characteristic of the Child
- 2) Identification of Reasons Descriptive Statements Were Placed in the Neither Characteristic or Noncharacteristic of the Child
- 3) Identification of Terminology Which Influenced Parental Placement of Descriptive Statement
- 4) Identification of Descriptive Statements Which Frustrated the Parent When Identifying Placement
- 5) Identification of Limitations of the Child Which Influenced Placement Of Descriptive Statements

Sample Questions For Use In Interviewing

The following questions are examples of questions which were used in interviewing the parent:

- 1) Would you think back to when _____ was born.
Tell me about what you remember about that time period.
- 2) Tell me about how you first discovered _____ had some special needs that were different than other children.
- 3) Tell me about a typical day with _____.
- 4) Does _____ have a favorite toy? blanket?
- 5) When you return home after leaving _____ with someone, what does your child do?
- 6) When you leave the room, what does _____ do?
- 7) How do you know when _____ is _____.
(Insert feelings, i.e. mad, happy, sad, angry, frustrated)
- 8) How do you know _____ loves you?
- 9) Tell me how _____ responds when _____.
(Insert situations here)
- 10) When you put cards for the Q-Sort into piles, what thoughts came to your mind?
- 11) When you need help with _____, who do you ask?
- 12) Do you have a special person in whom you confide?
- 13) Tell me about the financial problems a parent who has

a child with special needs might experience.

- 14) If you need someone to _____, to whom would you turn? (Insert situations regarding financial assistance, physical help, etc.)
- 15) Who is the person with whom you have the most contact? (State other than spouse)

APPENDIX C

The following pages contain the coding system which was used for analyzing the structured interaction between the parent and child. The investigator spent time during the summer of 1993 with Dr. Margaret Fish (who is currently completing a three year study for the Office of Maternal Child on attachment behavior in Appalachian culture) gaining experience in the use of this method of coding.

Provided in this appendix is the narrative overview of the coding system as described by Dr. Fish followed by the actual scoring system which was used in this study.

Each study participant dyad's total interaction was analyzed with regard to frequency and quality of targeted behaviors occurring.

OVERVIEW OF CODING OF MATERNAL SENSITIVITY

Mother's sensitivity to the infant is based upon behavioral evidence of her being appropriately attentive to the child as well as appropriately and contingently responsive to his/her affect, current level of arousal, interests, and abilities. Sensitivity is evident when both the pace and the level of interaction are contingent upon the child's actions and responses. Essentially, a sensitive mother follows the child's signals rather than imposing her own agenda on him/her--behavior which allows the child to experience contingent responses from people and objects to his/her actions and affect. These experiences theoretically lead to feelings of self-efficacy and trust in relationships.

Lack of maternal sensitivity may be observed in two distinct, but not necessarily mutually exclusive, patterns of behavior which share the common element of not responding to the child's signals. Some mothers evidence insensitivity by ignoring (missing) the child's bids for interaction, not responding to the child's affective signals, and by failing to provide an appropriate level or amount of stimulation. These mothers are under-responsive in terms of their contingent responsiveness and provision of developmentally appropriate stimulation to the child. In the context of the laboratory, when we have instructed the mother to play with the child, truly unresponsive behavior, in the sense of

ignoring the child's bids for attention, is not likely to occur. The type of under-responsive, not "tuned in" mother behavior seen in the free play situation is not codable as unresponsive in the sense that what is seen is more the omission of sensitive behavior rather than the commission of an unresponsive act. Under-responsive mothers "miss" the child's looks to them or reaches for a toy, and their timing is out of synchrony with the baby's affect and responses. They may also do things like expressing expectations that the child will do something which is obviously developmentally beyond his/her capabilities or positioning the child so that he/she cannot reach or manipulate a toy. Such behavior results in low sensitivity scores, because even though the mother is doing something, she isn't tuned in to the child. (Truly unresponsive behavior, seen for example in ignoring cuing or bids for attention, is more likely to occur in the naturalistic setting of home or when we give the mother a competing task in the lab setting. Therefore, the tape interviews will be coded for unresponsive behavior. Also, mother's response to child's fuss/cry behavior during free play will be noted because "performance oriented" moms show low sensitivity to child's negative affect in this situation.)

The second type of insensitive behavior, which is codable, because it consists of commission of observable acts of behavior, is intrusive, over-controlling maternal

behavior. This type of insensitivity occurs when mother addresses her own agenda at the expense of the child's. When the child gives signals that are ignored by mother in order to do what she wants to do, which appears to be contrary to what the child wants, then mother's behavior is considered intrusive or overcontrolling. Intrusive overcontrolling mothers may overload the child with stimulation and are insensitive to signals from the child that the pace and level is overwhelming, disorganizing, or distressing to him/her. They may persist with physically intrusive (in your face) activities that the child gives no evidence of enjoying. They may also dominate the interaction, rather than allowing the child to have some influence. For instance, mother may get out new toys when she is tired of the present one, although the child is still interested. Mother may physically control and pull away toys the child wants to manipulate.

It is important to be aware that most often intrusive, overcontrolling behavior is done with good intentions and in a pleasant, not a negative way. The question is not so much does the mother mean well, as is she tuned into and responsive to the signals her child gives? Does she pay attention and respond to the child's interests, goals, and affect or does she not attend to the child's signals and impose her own agenda on the child?

Behavioral Evidence of Each Type of Interaction

Sensitive Interaction

The key defining characteristic of sensitive interaction is that it is child centered. The sensitive mother is tuned in to her capabilities and allows this awareness to guide her interaction (rather than, as is sometimes the case, the perceived demands of the task or the presence of a camera). If the child is upset or uninterested, mother takes time to soothe, calm, or reengage the child in a manner than demonstrates sensitivity to the child's mood before attempting to proceed with free play or teaching a task. In free play the sensitive mother 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. Mother doesn't persist with an activity or toy in which the child clearly is not interested nor does she terminate an activity abruptly which the child obviously is enjoying. A sensitive mother provides stimulation that is developmentally appropriate and facilitates exploration and actions which the child is capable of achieving. She may encourage the child to reach for or manipulate an object but not evidence expectations that he/she will do something clearly beyond developmental capabilities. She provides him/her with contingent vocal stimulation, acknowledging the child's interest, efforts, affect, and accomplishment.

Sensitive interaction is well timed and paced to the

child's responses, a function of its child centered nature. Mother paces games or toy presentation to keep the child engaged and interested, but also allows him/her to disengage if highly aroused to calm down and reorganize his/her behavior. 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 mother switches to a new tactic or toy and observes the child's reaction. Sensitive mothers are responsive to fussing and crying in an accepting and soothing manner.

Specific behaviors characterizing sensitive interaction

- providing an appropriate level of stimulation when needed
- acknowledging and responding to child's affect
- contingent vocalization about what the child is doing
- facilitating the manipulation of an object or child movement
- appropriate soothing and attention focusing
- evidence of good timing paced to child's interest and arousal level
- picking up on the child's interest in toys or games
- shared positive affect
- encouragement of child's efforts
- giving the child time to explore a toy he is interested in and is managing competently on his own

--maintaining a connection to the child by vocalizing
--recognizing when the child is bored with or doesn't like something and making an appropriate change

Intrusive, Over-Controlling Interaction

Intrusive, insensitive interaction is definitely not child centered but mother centered. It is not uncommon for these mothers to verbalize their task-oriented or camera-oriented concerns which supersede the interests of the child. Negative affect or comments because the child isn't doing what the mother wants are indicative of lack of sensitivity and may accompany over-controlling behavior.

The prototypic intrusive mother imposes her agenda on the child despite signals from the child 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 over-stimulation--if the child responds positively with sustained interest and is not engaging in defensive behaviors. It is when the child's gaze averts, turns ways or expresses negative affect and mother continues or escalates her activity that intrusive behavior is evident. Over-stimulation is also apparent when mother does not allow the child a "turn" or an opportunity to respond at his/her pace. Some intrusive mothers persist in demonstrating toys to the child long after they have gained the child's interest and

the child obviously wants to manipulate the toy him/herself. These mothers appear unable to relinquish control of the interaction in order to facilitate the child's exploration or regulation of the activity. Another controlling, intrusive behavior is displayed by mothers who overwhelm the child with a rapid succession of toys or approaches without paying attention to the child's responses or without allowing him/her time to react to one before going on to another. Very commonly seen intrusive behavior is mother's tendency to lose interest in a toy before the child does and either remove the toy or distract the child's attention to a new one when the child has not lost interest in what he was doing. (Basically, mother is bored so it's time to move on to something else--definitely evidence that her agenda is being addressed, not the child's.)

Specific behaviors characterizing intrusive, over-controlling interaction

- failing to modulate behavior that the child turns away from, defends against, or expresses negative affect to
- offering a continuous barrage of stimulation or toys overwhelming the child rather than observing his/her reaction -not allowing the child to influence the pace or focus of play or interaction by ignoring what the child shows interest in or by presenting a new toy while the child is still focused on another
- taking away objects while the child still appears

interested (mother's attention span seems shorter than the child's)

--not allowing the child to handle toys he/she reaches for
--pulling the child's hand (s) off objects he/she is holding
--intrusive physical manipulations, such as grabbing the child's face and moving it back when child has turned away
--making the child manipulate something (shaking the child's hand with rattle in it) unless child gives/has positive response; this behavior is over-controlling when it involves an object the child is able to control him/herself

Levels of Coding Sensitivity and Intrusiveness**

As indicated on the coding form, the 4 point scale reflects both frequency and intensity of specific behaviors observed during coding period. A zero is coded when there is not evidence of the behavior. One indicates one occurrence or a low level of the behavior. Two reflects more than one occurrence, a moderate level or a more prolonged example of the behavior than would be coded for a one. A three is coded when the behavior occurs at a very high level, is quite intense or prolonged, or occurs repeatedly (three times or more in the coding period). In practice, the range of behavior encompassed by two tends to be broader than by one or three.

****Please note since this is an overview of the coding**

system, it identifies four levels of coding. In the actual coding of each category of behavior, not all categories are scored with four levels (i.e. in Coding Maternal Behavior, the category of Sensitivity has four levels but the category of Positive Affect has only three levels). It should be noted that Dr. Fish also on some categories defined a fifth level. However, this level has been omitted in the designing of the coding system for this study because it was noted during my training experience that most discrepancies with regard to establishing interrater reliability were with regard to distinguishing between the four and fifth levels of scoring as subjectivity tended to enter into the scoring process when attempting to differentiate between these levels and no real objective distinction could be made between these two levels.

Coding of Maternal Behavior

(Actual Coding System To Be Used In Study)

The narrative record of the structured observation of the mother using a toy to interact with the child was analyzed in regard to the mother's facilitation of attention, sensitivity, intrusiveness, positive effect, negative effect, and response to crying.

Facilitation of Attention

To what extent and how skillfully did the mother facilitate the child's response to the object through such behavior as:

- 1) positioning the child so that he/she can see the object and is comfortable,
- 2) drawing the child's attention to the object verbally (i.e. see the toy, etc.) or by pointing at or tapping it,
- 3) contingently responding to the child's behavior (i.e. you see the toy, etc.)

Ratings: 1 = low or inadequate, little facilitation, or behavior that doesn't help the child focus on the object (i.e. behavior which is poorly timed or inappropriate)

2 = moderate or adequate facilitation, based on the child's response

3 = high, mother does quite a bit of appropriate and well timed facilitative behavior and seems

especially tuned in to the child i.e. refocusing the child's attention when he/she loses interest, waiting for child's response to toy, etc.)

Positive Affect

How much does the mother smile or laugh during the episode?

Ratings: 0 = none

1 = once

2 = more than once or one very intense or extended occurrence

Negative Affect

To what extent does the mother show negative affect or behavior? This includes speaking to the child in an impatient or unpleasant tone of voice, using negative terms, and handling the child roughly. (An exchange is negative when it is one you wouldn't care to experience).

Ratings: 0 = none

1 = once, low level

2 = more than once or an intense or extended occurrence

Sensitivity

To what extent does the mother display sensitive interaction as described in "Overview on Coding of Maternal Sensitivity?" (To what extent does mother appear to be tuned

into and facilitating the child's agenda versus her own?)

Specific behavioral evidence of sensitivity includes:

- providing an appropriate level of stimulation when needed
- acknowledging and responding to child's affect
- contingent vocalization about what the child is doing
- facilitating the manipulation of an object or child movement
- appropriate soothing and attention focusing
- evidence of good timing paced to child's interest and arousal level
- picking up on child's interest in toys or games
- shared positive affect
- encouragement of child's efforts
- giving the child time to explore a toy he is interested in and is managing competently on his own (mothers who do this should be given credit for sensitivity to the child's interest and capability and not be scored 0 for just watching
- maintaining a connection to the child by vocalizing
- recognizing when an child is bored with or doesn't like something and making an appropriate change

Ratings: 0 = None observed

1 = Low, minimal sensitivity

2 = Moderate, more than one instance of the behaviors above or one prolonged or intense instance, clear evidence that mother is more

than minimally tuned into the child

3 = High, mother is very aware of the child and contingently responsive to his interests, affect etc.; good timing is evident

Intrusive, Over-Controlling Behavior

To what extent does mother display intrusive, over-controlling behavior, as described in "Overview Of Coding Of Maternal Sensitivity?" (To what extent is mother addressing her agenda and ignoring or over-riding the child's).

Specific examples of intrusive, over-controlling behavior include:

- failing to modulate behavior that the child turns away from, defends against, or expresses negative affect to
- offering a continuous barrage of stimulation or toys, overwhelming the child rather than observing his/her reaction
- not allowing the child to influence the pace or focus of play or interaction by ignoring what the child shows interest in or by presenting a new toy while the child is still focused on another
- taking away objects while the child still appears interested (mother's attention span seems shorter than child's)
- not allowing the child to handle the toy
- pulling the child's hand(s) off objects she is holding
- intrusive physical manipulations, such as grabbing the child's face and moving it back when child's turned away

-making the child manipulate something several times unless the child has given a positive response; behavior is overcontrolling when it involves something the child can control themselves

Ratings: 0 = None observed

1 = Low, one instance

2 = Moderate, more than one instance of the behaviors listed above or one prolonged or intense instance

3 = High, mother is extremely intrusive or overcontrolling

Response To Crying

Indicates the mother's response to child crying during the interaction.

Rating: 0 = Not Applicable/None Observed

1 = Maternal Response Somewhat Delayed or Not Appropriate such as ignoring crying

2 = Maternal Response Timely & Appropriate

Coding of Child Behavior

(Actual Coding System To Be Used In Study)

The narrative record of the structured observation of the child responding to the mother's introducing of a new toy was analyzed in regard to focused attention, social responsiveness, positive affect and negative affect.

Focused Attention

The score should reflect the child's predominant level of interest rather than a peak of interest which may be attained fleetingly.

- Ratings: 0 = None (The child does not look or pay any attention to the object; this is highly unlikely)
- 1 = Low (The child has limited interest in and reaction to the toy; frequently looks away, does not change expression, does not attempt to touch or manipulate the object)
- 2 = Moderate (The child seems fairly interested in the toy; looks intently for quite a bit of time; changes expression or vocalizes to self; usually touches or manipulates toy.
- 3 = High (The child appears highly interested in or reactive to toy; smiles, vocalizes, or touches the toy; gives positive affect to toy; frequently touches toy; looks away very little)

Social Responsiveness

For each time the mother attempts to stimulate the child with the toy, does the child look at the mother?

Ratings: 0 = No

1 = Yes

2 = Yes, while smiling or vocalizing

Positive Affect

How much does the child smile during the interaction?

Ratings: 0 = None observed

1 = Some (one instance of smiling or laughter)

2 = Extensive (Multiple occurrences or one very intense or prolonged instance)

Negative Affect

What type of vocalization occurred during the interaction?

Ratings: 0 = No negative affect observed

1 = Some (One instance of whining, whimpering, fussing or other negative vocalization)

2 = Extensive (Full blown crying, more than one episode of fussing, or continuous fussing or whimpering the entire time)

APPENDIX D

Table 1
Categorical Analysis of Attachment Q-Sort Statements

Category	Number of Statement Placed in Category*	Total Number of Statements in Category
Requiring Mobility	6, 14, 21, 25, 34, 35, 36, 37, 41, 43, 45, 46, 49, 51, 53, 59, 61, 68, 64, 84, 90	21
Emotions of Child	2, 3, 7, 8, 9, 10, 11, 13, 20, 22, 23, 24, 26, 27, 30, 38, 39, 44, 57, 62, 65, 71, 73, 75, 78, 79, 88	27
Child's Relationship With Other Adults	5, 12, 17, 48, 50, 58, 66, 67, 72, 76	10
Communication Patterns	15, 33, 42, 63, 69, 70, 80, 81, 87, 89	10
Ability to Understand	1, 18, 19, 29, 32, 77	6
Activity Involving Mother	28, 31, 47, 54, 55, 60, 74, 83, 86	9
Preference for Toy or Activity	4, 16, 40, 52, 56, 82, 85	7
Total Statements		90

*Each Attachment Behavior Q-Sort statement is numbered. This Column lists the specific number of the statement.

APPENDIX E

Table 2

Categorical Analysis of Maternal Q-Sort Statements

Category	Number of Statement Placed in Category*	Total Number of Statements In Category
Involving Contact With Child	16, 31, 39, 50, 57, 59, 66, 67, 71, 75, 77, 81	12
Meeting Physiological Needs	18, 32, 33, 44, 45, 46, 47, 48, 49, 51, 56, 61, 63, 65, 72, 78, 89	17
Mother's Feelings About Child	13, 15, 17, 21, 22, 23, 25, 27, 28, 36, 38, 69, 82, 84, 85	15
Communication Between Mother & Child	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 19, 20, 24, 26, 29, 30, 34, 35, 37, 40, 41, 42, 43, 52, 53, 54, 55, 58, 60, 62, 64, 68, 70, 73, 74, 76, 79, 80, 83, 86, 87, 88, 90	46
Total Statements		90

*Each Maternal Behavior Q-Sort statement is numbered. This Column lists the specific number of the statement.

APPENDIX F

Descriptive Definitions of Categories

For Attachment Behavior Q-Sort

Requiring Mobility	Task/behavior requires the child to make gross motor body movement involving physical mobility or visually track movement of others. Further broken down into five categories which are more descriptive of the behavior: Child & Mother Involving Mobility, Play & Movement, Visual Tracking (by child), Child Climbing or Arm Movement, and Child Independent Movement
Emotions of Child	Behavior described is an emotion which is displayed by the child. Further broken down into categories which are more descriptive of the behavior: Child Cries/Fussy, Child Upset, Acceptance of Comfort or Cuddling/Hugging Behaviors, Emotions Exhibited by Child
Child's Relationship With Other Adults	Behavior depicts the child engaging an activities with other

	adults in the environment
Communication Patterns	Behavior depicts verbal or nonverbal communication between the child and parent
Ability to Understand	Behavior describes interaction between the parent and child where the child must comprehend a verbal command to be able to complete a task
Activity Involving Mother	Behavior describes a specific type of exchange between the parent and child
Preference for Toy or Activity	Behavior indicates the child has a preference for playing with a toy or completing a specific activity

Descriptive Definitions of Categories

For Maternal Behavior Q-Sort

- Contact With Child** . . . Involves the mother displaying some type of contact with the child; contact may involve changing the environment to increase child's accessibility to the mother, engaging the child in games, or interrupting the child's behavior pattern
- Meeting Physiological Needs** . . . Involves meeting the basic needs of child such as feeding, diapering, hygiene needs, clothing needs, or promoting naptime; also involves creating an environment which is stimulating, interesting, safe, age appropriate, etc.
- Mother's Feelings About Child** . . . Behaviors are descriptive of the mother's feelings about emotions expressed by the child's emotions or motherhood; further broken down into three categories more descriptive about the relationship: **Emotions Displayed by Child, Feelings About Leaving Child With**

**Others, and Feelings Related to
Motherhood Role**

**Communication Between
Mother & Child**

Involves a wide range of behaviors where the mother and child are involved in exchanging verbal and nonverbal communication.

Categories include: **Interaction Behaviors, Ignoring of Behaviors, Maternal Interpretation of Infant Moods & Distress, Maternal Response to Infant Cues, and Maternal Communication About Baby and to the Baby**

APPENDIX G

Table 3

Unlike, Neither Like or Unlike, & Like Grouping of Categories of Attachment Q-Sort By Individual Families

Family/Child	Requiring Mobility*			Emotions of Child*			Relationships With Adults*			Communication Patterns		
	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like
Hypothetically Secure Child	5	9	7	12	12	3	4	5	1	4	2	4
Hill Family	0	19>	2	4	15	8>	3	5	2+	2	6>	2
Moore Family	0	17>	4	13+	3	11>	4	0	6>+	3+	3	4+
Parker Family	0	17>	4	11	7	9>	2	3	5>+	2	4>	4+
Roberts Family	6	5	10+	9	10	8>	3	3	4>+	3+	6>	1
Taylor Family	5	12	4	8	10	9>	3	3	4>+	7>	0	3
Walker Family	7	4	10+	8	10	9>	3	4	3>+	4+	2	4+
Brooks Family	6	11	4	11	4	12>	4	3	3>+	1	4>	5+
Johnson Family	5	10	6	10	7	10>	3	1	5>+	3+	3	4+
Foster Family	3	11	7+	13+	1	13>+	2	2	5>+	5+	3	2
Smith Family	2	3	16>	8	3	16>+	5	3	5>+	2	2	6+
Hypothetically Dependent Child	5	11	4	7	13	7	5	5	0	1	7	2

*Numbers listed under each category represent total numbers of statements placed in each grouping

> Denotes 50% increase in total number of statements in grouping as compared to hypothetical secure sort

+ Denotes 50% increase in total number of statements in grouping as compared to hypothetical dependency sort

Table 3 - Continued -

Unlike, Neither Like or Unlike & Like Grouping of
Of Categories of Attachment Q-Sort By Individual Families

Family/Child	Ability to Understand*			Activities Involving Mother*			Preference Toy/Activity*		
	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like
Hypothetically Secure Child	1	1	4	3	2	4	2	4	1
Hill Family	1+	3>	2+	3+	3	3	0	6	0
Moore Family	0	2	4+	2+	1	6>+	4>+	2	1+
Parker Family	0	5>	1+	0	3	6>+	2+	2	3>+
Roberts Family	5>	0	1+	0	4	5+	4>+	2	1+
Taylor Family	1+	1	4+	4+	2	3	2+	2	3>+
Walker Family	4>	1	1+	2+	2	5+	1	3	2+
Brooks Family	2+	3>	1+	3+	4	2	3+	1	3>+
Johnson Family	3>	3>	0	2+	3	4+	3+	3	1+
Foster Family	0	5>	1+	2+	4	3	4>+	2	1+
Smith Family	0	0	6+	2+	2	5>+	3+	2	2+
Hypothetically Dependent Child	0	6	0	1	6	2	1	6	0

*Numbers listed under each category represents total number of statements placed in each grouping

> Denotes 50% increase in total number of statements in grouping as compared to hypothetical secure sort

+ Denotes 50% increase in total number of statements in grouping as compared to hypothetical dependency sort

APPENDIX H

Table 4

Unlike, Neither Like or Unlike, & Like Grouping of Categories of Maternal Q-Sort By Individual Families

Mother	Contact With Child*			Meeting Physiological Needs*			Mother's Feeling About Child*			Communication Between Mother and Child*		
	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like	Unlike	Neither Like or Unlike	Like
Hypothetically Sensitive Mother	7	3	2	3	7	7	5	8	2	22	10	14
Hill Family	6	3	3	4	3	10	4	7	4>	18	16	12
Moore Family	7	4	1	3	6	8	8	2	5>	12	17>	17
Parker Family	5	5	2	4	9	4	5	3	7>	16	13	17
Roberts Family	5	5	2	2	9	6	8	4	3	15	12	19
Taylor Family	4	5	3	2	7	8	6	5	4>	17	16	13
Walker Family	4	5	3	2	10	5	5	4	6>	18	12	17
Brooks Family	8	3	1	4	7	6	2	8	5>	15	13	18
Johnson Family	7	2	3	4	3	10	7	2	6>	14	10	22>
Poster Family	6	4	2	2	7	8	3	6	6>	16	14	15
Smith Family	2	7	3	5	3	9	7	6	2	14	16	16

*Numbers listed under each category represent total numbers of statements placed in each grouping

> Denotes 50% increase in total number of statements in grouping as compared to hypothetical sort

APPENDIX I

Table 5

Comparison of Analysis of Hypothetical Secure Child's Sort
& Parental Sort of Statements in Attachment Q-Sort Categories
By Unlike, Neither Like or Unlike & Like Groupings

Category	Groupings*						Mixed	
	Unlike		Neither Like Or Unlike		Like		Hypothetically Secure	Parental Sort
	Hypothetically Secure	Parental Sort	Hypothetically Secure	Parental Sort	Hypothetically Secure	Parental Sort	Hypothetically Secure	Parental Sort
Requiring Mobility	5	1	9	14 >	7	5	0	1
Emotions of Child	12	8	12	4	3	8 >	0	7
Child's Relationship With Other Adults	4	2	5	1	1	4 >	0	3
Communication Patterns	4	1	2	4 >	4	3	0	2
Ability to Understand	1	0	1	2 >	4	2	0	2
Activity Involving Mother	3	0	2	3 >	4	4	0	2
Preference for Toy or Activity	2	1	4	2	1	1	0	3
Total Number of Statements Placed Into Groupings	31	13	35	30	24	27	0	20

*Numbers listed under each category represents total number of statements placed in each grouping

> Denotes 50% increase in total number of statements in grouping increased as compared to hypothetical secure sort

APPENDIX J

Table 6

Comparison of Analysis of Hypothetical Dependent Child's
& Parental Sort of Statements in Attachment Q-Sort Categories
By Unlike, Neither Like or Unlike & Like Groupings

Category	Groupings*							
	Unlike		Neither Like Or Unlike		Like		Mixed	
	Hypothetically Dependent	Parental Sort						
Requiring Mobility	1	5>	12	14	4	5	0	1
Emotions of Child	8	7	13	4	7	8	0	7
Child's Relationship With Other Adults	2	5>	5	1	0	4>	0	3
Communication Patterns	1	1	7	4	2	3	0	2
Ability to Understand	0	0	6	2	0	2	0	2
Activity Involving Mother	0	1	6	3	2	4	0	2
Preference For Toy or Activity	1	1	6	2	0	1	0	3
Total Number of Statements Placed In Category	13	20	55	30	15	27 >	0	20

*Number listed under each category represent total number of statements placed in each grouping

> Denotes 50% increase in total numbers of statements in category for specific grouping as compared to hypothetical sort

APPENDIX K

Table 7

Comparison of Analysis of Hypothetical Sensitive Mother's
& Investigator Sort of Statements in Maternal Q-Sort Categories
By Unlike, Neither Like or Unlike & Like Groupings

Category	Groupings*					
	Unlike		Neither Like Or Unlike		Like	
	Hypothetically Sensitive	Investigator's Sort	Hypothetically Sensitive	Investigator's Sort	Hypothetically Sensitive	Investigator's Sort
Involving Contact With Child	7	7	3	2	2	3
Meeting Physiological Needs of Child	3	4	7	6	7	7
Mother's Feelings About Child	5	7	8	2	2	6 >
Communication Between Mother & Child	22	18	10	9	14	19 >
Total Number of Statements Placed In Groupings	37	36	28	19	25	35 >

*Numbers listed under each category represent total number of statements placed in each grouping

> Denotes total number of statements in category for specific grouping increased as compared to hypothetical sort

APPENDIX L

Table 8
Comparison of Descriptive Data of Study Participants

Family	Child's Chronological Age & Sex	Birth History	Diagnosis Made & Age of Child At Diagnosis	Length of Hospital Stay As Related to Diagnosis	Source of Initial Concern	Type of Family & Number in Family	Financial Assistance	Social Support
Hill	18 Months Female	38 wks 4# 3oz	Heart Anomaly, Cerebral Palsy, Cortical Visual Impairment & Severely Mentally Impaired 3 wks	10 wks	Hospital	Nuclear/Extended 8	Yes	Grandparents Early Intervention Staff Husband
Moore	19 Months Male	28 wks 2# 7oz	Cerebral Palsy, Moderately Mentally Impaired 14 months	7 wks	Mother/Doctor	Nuclear/Extended 5	Yes	Sister Husband
Parker	3 1/2 yr Male	40 wks 8#	Cerebral Palsy, Severely Mentally Impaired & Seizures 6 months	10 wks	Hospital	Nuclear 5	Yes	Friend Families Other III Children
Roberts	4 1/2 yr Male	42 wks 8# 10 oz	Mildly Mentally Impaired; Language Delay; R/O Seizures; Behavior Problems 2 1/2 yrs	0	Mother/Mental Health Center	Single 2	Yes	Maternal Grandparents Great Grandmother Friend
Taylor	2 1/2 yr Male	36 wks 5# 5 oz C-Section	Autism Language Delay 2 yrs	0	Parents/ Mental Health Center	Nuclear 3	No	Sister Husband Both Paternal & Maternal Grandparents

Table 8 - continued
 Comparison of Descriptive Data of Study Participants

Family	Child's Chronological Age & Sex	Birth History	Diagnosis Made & Age of Child At Diagnosis	Length of Hospital Stay As Related to Diagnosis	Source of Initial Concern	Type of Family & Number in Family	Financial Assistance	Social Support
Walker	4 years Male	40 wks 8# 10oz C-Section	Mildly Mentally Impaired Language Delay Behavioral Problems _____	0	Mother/ Mental Health Center	Nuclear _____ 4	Yes	Sister Maternal Grandparents
Brooks	15 Months Female	25 wks 1# 7oz	Cerebral Palsy, Moderately Mentally Impaired _____	12 wks	Mother/Doctor	Nuclear _____ 4	Yes	Maternal Grandmother Husband
Johnson	22 months Male	41 wks 10# 11oz	Mildly Mentally Impaired & AV Cerebral Stunt _____	12 wks	Hospital	Nuclear _____ 4	Yes	Maternal & Paternal Grandparents Husband
Foster	12 months Female	40 wks Unknown	Heart Anomaly Down's Syndrome _____	12 wks	Hospital	Single/Foster _____ 5	Yes	Maternal Grandparents- Foster Mother Male Friend
Smith	12 months Female	32 wks 2#	Developmental Delay _____	8 wks	Hospital	Nuclear/Father Previously Married _____ 3	No	Sister Husband

APPENDIX M

Table 9

Analysis of Hypothetical Sort of Attachment Q-Sort
Statements In Category of Requiring Mobility

Category*	Unlike	Neither Like Or Unlike	Like	Total Number of Statements
Child & Mother Involving Mobility	6,59,61	35,68	14	6
Play & Movement	34	43,49	36,41,90	6
Visual Tracking	25		21	2
Child Climbing or Arm Movement		51	53,64	3
Child Independent Movement		37,45,46, 84		4
Total In Grouping	5	9	7	21

*Each Attachment Behavior Q-Sort statement is numbered. The numbers listed in each Category represent the statement number.

APPENDIX N

Table 10

Analysis of Hypothetical Sort of Attachment Q-Sort
Statements In Category of Emotions of Child

Category*	Unlike	Neither Like or Unlike	Like	Total Number of Statements
Child Cries / Fussy	2,8,10,13, 26,38,75,88		71	9
Child Upset	65	24,73		3
Acceptance of Comfort or Cuddling/ Hugging Behaviors		3,78	11,44	4
Emotions Exhibited By Child	23,30,79	7,9,20,22, 27,39,57,62		11
Total By Grouping	12	12	3	27

*Each Maternal Behavior Q-Sort statement is numbered. The numbers listed in each Category represent the statement number.

APPENDIX O

Table 11

Analysis of Parental Sort of Attachment Q-Sort
Statements In Category of Requiring Mobility

Category*	Unlike	Neither Like Or Unlike	Like	Mixed Response
Child & Mother Involving Mobility	35	6,14,61	59	68
Play & Movement		34,36,41,43,49 90		
Visual Tracking		25	21	
Child Climbing or Arm Movement		51	53,64	
Child Independent Movement		37,46,84	45	

*Each Attachment Behavior Q-Sort statement is numbered. This Column lists the specific number of the statement.

APPENDIX P

Table 12

Analysis of Parental Sort of Attachment Q-Sort
Statements In Category of Emotions of Child

Category*	Unlike	Neither Like or Unlike	Like	Mixed Response
Child Cries / Fussy	8,26,38,75	13	71	2,10,88
Child Upset	65,73			24
Acceptance of Comfort or Cuddling/ Hugging Behaviors			3,11, 44,78	
Emotions Exhibited By Child	23,79	22,27,39	7,9,20	30,57, 62

*Each Maternal Behavior Q-Sort statement is numbered. The numbers listed in each category represent the statement number.

APPENDIX Q

Table 13

Attachment Behaviors Verbalized By Study Population

Behavior	Family Number in Study Population										Freq.
	1	2	3	4	5	6	7	8	9	10	
Comfort By Cue	X	X	X	-	X	X	X	X	X	X	9
Calm By Mother	X	X	-	-	-	X	X	-	X	-	5
Display Affection	-	X	-	X	X	X	-	X	-	X	6
Follow Mother	-	-	-	-	-	X	X *	-	X	X	4
Cuddle or Hold	X	X	-	-	X	X	X	-	X	X	7
Verbalize	-	-	-	X	-	X	-	-	-	-	2
Behavior Change When Left	X	X	-	-	-	X	-	X	-	X	5
Total Behaviors Per Family	4	5	1	2	3	7	4	3	4	5	

X - Indicates Mother States Behavior Occurs

*Mother States Child Keeps Visual Track of Mother From Room To Room

Family Numbers:

- 1 - Hill Family
- 2 - Moore Family
- 3 - Parker Family
- 4 - Roberts Family
- 5 - Taylor Family
- 6 - Walker Family
- 7 - Brooks Family
- 8 - Johnson Family
- 9 - Foster Family
- 10 - Smith Family

APPENDIX R

Table 14

Contingency Table For Quality of Maternal Behavior
During Interaction
Summary of All Case Studies

Family	Facilitates Attention	Sensitivity	Intrusion	Positive Affect	Negative Affect	Response to Crying
1	----	----	-----	----	----	----
2	2.0	1.6	0.0	1.8	0.0	2.0
3	3.0	1.0	3.0	1.4	0.0	N/A
4	2.8	3.0	0.0	0.2	0.0	N/A
5	3.0	3.0	0.0	1.0	0.0	N/A
6	3.0	3.0	0.0	0.6	0.0	N/A
7	2.6	2.8	0.0	1.4	0.0	N/A
8	2.6*	1.6*	0.0*	0.0*	0.0*	N/A*
9	2.4	2.0	0.0	1.2	0.0	N/A
10	2.8	2.0	0.0	1.0	0.0	N/A

*Father completed toy interaction

- Family Numbers:
- 1 - Hill Family
 - 2 - Moore Family
 - 3 - Parker Family
 - 4 - Roberts Family
 - 5 - Taylor Family
 - 6 - Walker Family
 - 7 - Brooks Family
 - 8 - Johnson Family
 - 9 - Foster Family
 - 10 - Smith Family

APPENDIX S

Table 15

Maternal Sensitivity Q-Sort Scores

Family	Maternal Sensitivity Score
Hill Family	.7106*
Moore Family	.6208*
Parker Family	.4892817*
Roberts Family	.6342638*
Taylor Family	.6548316*
Walker Family	.7414025*
Brooks Family	.778279*
Johnson Family	.443900*
Foster Family	.7481372*
Smith Family	.68955*

* $p < .0001$

APPENDIX T

Table 16

Mean Scores for Study Participants Attachment Behavior Security Sort, Maternal Behavior Sort & Sensitivity Score of Structured Observation

Family	Attachment Behavior Security Q-Sort	Maternal Behavior Q-Sort	Sensitivity Score from Structured Observation
Hypothetical Sort	4.95	4.98	0
Hill	5.1	4.95	0
Moore	5.35	5.0	1.6
Parker	5.5	5.05	1.0
Roberts	5.0	5.0	3.0
Taylor	5.0	5.0	2.8
Walker	5.12	5.02	3.0
Brooks	5.01	5.02	3.0
Johnson	5.0	5.15	2.6
Foster	5.0	5.07	2.6*
Smith	6.45	5.02	2.4

APPENDIX U

Table 17

Analysis of Hypothetical Sort of Maternal Q-Sort
Statements In Category of Feelings About Child

Category*	Unlike	Neither Like or Unlike	Like	Total Number of Statements
Emotions Displayed by Child	28,84	21,22,25 36,38	23 15	9
Feelings About Leaving Child With Others		82,85		2
Feelings Related to Motherhood Role	13,17,69	27		4
Total By Grouping	5	8	2	15

*Each Maternal Behavior Q-Sort statement is numbered. The numbers listed in each category represent the statement number.

APPENDIX V

Table 18

Analysis of Investigator's Sort of Maternal Q-Sort
Statements In Category of Feelings About Child

Category*	Unlike	Neither Like or Unlike	Like	Total Number of Statements
Emotions Displayed by Child	25, 28, 84	15	21, 22, 23, 36 38	9
Feelings About Leaving Child With Others	82		85	2
Feelings Related to Motherhood Role	13, 17, 27	69		4
Total By Grouping	7	2	6	15

*Each Maternal Behavior Q-Sort statement is numbered. The numbers listed in each category represent the statement number.

APPENDIX W

Table 19

Analysis of Hypothetical Sort of Maternal Q-Sort
Statements In Category Of Communication

Category*	Unlike	Neither Like Or Unlike	Like	Total Number of Statements
Interaction Behaviors	4,8,73,74, 76,87	30,35,79, 86,90	6,29,34, 53,54	16
Ignoring of Behaviors	62,68,88			3
Maternal Interpretation of Infant Moods & Distress	2,7,11,20, 52,70		5,58,60, 64	10
Maternal Response to Infant Cues	3		9,12	3
Maternal Communication About the Baby & To The Baby	19,26,41, 55,80,83	14,37,40, 42,43	1,10,24,	14
Total In Grouping	22	10	14	46

*Each Maternal Behavior Q-Sort is numbered. The numbers listed in each Category represent the statement number.

APPENDIX X

Table 20

Analysis of Investigator's Sort of Maternal Q-Sort
Statements In Category Of Communication

Category*	Unlike	Neither Like Or Unlike	Like
Interaction Behaviors	4, 8, 73, 74, 76, 87	30, 34, 74	6, 29, 35, 53, 54, 79, 86, 90
Ignoring of Behaviors	62, 68, 88		
Maternal Interpretation of Infant Moods & Distress	2, 7, 11, 20, 52, 70		5, 58, 60, 64
Maternal Response to Infant Cues		3	9, 12
Maternal Communication About the Baby & To The Baby	14, 19, 41, 80	10, 26, 42, 43, 55	1, 24, 37, 40, 83

*Each Maternal Behavior Q-Sort statement is numbered. The numbers listed in each Category represent the statement number.

APPENDIX Y

Table 21
Maternal Scores For Unstructured Observation

Area Assessed	Family Number In Study Population									
	1	2	3	4	5	6	7	8	9	10
Parent Response to Cues	3	3	3	2	2	2	3	2	3	3
Parent Accessibility to Child	3	2	3	2	2	2	2	2	2	2
Parent Anticipation	3	2	3	2	2	2	3	2	3	3
Mean Score Per Family	2.6	2.3	3	2	2	2	2.6	2	2.6	2.6

Score Equivalency:

- 0 = None Noted
- 1 = Little/Minimal Amounts
- 2 = Average Amounts Observed
- 3 = Above Average Amount Observed

Family Numbers:

- 1 - Hill Family
- 2 - Moore Family
- 3 - Parker Family
- 4 - Roberts Family
- 5 - Taylor Family
- 6 - Walker Family
- 7 - Brooks Family
- 8 - Johnson Family
- 9 - Foster Family
- 10 - Smith Family

APPENDIX Z

Table 22

Child's Scores For Unstructured Observation

Area Assessed	Family Number In Study Population									
	1	2	3	4	5	6	7	8	9	10
Affective Sharing	1	2	1	2	2	3	1	2	2	2
Comfort Seeking with Parent	1	2	0	2	3	3	2	2	2	2
Exploratory Behaviors	0	1	0	2	2	2	1	2	1	3
Mean Score Per Family	.67	1.7	.3	2	2.3	2.7	1.3	2	1.6	2.3

Score Equivalency:

- 0 = None Noted
- 1 = Little/Minimal Amounts
- 2 = Average Amounts Observed
- 3 = Above Average Amount Observed

Family Numbers:

- 1 - Hill Family
- 2 - Moore Family
- 3 - Parker Family
- 4 - Roberts Family
- 5 - Taylor Family
- 6 - Walker Family
- 7 - Brooks Family
- 8 - Johnson Family
- 9 - Foster Family
- 10 - Smith Family

APPENDIX AA

Table 23

**Contingency Table for Quality of Child Behavior
During Interaction**
Summary of All Case Studies

Family	Focused Attention	Social Responsiveness	Positive Affect	Negative Affect
1	-----	-----	-----	-----
2	2.6	1.4	1.2	0.6
3	1.0	0.8	1.0	0
4	2.0	0.4	0.0	0
5	3.0	1.4	1.4	0
6	3.0	1.2	0.6	0
7	2.4	0.8	1.2	0
8	2.0	0.0	0.0	0
9	2.0	0.0	0.8	0
10	2.6	1.0	1.0	0

- Family Numbers:
- 1 - Hill Family
 - 2 - Moore Family
 - 3 - Parker Family
 - 4 - Roberts Family
 - 5 - Taylor Family
 - 6 - Walker Family
 - 7 - Brooks Family
 - 8 - Johnson Family
 - 9 - Foster Family
 - 10 - Smith Family

APPENDIX BB

Table 24
Correlation Scores For
Attachment & Maternal Sensitivity Q-Sorts

Family	Attachment Score	Dependency Score	Maternal Sensitivity Score
Hill Family	.085316	.093753	.7106****
Moore Family	.4298****	-.100134	.6208****
Parker Family	.31453****	-.081799	.48928****
Roberts Family	-.079810	-.113386	.6342638****
Taylor Family	-.242183***	.016272	.6548316****
Walker Family	.075056	.424339****	.7414025****
Brooks Family	.196453**	.071895	.778279****
Johnson Family	.341276****	.032027	.443900****
Foster Family	.369404****	-.035144	.7481372****
Smith Family	.51296****	-.170402*	.689855****

* p < .05
 ** p < .025
 *** p < .01
 **** p < .0001

APPENDIX CC

Table 25

Attachment Scores For Unstructured Observation
Utilizing Attachment Q-Sort Categories

Category	Family Number In Study Population									
	1	2	3	4	5	6	7	8	9	10
Mobility of Child	0	1	0	3	3	2	1	3	1	2
Emotions Expressed by Child	0	3	1	3	2	3	3	2	3	3
Child's Relationship Other Adults	0	3	0	2	1	1	2	2	2	2
Child's Communication Patterns	1	3	2 *	1	2 *	1	1	1	1	3
Child's Ability To Understand	0	1	0	1	1	1	1	1	1	3
Child Engagement In Activities Involving Mother	1	2	1	2	1	2	1	1	1	3
Child Has Preference for Toys/Activities	0	2	1	2	1	2	1	1	1	3
Mean Score Per Family	.4	2.1	.7	2	1.6	1.7	1.4	1.6	1.4	2.7

Score Equivalency:

- 0 = None Noted
- 1 = Little/Minimal Amounts
- 2 = Average Amount Observed
- 3 = Above Average Amount Observed

Family Numbers:

- 1 - Hill Family
- 2 - Moore Family
- 3 - Parker Family
- 4 - Roberts Family
- 5 - Taylor Family
- 6 - Walker Family
- 7 - Brooks Family
- 8 - Johnson Family
- 9 - Foster Family
- 10 - Smith Family

*Children had impaired language with regard to ability to understand the child, but no decrease in verbalization

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