Maternal Responsivity to a Child with a Disability: A Comparison in Single- and Two-Parent Families

Kristin Bollwinkel
Utah State University

Follow this and additional works at: https://digitalcommons.usu.edu/etd

Part of the Family, Life Course, and Society Commons

Recommended Citation
https://digitalcommons.usu.edu/etd/2498
MATERNAL RESPONSIVITY TO A CHILD WITH A
DISABILITY: A COMPARISON IN SINGLE-
AND TWO-PARENT FAMILIES

by

Kristin Bollwinkel

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Human Development

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1995
ABSTRACT

Maternal Responsivity to a Child with a Disability: A Comparison in Single- and Two-Parent Families

by

Kristin Bollwinkel, Master of Science
Utah State University, 1995

Major Professor: Dr. Shelley Knudsen Lindauer
Department: Family and Human Development

The purpose of this research was to examine the differences between mothers in single- and two-parent families as they interact with their child with a disability. The sample consisted of 240 children with developmental disabilities and their mothers. Maternal interaction behaviors were measured using the Maternal Behavior Rating Scale. Demographic information, child characteristic measures, and family functioning variables were also considered. Analyses of covariance indicated that there were no differences between interaction behaviors of mothers in single- and two-parent families. However, relationships between income, education, and family cohesion, and the types of interactions displayed between mother and child were found. The results of this study have implications for intervention specialists who work with children with disabilities. The importance of examining the family context in order to determine how to
best tailor a treatment program to fit the need of the family is discussed.

(105 pages)
ACKNOWLEDGMENTS

This thesis would not be complete without thanking those people who assisted to make it a reality. My deepest gratitude goes out to my family, especially Mom and Dad, and friends. Their endless support, encouragement, and realization of the possibility of this accomplishment bolstered me along the way. I wish to acknowledge Dr. Shelley K. Lindauer, Dr. Glenna C. Boyce, and Dr. Don Sisson for sharing their valuable time and expertise. More specifically, I thank Shelley for believing in me, not only as I put this thesis together, but as I participated in the graduate program, taking advantage of opportunities to grow and cultivate newly discovered talents. Thanks also goes out to Glenna Boyce. Much was gained from her as she shared her knowledge of statistics and writing. Finally, without the guidance and support of my best friend, I could not have accomplished so great a task. Thank you.

Kristin Bollwinkel
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vii</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>REVIEW OF THE LITERATURE</td>
<td>5</td>
</tr>
<tr>
<td>PURPOSE AND OBJECTIVES</td>
<td>21</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>23</td>
</tr>
<tr>
<td>RESULTS AND DISCUSSION</td>
<td>42</td>
</tr>
<tr>
<td>CONCLUSION</td>
<td>61</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>63</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>75</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>34</td>
</tr>
<tr>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>6</td>
<td>46</td>
</tr>
<tr>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>9</td>
<td>51</td>
</tr>
<tr>
<td>10</td>
<td>52</td>
</tr>
<tr>
<td>11</td>
<td>54</td>
</tr>
<tr>
<td>12</td>
<td>55</td>
</tr>
</tbody>
</table>

**LIST OF TABLES**

1. T Tests for Demographic Variables of Single- and Two-Parent Families
2. Sample Distribution Across the Six Research Sites
3. Factor Analysis of the Maternal Behavior Rating Scale
4. Description of Measures Administered
5. ANCOVA on Affective Maternal Behaviors by Marital Status and Ethnicity
6. ANCOVA Means and Standard Deviations for Affective Maternal Behaviors
7. ANCOVA on Responsive Maternal Behaviors by Marital Status and Ethnicity
8. ANCOVA Means and Standard Deviations for Responsive Maternal Behaviors
9. ANCOVA on Performance-Orientation Maternal Behaviors by Marital Status and Ethnicity
10. ANCOVA Means and Standard Deviations for Performance-Orientation Maternal Behaviors
11. ANOVA on Directive Maternal Behaviors by Marital Status, Ethnicity, and Intervention
INTRODUCTION

Problem Statement

Many researchers have noted that the number of children with disabilities is disproportionately higher among single parents. Although not consistent across studies, researchers have suggested that poor prenatal care, younger ages and low socioeconomic status among unwed mothers, and a higher incidence of divorce for families with a disabled child may contribute to this phenomenon (Bristol, Schopler, & McConnaughey, 1984; Sameroff & Chandler, 1975). With regard to divorce, however, some researchers disagree with these findings: When social class is held constant, the divorce rate between families with and without children with disabilities is nonsignificant (Wickler, Haack, & Intagliata, 1984). Gath (1978) further clarifies that the arrival of a baby with a handicap may not debilitate a stable marriage, but the effects of the infant could “disrupt the balance of a moderate or more vulnerable marriage” (p. 105).

Despite these discrepancies, a significant number of single parents are rearing children with disabilities (Boyce, Miller, White, & Godfrey, 1995).

There are many additional stressors involved in raising a child with disabilities. Because of the increased role demands of a single parent, it has been suggested that the strain on a single mother raising a child with a disability is greater than the demands on a mother in a two-parent family (Dunst & Trivette, 1986; Goldberg, 1977; Holroyd, 1974; Jones, 1987; Simons, Beaman, Conger, & Chao, 1993; Weinraub & Wolf, 1983). These stressors
have been shown to affect the maternal interactions with the child and particularly her responsiveness, which subsequently affects the child's social and cognitive development (Goldberg, 1977; Goldberg, Lojkasek, Gartner, & Corter, 1989).

Conceptual Framework

The conceptual framework of this study is based on systems/ecological theory, and attachment theory, which is derived from evolutionary and ethological theories. In the systems/ecological framework, the family is seen as a system with interacting subsystems (i.e., the spousal, parental, and sibling subsystems). Contexts and transactions within the family and outside the family system impact or are influenced by family relationships or family members. Thus, all parts of the system are in constant flux due to the dialectical transactions taking place (Sameroff, 1983).

When considering the functions of parent-child interaction, it is important to look beyond the interaction patterns and consider the surrounding social and ecological forces that impact the interactions in different ways. Bronfenbrenner (1979) conceptualized family environments and distinguished them as mesosystems and exosystems. Mesosystems define the relationships between two or more systems in which family members function. An example of this would include the relationship between home and school or home and work place. Thus, participation in many settings outside the home can have positive
or negative effects on family functioning and individual development depending upon the compatibility or incompatibility of role demands and goals across settings. Exosystems are settings in which family members do not take part directly, but these settings establish some of the conditions of family life. An example of this would include the political and economic characteristics of the society. The characteristics of the exosystem can have either positive or negative impacts on families.

How stressors from external conditions affect families is determined by family moderators. These include degree of family functioning, incidence of marital conflict or divorce, levels of physical and mental health, education, income, and a myriad of other demographic factors (Bronfenbrenner, 1979).

On an individual basis, Sameroff’s (1975) transactional model addresses the changing nature of interactions or transactions. Based on previous interaction experiences with an individual, when a transaction takes place, family members bring these previous perceptions into the interaction. These perceptions affect the present transaction and influence future interactions. For example, the characteristics of a child with a disability or the severity of their developmental delay may impact the quality of interactions taking place between mother and child.

The ethological theory, as it supports attachment, focuses on the significant role played by the parent-child interaction in the development of the child (Ainsworth & Bowlby, 1991). The species-characteristics of the mother and infant are “built in” as part of the evolutionary adaptive process (Ainsworth,
Attachment, therefore, serves as a security and a biological survival-promoting function. The mother’s and infant’s behaviors are influenced by their biological nature, environment, and experience. Mother and child instinctively respond to each other’s signals. This primary relationship between mother and child is the beginning of the creation of internal working models of the world, of self, and of attachment figures (Ainsworth, Blehar, Waters, & Wall, 1978; Bretherton, 1987).

Children who have secure attachments, as a result of responsive mothering, develop a working model of their caregivers that includes a loving and responsive atmosphere (Ainsworth et al., 1978). This working model instills in children the capacity to create a loving and responsive atmosphere for themselves, which then influences positive relationship formations and overall social competence and developmental progress (Ainsworth, Bell, & Stayton, 1974; Ainsworth et al., 1978; Belsky, Lerner, & Spanier, 1984; Bornstein & Tamis-LeMonda, 1989; Laosa, 1981).

Considering these frameworks, the role that family, child, and environment play in fostering quality parent-child interactions is obvious. The quality of interactions, in turn, results in detrimental or optimal developmental outcomes.
REVIEW OF LITERATURE

This review of literature will discuss the impact of single- versus two-parent family status on mothers as they interact with their children with disabilities. First, research of mother-child interaction behaviors will be summarized. Within this summary, the impact of interaction behaviors towards normal developing children and children with delays will be revealed. Previous studies comparing mothers in single- and two-parent families will then be reviewed. Next, studies examining the challenges of rearing a child with a disability will be discussed. Factors influencing maternal interactions, specifically for the single parent, will then be outlined.

Maternal Interaction Behaviors with a Typically Developing Child

The study of attachment provides much of the information we presently know about mother-child interaction. The security of attachment is related to an array of maternal traits that are defined as “responsiveness” (Ainsworth et al., 1978). Maternal responsiveness in a relationship with a child has been emphasized in both empirical and theoretical literature as an important ingredient for healthy early development (Ainsworth, Bell, & Stayton, 1971). Studies have shown that mothers who are sensitive to infants’ signals and communications and are geared toward establishing reciprocal interactions tend to have securely attached infants (Ainsworth et al., 1978; Belsky, 1984). These mothers also have a balance between positive and negative feelings
and cheerfully accept the responsibility of their maternal role (Ainsworth et al., 1978). Maternal traits include being cooperative, but not interfering, while interpreting the interests of her infant in exploring a novel environment. Being aware of the infants' physical and interpersonal signals and needs and attending to those needs despite other demands are also deemed important ingredients for optimal early development (Ainsworth et al., 1971; Ainsworth et al., 1978; Belsky et al., 1984; Goldberg et al., 1989; Martin, 1989).

The discussion and investigation of appropriate parenting styles and/or behaviors has also been investigated from conceptual frameworks other than attachment. Early on, too much parenting control was discouraged (Baldwin, 1948). Parents were encouraged to be democratic in their relationship with their children. Later, Baumrind demonstrated that children need limits and guidance (Grusec & Lytton, 1988). Therefore, "appropriate" control was encouraged in addition to responsiveness to a child's needs and wants.

Baumrind (1973) claimed that parental discipline is composed of two dimensions, warmth and control. She made a distinction between firm control and restrictive, punitive control. She defined parental control as a measure of strict discipline assessed by parents' consistency in enforcing their rules, by structuring the child's activities, feeling in control of the child's behavior, and by effectiveness of control. Her three styles of parental practice include authoritarian, authoritative, and permissive (Baumrind, 1973).

When observing control, the authoritarian parent values obedience, believes in restricting the child's autonomy, and does not encourage verbal
give-and-take. The authoritative parent directs the child's activities in a rational, issue-oriented manner, respecting the child's autonomy and individuality. The permissive parent acts in an acceptant and kindly manner toward the child's impulses and actions, yet fails to use firm enforcement, lacking restraint (Baumrind, 1973).

Baumrind (1983) has suggested that authoritative parents, using a balance of high control and high responsiveness, provide an optimal environment for parent-child interactions. Too much control or too much permissiveness can be detrimental. Thus, it seems there is a threshold level that needs to be achieved (Baumrind, 1983). Maccoby and Martin (1983) have suggested that optimal levels of parenting must be linked to the child's developmental level, being high in intrusiveness and control when the child is immature and decreasing as the child becomes able to function more independently.

Ainsworth and associates (1978) described directiveness as cooperation-interference. The highly interfering mother is viewed as controlling and shaping her child's behavior, following her own prompting rather than taking cues from the child as to his/her wishes or activity-in-progress (Ainsworth et al., 1978). A cooperative mother respects her child as a separate person and avoids situations where she might have to interfere with the child's activity or exert direct control over her child (Ainsworth et al., 1978).

Mothers of secure infants tend to be more sensitive, accepting, cooperative, and psychologically accessible. On the other hand, mothers of
insecure infants are insensitive, rejecting, interfering, and ignoring (Ainsworth et al., 1978).

Maternal Interaction Behaviors When a Child Has Disabilities

It has been shown that children with, or at risk for, disabilities are affected developmentally by variations in maternal responsiveness and directiveness. The verbal and nonverbal behaviors of mothers used to regulate or direct the behavior and activity of their children with disabilities during interactions are defined as maternal control (Marfo, 1990, 1992). These control techniques are employed by mothers to direct behavior in certain ways, suppressing some propensities and augmenting others (Marfo, 1990, 1992).

For the normal developing child, the "ideal" amount of control exercised by the mother has long been a topic of debate. The issue of control and directiveness becomes a particular concern when children have disabilities. Research has indicated that mothers of children with disabilities are more directive than mothers of typically developing children (Rosenberg & Robinson, 1988). However, some researchers see this directiveness as an adaptation by the mother to the child's disabilities. Directiveness is viewed as not being inherently bad (Crawley & Spiker, 1983; Marfo, 1990; Rogers, 1988).

When discussing interactions of the mother and her child with a disability, the mother's recurrent use of verbal and nonverbal controls and directives is generally defined as directiveness. The results from studies investigating the
directiveness displayed by mothers with their children have found that mothers of children with disabilities were more directive than mothers of children without disabilities (Crawley & Spiker, 1983; Tannock, 1988). The claim was made that children with disabilities are exposed to a greater amount of directiveness. This led to the assumption that because children with handicaps were receiving more directive interactions with their mothers, their development outcomes were inhibited (Buium, Rynders, & Turnure, 1974). Thus, directiveness has been associated with disapproving implications.

As further investigations have been made into the role of directiveness, it has been noted that problems exist with this conclusion. First, the relationship of maternal directiveness influencing poor developmental outcomes in children with disabilities is merely a speculation. Very few studies have examined this relationship directly (Mahoney, Finger, & Powell, 1985).

Second, the conclusion fails to observe that parents and children are highly adaptive and responsive to each other's signals and characteristics (Marfo, 1990). Because of this, mothers of children with disabilities use goal-directed behaviors and make purposeful modifications according to the child's age, developmental competence, degree of involvement, and activity (Marfo, 1990).

Crawley and Spiker (1983) found that directiveness was not necessarily a negative feature of mother-child interactions. They concluded that directiveness and sensitivity are not necessarily mutually exclusive interactional styles; mothers can be directive and sensitive at the same time. Researchers are,
therefore, investigating how much directiveness is necessary to provide optimal learning environments and how much of it comprises excessive control resulting in negative impact (Marfo, 1990, 1992).

In light of the fact that mothers of children with disabilities are taught to stimulate, teach, and be an intervenor, these behaviors affect basic mother-child interactions. Because of responsive interactions, improved child developmental outcomes of attachment and mental development result for children with disabilities (Beckwith & Cohen, 1989; Crawley & Spiker, 1983; Goldberg et al., 1989; Goldberg, Perrotta, Minde, & Corter, 1986). Thus, maternal responsiveness is a primary influence on a child’s development and will be a focus of examination in this study.

The Challenges of Rearing a Child with a Disability

Research studies have found that families who care for a child with a disability or chronic illness face many challenges (Howard, 1978; Jones, 1987; McAllister, Butter, & Lei, 1973). Family relationships are altered as parents are spending a greater amount of time caring for their child with a disability. Family activities are modified to include the child at risk and the burden of care is increased as time-consuming tasks such as washing, feeding, dressing, and toileting are always in demand (Howard, 1978; Jones, 1987; McAllister et al., 1973). Mothers of children with disabilities spend almost twice as much time in child care activities as mothers of typically developing children (Barnett &
Boyce, in press). Financial strains may be magnified because of special equipment needs such as wheelchairs. Housing accommodations for the necessary equipment, and accumulating medical bills due to required medical care for the child also pose as a strain (Jones, 1987). Potential social isolation because of insufficient time or energy left to participate in activities with other adults may contribute to the stress experienced by these families (Barnett & Boyce, in press). Psychological well-being because of grief and worry about the child’s course of disease and future potential add to the burdens (Delcampo, Chase, & Delcampo, 1984; Jones, 1987; McCubbin & Patterson, 1983).

Studies Comparing the Challenges of Single- and Two-Parent Families

Previous studies have shown that because the financial, physical, and emotional demands of rearing a child with developmental disabilities can be challenging, the burden for single parents is thought to be even greater (Bristol, Reichle, & Thomas, 1987). Being a single parent usually results in an increased number of role responsibilities. For instance, a single parent may be the sole bread winner and caretaker. The demand of these roles influences differences in income, which may result in consequent financial strains. Variations in the age and amount of education affect the degree of challenges experienced (Boyce, 1992). Decreased amounts of support in the home from the lack of another adult and reduced social networks are additional consequences of single parenthood (Dunst & Trivette, 1986; Jones, 1987;
McCubbin, 1989; Simons et al., 1993; Weinraub & Wolf, 1983). With increased demands and stress, maternal responsiveness to the child with disabilities could be inhibited (Dunst & Trivette, 1986; Jones, 1987; McCubbin, 1989).

Many models have been created to explain the complex elements that affect how mothers interact with their children. Maternal-child interactions are thought to be affected by factors such as social support, resource availability, economic pressures, characteristics of the child, intervention strategies, and maternal characteristics. Maternal characteristics investigated include coping ability, psychological well-being, education, and age (Ainsworth et al., 1974; Belsky, 1984; Belsky et al., 1984; Crittenden, 1985; Dunst & Trivette, 1986; Goldberg, 1977; Lojkasek, Goldberg, Marcovitch, & MacGregor, 1990; McCubbin, 1989; Schilling, Kirkham, Snow, & Schinke, 1986; Simons et al., 1993; Wilfong, Saylor, & Elksnin, 1991). These factors will be discussed in the three groupings of demographic factors, mother’s perceptions, and characteristics of the child.

**Demographic Factors**

Income, education, and other life experiences have an effect on stress, well-being, and coping skills (Simons et al., 1993; Wilfong et al., 1991). Studies by Boyce (1992) and Simons and associates (1993) confirmed in their samples that single parents are often younger, are less educated, and have lower incomes than their married counterparts. Because of this, single mothers located in the lower social strata are more apt to experience negative events
and inadequate social support. An example of negative life events as they relate to income would involve the frustration of not meeting financial commitments such as paying for equipment, therapy, and medical care required by children with disabilities, in addition to daily living financial obligations. Because of the stress of continually striving to make ends meet, single parents also experience uneasiness and a lowered well-being as they are unable to anticipate a positive financial future (Dunst, Leet, & Trivette, 1988; McCubbin, 1989; Schilling et al., 1986).

Dunst and Trivette (1986), in studying mothers of developmentally at risk children, have found that maternal education level affected responsivity. More highly educated mothers were likely to demonstrate contingent responsiveness to their children’s behavior. It was also found that higher socioeconomic status mothers were also more likely to respond contingently to their children's behavior. The relationship of maternal interactions due to a higher education and socioeconomic status is confirmed by Wilfong and associates (1991), who added that higher social status is also linked to a lower incidence of depression. With reduced income and minimal education, a mother’s exposure to stressful events is increased. This then results in a decrease in important coping resources, which is related to psychological distress and inadequate parenting (Simons et al., 1993; Wilfong et al., 1991). Because many single parents suffer financially, they are at greater risk to incur depressive symptoms as a result of financial stress, which then may have a negative impact on parent-child relationships (Simons et al., 1993).
Lojkasek and associates (1990), in their study of preschoolers with Down syndrome and other neurological impairments, found that parental age was consistently the most powerful predictor of maternal responsiveness as mothers were being viewed in a play session with their child. They concluded that age was not so important as the experiences and qualities that accrue with age. Possibly older mothers have already had exposure to stressful experiences in other domains of their life and have developed more coping strategies than their younger counterparts (Lojkasek et al., 1990).

**Perceptions of Family Functioning and Well-Being**

The factors that contribute to the effectiveness of maternal responsiveness include an individual's perception of role responsibilities, support and resources available, coping abilities, and personal well-being (Dunst & Trivette, 1986; Jones, 1987; McCubbin, 1989; Weinraub & Wolf, 1983). Dunst and Trivette (1986) found that the interactions of single mothers who were videotaped during a play episode with their child (handicapped and developmentally delayed) were less likely to manifest contingent responsiveness as compared with mothers in two-parent families with a child of similar status. These authors reported that increased role responsibilities likely decreased the mother's opportunity to participate in parent-child interactions, which, in turn, decreased opportunities to learn about her child's behavior tendencies (Dunst & Trivette, 1986).
In assessing social support, it has been found that for single parents with or without children with disabilities, being both the care provider and the wage earner resulted in more isolation and less consistent social contacts, less involvement in organizations and parenting groups, and less emotional support in their parenting roles (Weinraub & Wolf, 1983). The single parent, in general, lacks the social contact and practical and emotional supports within and without her own home that might be available to a mother in a stable marriage (Jones, 1987; Weinraub & Wolf, 1983).

One study of single- and two-parent families who had children with varying degrees of cerebral palsy found that, for the single parent, role overload, stress, and financial difficulties were factors that reduced the mother’s coping behaviors related to maintaining family integration, cooperation, and optimism (McCubbin, 1989). A significant difference was also found in the financial well-being. Financial difficulties affect the mother’s overall well-being, which, in turn, influences interactions with her children (McCubbin, 1989).

However, McCubbin (1989) reported that in other areas of family functioning there were no differences between mothers in single- and two-parent families. The areas of functioning included family resources, mental health, and social support. It is important to note that the mothers in this study were older than the mothers in most of the studies reviewed and that half of the single mothers were widowed. This unique sample could contribute to the findings of a lack of differences between mothers of single- and two-parent families. Support from family members, friends, and other social network
members is positively related to the mother's well-being (Dunst et al., 1988; Simons et al., 1993).

When examining the influence of stress on psychological well-being and its importance in mother-child interactions, it has been shown that infants are sensitive to mothers' depressed mood. Wilfong and associates' (1991) study of infants born with varying degrees of neurological and learning disabilities indicates that infants at risk may be vulnerable to additional environmental risks when their mothers experience depressive symptoms. Mothers with depressed affect have greater problems responding to their children and offer a disruptive, rejecting home environment (Orraschel, Weissman, & Kidd, 1980), whereas mothers with improved well-being and health seemed to be more sensitive and less intrusive (Dunst & Trivette, 1986).

Child Characteristics

Child characteristics can also influence the quality and types of interactions between a mother and child. When observing the impact of the characteristics of the child, Dunst and Trivette (1986) found that a passive style of interaction between mother and her child with disabilities is related to the child's mental age and developmental ability. Children with higher developmental quotients, because they are more competent, seem to influence maternal passivity by exercising control over the situation rather than allowing the mother to be the initiator of interactions. Higher functioning children with disabilities have a richer repertoire of behaviors. This increases the likelihood
that mothers will display responsiveness during interactions, as the children create more opportunities for the mothers to give reinforcement (Beckwith & Cohen, 1989; Dunst & Trivette, 1986; Howard, 1978).

Goldberg (1977) has hypothesized that the predictable, readable, responsive infant has the potential for engaging the initially unresponsive parent into cycles of effective interactions by generating a feeling of parental competence. Similarly, the unpredictable, unreadable, unresponsive infant has the potential for placing the initially responsive parent in cycles of ineffective interaction by generating parental feelings of failure and helplessness. This suggests that whenever parents are confronted with an infant of limited capabilities, the potential risks of interactive failures are high. Lojkasek and associates (1990) found, in a sample of mothers with children with disabilities, that responsive mothers had children who were also rated as responsive. If the child is unresponsive, the mother may feel ineffective and eventually decrease her responsiveness (Goldberg, 1977). In addition, Belsky (1984) asserted that characteristics of the child that make them more or less difficult to care for do indeed seem to shape the quantity and quality of parental care they receive.

Methodological Limitations of Previous Studies

This review of literature has revealed the factors associated with and the challenges involved in raising a child with a disability. It specifically delineates
the differences between single- and two-parent families in providing an optimal environment for their child at risk.

Over the last 30 years, a number of studies have examined parents of children with disabilities. Sample size has always been a concern because obtaining a sufficient number of families of children with disabilities can be challenging for a researcher. As a result, many studies of children with disabilities have a limited sample size. In addition, identifying a homogeneous sample with an adequate number of single parents rearing a child with a disability can further complicate the process. Of the eight studies reviewed, the mean number of families involved was 50. All of the samples included fewer than 109 subjects (Crawley & Spiker, 1983; Beckwith & Cohen, 1989; Dunst & Trivette, 1986; Goldberg et al., 1989; Goldberg et al., 1986; Lojkasek et al., 1990; Tannock, 1988; Wilfong et al., 1991).

A limited number of these studies have examined the differences between single- and two-parent mothers (Boyce et al., 1995). Examples of studies that examined marital status, but did not consider maternal interactions, include Boyce (1992), McCubbin (1989), and Schilling and associates (1986). Other studies have examined parent-child interactions when the child presents delay or disabilities. Out of these studies, the Dunst and Trivette (1986) investigation was the only study to examine the effect of marital status. Marital status in this study, however, was part of a composite maternal characteristic score derived from principal components (maternal age, education, marital status, and employment status). The present study used a larger sample size
and investigated the maternal interaction behaviors of mothers of single- and two-parent families who have children with disabilities.

Behavioral observation is considered to be one of the most objective and reliable ways of collecting data (Ritter & Langlois, 1988). Over the last 20 years observational methodologies have become one of the primary ways to investigate maternal-child interactions. Behavior count systems and rating scales have been used to measure or score the mother-and-child interaction behaviors. Behavior count systems record gazes, touches, and/or vocalizations as they occur every second, minute, or other segment of time. They provide microanalytic information. With a rating scale, the behaviors are scored on a more global level. Often the observer watches the entire interaction segment and then rates the mother or child on a number of variables. For each variable or behavior, each point on the Likert-type scale is defined for the rater (Towle, Farran, & Comfort, 1988). Because children with disabilities often do not respond in a typical way, researchers have concluded that for dyads, global rating scales have been found to have better long-term predictive power than behavioral count systems (Jay & Farran, 1981). The rating scale used to rate the maternal-child interaction behaviors in this study, the Maternal Behavior Rating Scale (MBRS) (Mahoney, 1992; Mahoney & Powell, 1988), is a global rating system (see Appendix A). It has been previously employed in studies of mother-child interactions which have been published in peer reviewed journals (e.g., Mahoney et al., 1985; Rosenberg & Robinson, 1988).
The use of the MBRS to measure maternal interaction behaviors interfaces effectively with the framework of attachment theory. The scale assesses the amount of stimulation given to the child by the mother by measuring expressiveness, support, warmth, enjoyment, and acceptance, all of which are components of attachment theory. The amount of responsiveness, sensitivity, directiveness, and stimulation is also measured with the MBRS.
PURPOSE AND OBJECTIVES

The purpose of this study was to compare the affect, responsiveness, performance orientation, and directiveness of mothers in single- and two-parent families with their children with disabilities. Other variables that may also influence these maternal interaction behaviors with their children were examined. These include (a) demographic variables (e.g. age, education, marital status, income and socioeconomic status), (b) child's severity of disability, and (c) family functioning and interpersonal variables.

The following null hypotheses were proposed:

1. Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability, there will be no difference between mothers in single- and mothers in two-parent families in their affective (warmth, enjoyment, acceptance, inventiveness, expressiveness) maternal interactions with their child with a disability.

2. Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability, there will be no difference between mothers in single- and mothers in two-parent families in their responsive (sensitivity, effectiveness, and responsivity) maternal interactions with their child with a disability.

3. Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability, there will be no difference between mothers in single- and mothers in two-
parent families in performance-orientation (achievement orientation and praise) maternal interactions with their child with a disability.

4. Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability, there will be no difference between mothers in single- and mothers in two-parent families in their directive maternal interactions with their child with a disability.
METHODOLOGY

Design

This study compares interaction behaviors between mothers in single- and two-parent families, each of whom had a child with or at risk for disabilities. Additionally, the relationship of other variables, including demographic variables (e.g., education, age, ethnicity, income, their perceptions of family interaction and functioning, and child characteristics) to the mother’s marital status and to the interaction behaviors was examined. The sample was created from an extant data base of families having children with or at risk for moderate to severe disabilities. They were selected based on their involvement in research studies conducted by the Early Intervention Research Institute (EIRI) of Utah State University. These research studies were initiated between the years 1985 and 1988. The children and their families were then assessed annually for at least 5 years thereafter. Six of these EIRI studies included assessment of mother-child interaction. The children in the present study were videotaped for a 15- to 20-minute interaction period with their mothers. During this time, free play, story reading, clean up, and separation took place. The age of the child at the time of the videotaping ranged from 22 to 49 months.

Initial descriptive data analyses including group means and standard deviations of all variables were performed. *t* tests showed significant differences between single- and two-parent families on the age of the child, age
of the mother, years of education for the mother, yearly family income, and ethnicity (Table 1).

Sample Description

Mothers in single- and two-parent families were the major focus of this investigation. Single-parent mothers in this study are those who reported themselves as the child’s sole primary caretaker at the time of the study. Groups within the single-parent classification included separated (22%), divorced (18%), widowed (8%), or single or never married (52%). Mothers from two-parent families were defined as those who were married or living with someone (i.e., the child was living with a primary female and male caregiver).

The children in this sample entered the longitudinal studies at different ages ranging from 3 to 40 months. The diagnostic category was assessed at the time children entered the studies. Fifty-one percent of the children had experienced intraventricular hemorrhage (IVH). Intraventricular hemorrhage is a common complication of premature birth that has been associated with behavioral difficulties as well as varying degrees of neurological and learning disabilities (Garica-Coll et al., 1988; Pape & Wigglesworth, 1979). Eleven percent had visual impairments, 8% were developmentally delayed, 5% had Down syndrome, 5% had cerebral palsy (CP), 2% had language disorders, less than 1% had cognitive disabilities, and approximately 17% had other motor or
### Table 1

**T Tests for Demographic Variables of Single- and Two-Parent Families**

<table>
<thead>
<tr>
<th></th>
<th>Single N = 60&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Two-Parent N = 180&lt;sup&gt;a&lt;/sup&gt;</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of child in months at video taping</td>
<td>30.2 (5.1)</td>
<td>32.1 (5.8)</td>
<td>-2.24 *</td>
</tr>
<tr>
<td>Developmental Quotient (DQ)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>66.2 (20.5)</td>
<td>67.2 (23.5)</td>
<td>-0.29</td>
</tr>
<tr>
<td>Percent girls&lt;sup&gt;c&lt;/sup&gt;</td>
<td>45.0</td>
<td>43.9</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Mother/Family Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of mother in years</td>
<td>26.9 (6.1)</td>
<td>30.6 (5.6)</td>
<td>-4.33 ***</td>
</tr>
<tr>
<td>Years of education for mother</td>
<td>12.2 (2.1)</td>
<td>13.5 (2.0)</td>
<td>-4.31 ***</td>
</tr>
<tr>
<td>Percent of mothers employed&lt;sup&gt;c&lt;/sup&gt;</td>
<td>36.7</td>
<td>42.7</td>
<td>-0.82</td>
</tr>
<tr>
<td>Annual income (US$)</td>
<td>10,233 (12,885)</td>
<td>33,055 (22,717)</td>
<td>-9.52 ***</td>
</tr>
<tr>
<td>Number of siblings</td>
<td>1.2 (1.3)</td>
<td>1.4 (1.4)</td>
<td>-0.91</td>
</tr>
<tr>
<td>Percent Caucasian subjects</td>
<td>43.3</td>
<td>87.2</td>
<td>-6.35 ***</td>
</tr>
</tbody>
</table>

<sup>a</sup> Complete data were not available for each variable. For example, 173 of 180 two-parent families reported income.

<sup>b</sup> Child's age equivalent score:

\[
\text{DQ} = \frac{\text{Child's chronological age}}{100} \times \text{DQ}
\]

<sup>c</sup> Statistical analyses for these variables were based on a t test where those children of families having the trait or characteristic were scored “1,” and those not having the trait were scored “0.”

* * p < .05  
*** p < .001
health impairments. Since then, changes in the diagnostic categories have not been assessed. However, at the time of taping a portion of the children who experienced IVH during the neonatal period were presently diagnosed as having CP, visual or hearing defects, or other developmental delays.

One hundred and six girls and 134 boys participated in the study. They had an average age of 32 months (age range 22 to 49 months) at the time of the videotaping. Table 1 provides a comparison of demographic characteristics for the single and two-parent families.

The individual longitudinal studies at each site compared the effects of alternate intervention programs. The overall designs of these studies will be briefly discussed. All sites used similar research designs. In each site, subjects were randomly assigned to one of two different types of intervention. The first intervention was the typical intervention services received; the second type of intervention was an enhanced program. A random assignment procedure increased internal validity for this study. Diagnosticians were trained and certified early-childhood education specialists and special education teachers, physical therapists, and speech pathologists. They were "blind" to the hypotheses and group assignment.

Two sites focused on the effect of program variations. Examining the effect of variation of parental involvement on the development of children with disabilities was the purpose of the DDI (Developmental Disabilities, Inc. [Salt Lake City, Utah]) study. All children were attending center-based early intervention classes. Children were randomly assigned to center-based
intervention plus parent involvement or center-based intervention without parent involvement. Instruction in personal/social, adaptive, motor, language, and cognitive functioning was the focus of classroom activities. The children ranged in age from 23-61 months at the time the study started. The average age of the children at the time of the videotaping was 40 months. Those involved in the parent involvement component attended 15 weekly meetings. Parents were instructed on how to be intervenors, recognize growth and development milestones, manage behavior, be successful teachers, communicate with professionals, and manage stress. Time was provided for discussion of problems and concerns; thus the group functioned as a support group.

The Columbus/MF (Ohio) site consisted of medically fragile infants with a primary diagnosis of bronchopulmonary dysplasia (BPD). They entered the study while in the intensive care unit of the hospital. Their average age at the 2-week post-discharge assessment was 2 months (age corrected for prematurity). Mean chronological age was 4 months. The average age of the children at the time of the videotaping was approximately 27 months. Those who took part in the high-intensity intervention program received coordinated and comprehensive services consisting of pre-discharge hospital visits, medical follow-up clinics, extensive referral services, multidisciplinary center- and home-based intervention, and regular home visits. Intervention for the typical, or low-intensity children consisted of medical follow-up clinics and referral services
without the coordinated transition services or the office and home-based early intervention services.

Two sites investigated the level of intensity of the intervention, enhanced or typical. SMA-South Metropolitan Association, Lake McHenry (Illinois) involved children with disabilities. Their ages ranged from 4-30 months with an average age of 12 months when they entered the study. The average age of the children at the time of the videotaping was 31 months. The children participated in once-a-week or three-times-per-week 1-hour sessions in which the professional interacted with the mother and child on a one-to-one basis. These sessions focused on improving child development in the domains of personal/social, adaptive, motor, language and cognitive functioning, and helping the parents become better intervenors for their child.

Subjects of the NO/VI (New Orleans, Louisiana) study were eligible if visual impairment was the primary disability of the child and there were no other major disabilities. Their ages ranged from 2 to 30 months, with an average age of 14 months when they entered the study. The average age of the children at the time of the videotaping was approximately 35 months. The high-intensity group received weekly, home-based, parent-infant sessions tailored to the needs of the family and the child. These meetings focused on interactions with the child, developmental knowledge of visual impairments, and improving skills in encouraging child development. In the low-intensity program, parents attended 1-hour group meetings that were held approximately 12 times per year. The effects of visual impairment on cognitive, social, and temperament
domains were the focus of these gatherings. Individual treatment plans or activities were not provided.

Two sites investigated the age at which intervention began. SC IVH (Charleston, South Carolina) consisted of medically fragile infants with IVH. Infants were randomly assigned to begin intervention services at either 3 months or 12 months (age adjusted for prematurity-gestational age). The average age of the children at the time of the videotaping was approximately 28 months. Much like the South Carolina site, the Salt Lake City (Utah) site's medically fragile infants with IVH were also randomly assigned to begin enhanced intervention at 3 months, or typical intervention at 18 months (age adjusted for prematurity-gestational age). The average age of the children at the time of the videotaping was approximately 34 months. The early-start intervention program for children at both sites focused on sensorimotor intervention given by a physical therapist throughout the first part of the study. The second part of the study incorporated both groups of children. They received intervention for language, motor skills, self-help, and emotional skills via home visits from an early childhood specialist. Sensorimotor interventions were provided by a physical or occupational therapist as needed. Table 2 reports the distribution of pertinent demographic characteristics across sites.

Because of the varied interventions and the combination of data sets, it is important to look at the impact that these treatment programs had on the children. Having used interventions focusing on variations of program interventions, early or late start, and parent involvement or noninvolvement, the
Table 2

Sample Distribution Across the Six Research Sites

<table>
<thead>
<tr>
<th>Site and Location</th>
<th>N</th>
<th>Percent of Sample</th>
<th>Percent of Two-Parent Families</th>
<th>Percent Caucasian (per site)</th>
<th>Percent Caucasian Two-Parent (Total)</th>
<th>Mean Age at Taping (months)</th>
<th>Age Range (months)</th>
<th>Mean DQ (Develop. Quotient)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Variation Sites</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDI; Salt Lake City, UT</td>
<td>23</td>
<td>9.6</td>
<td>91</td>
<td>96</td>
<td>13</td>
<td>40.2</td>
<td>29.8-49.3</td>
<td>63.0</td>
</tr>
<tr>
<td>Columbus/MF; Columbus, OH</td>
<td>31</td>
<td>12.9</td>
<td>84</td>
<td>90</td>
<td>16</td>
<td>26.7</td>
<td>23.8-33.0</td>
<td>62.2</td>
</tr>
<tr>
<td><strong>Level of Intensity Sites</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO/VI; New Orleans, LA</td>
<td>26</td>
<td>10.8</td>
<td>58</td>
<td>73</td>
<td>8</td>
<td>35.2</td>
<td>23.0-48.6</td>
<td>74.9</td>
</tr>
<tr>
<td>SMA; Flossmoor, IL</td>
<td>53</td>
<td>22.1</td>
<td>81</td>
<td>91</td>
<td>27</td>
<td>31.1</td>
<td>22.1-42.8</td>
<td>54.5</td>
</tr>
<tr>
<td><strong>Age of Intervention Sites</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt Lake IVH; Salt Lake, UT</td>
<td>49</td>
<td>20.4</td>
<td>88</td>
<td>96</td>
<td>26</td>
<td>33.6</td>
<td>30.0-45.5</td>
<td>77.2</td>
</tr>
<tr>
<td>SC IVH; Charleston, SC</td>
<td>58</td>
<td>24.2</td>
<td>55</td>
<td>33</td>
<td>11</td>
<td>28.2</td>
<td>24.3-42.5</td>
<td>70.2</td>
</tr>
</tbody>
</table>
results of this study could be confounded. To reduce this, preliminary analyses were performed.

A chi-square test was completed with independent variables (single- vs. two-parent families) between the two intervention groups (enhanced vs. typical) for the entire sample. The results indicated that there were no statistically significant differences between the two groups on the independent measure. Similar analyses were conducted separately on each of the three types of intervention (program variation, intensity, and age-at-start). Results from these analyses also revealed no statistically significant differences between the treatment groups. When conducting a between-group analysis for each of the six sites separately, no statistically significant differences were found. Finally, t tests for independent means were performed between the two intervention groups for the entire sample, combined sites with similar interventions (program variation, intensity, and age-at-start), and individual sites. No statistically significant differences were found between the two groups of intervention on the dependent measures of affect, responsivity, and performance orientation. For the total sample, significance was found between the dependent measure directiveness and the two groups of intervention. Therefore, intervention was used as a factor in the final analyses of the dependent variable directiveness to control for its impact.

It is important to realize that a child with disabilities will have exposure to many intervention programs during childhood. In most studies conducted with children with disabilities, information on intervention programs such as the type
of resource used or the intensity experienced is not available. This study, because of its consistency in documenting treatment program information, is of empirical benefit. Thus, extensively verifying intervention details is ideal over and above not considering the impact of treatment programs. Based on this rationale and the preliminary analyses that determined nonsignificant differences for affect, responsivity, and performance orientation, it was determined that the data were suitable for further analyses.

Instrumentation and Procedure

Parent-Child Interaction

Maternal interaction behaviors were the dependent variables of interest for the present investigation. The maternal interaction behaviors were measured by the Maternal Behavior Rating Scale (MBRS) using a 5-point Likert scale. They include expressiveness, enjoyment, warmth, sensitivity to the child’s interest, responsivity, achievement orientation, inventiveness, praise (verbal), effectiveness, acceptance, pace, and directiveness (Mahoney, 1992; Mahoney & Powell, 1988) (see Appendix A). The MBRS (Mahoney, 1992; Mahoney & Powell, 1988) was devised to evaluate the effectiveness of an intervention program that focused on modifying patterns of interactions between parents and their young child with a handicap (Mahoney, Powell, & Finger, 1986). This scale assesses maternal interaction behaviors in mother-child dyads.
As is the case in the development of any scale, based on continuing research, the author, Gerald Mahoney, changed and modified the number of interaction behaviors used as he developed the scale. At first the scale included 18 aspects of behavior. The scale then was modified into a short form that included seven aspects (Mahoney et al., 1986). Next, the number of behaviors was expanded to 12 (Mahoney & Powell, 1988), resulting in the most efficient rating system. These 12 categories were factor analyzed using the maximum likelihood extraction and oblique rotation (Boyce, 1994). Table 3 shows the results of this analysis.

Three factors were identified: (a) affect; (b) responsivity; and (c) performance-orientation. The three factors accounted for 73% of the variance. Cronbach’s alpha resulted in reliability coefficients ranging from .61 to .88. To verify the factor loading, the sample was split by subject identification number (odds and evens), which provided two samples for replication purposes. The same factors were identified, and the loadings were consistent with the factor analysis reported.

Each variable of the 12 variables was given a Likert scale rating of 1 to 5. These individual rating scores were then summed within the factor and divided by the number of variables in the factor.

The affect score was the total of the mother’s ratings on expressiveness, warmth, enjoyment, inventiveness, and acceptance; all of these scores loaded at .69 or above on Factor 1. Theoretically, they all fit together well as aspects of the mother’s emotional feelings toward the child. Inventiveness may be the
exception. It is defined as the range of stimulation parents provide their child, which includes the number of different approaches and types of interactions and the ability to find different toys or games to interest the child. But based on

Table 3

**Factor Analysis of the Maternal Behavior Rating Scale**

<table>
<thead>
<tr>
<th>Behavior Variables</th>
<th>Affect</th>
<th>Responsivity</th>
<th>Performance Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
<td>Factor 2</td>
<td>Factor 3</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>.88</td>
<td>.16</td>
<td>.08</td>
</tr>
<tr>
<td>Warmth</td>
<td>.87</td>
<td>-.07</td>
<td>-.10</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>.84</td>
<td>-.05</td>
<td>.06</td>
</tr>
<tr>
<td>Inventiveness</td>
<td>.78</td>
<td>-.05</td>
<td>-.02</td>
</tr>
<tr>
<td>Acceptance</td>
<td>.69</td>
<td>-.35</td>
<td>-.10</td>
</tr>
<tr>
<td>Directiveness</td>
<td>.02</td>
<td>.86</td>
<td>.22</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>.24</td>
<td>-.78</td>
<td>.17</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>.16</td>
<td>-.77</td>
<td>.28</td>
</tr>
<tr>
<td>Responsivity</td>
<td>.33</td>
<td>-.73</td>
<td>.07</td>
</tr>
<tr>
<td>Pace</td>
<td>.44</td>
<td>.67</td>
<td>.21</td>
</tr>
<tr>
<td>Achievement Orientation</td>
<td>-.12</td>
<td>.09</td>
<td>.88</td>
</tr>
<tr>
<td>Praise</td>
<td>.03</td>
<td>-.13</td>
<td>.78</td>
</tr>
<tr>
<td>Alpha</td>
<td>.89</td>
<td>.84</td>
<td>.59</td>
</tr>
<tr>
<td>Total Alpha</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Variance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained</td>
<td>.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Principle Component Extraction, Oblique Rotation
the factor analyses, it has been included in this affect score. In general, affect represents the feeling tones of the mother's behaviors during the interaction sequence.

The responsivity score includes the variables of responsiveness, sensitivity, and effectiveness, all of which load at .78 or higher on Factor 2. Responsiveness and sensitivity are seen in the literature as being aspects of the mother's ability and/or willingness to be aware of the child's needs and desires and respond in appropriate ways. Effectiveness is defined by Mahoney as the parent's ability to engage the child in the play interaction. Conceptually, it is part of the construct of responding to the child. Responsivity also includes the appropriateness of the parent's responses to the child's behaviors, which include facial expressions, vocalizations, signs of discomfort, body language, demands, and intentions. The pace of the parents' behavior as it appears separately from the child, ranging from inactive behavior to extreme rapid fire, is also considered.

The performance-orientation score was the sum of the ratings on the achievement-orientation and praise variables loading at .78 or higher. Achievement orientation was the rating on the amount of encouragement or stimulation of sensorimotor and cognitive development through play, instruction, or training. Verbal praise was given to the child for compliance, achievement, or for the child being him/herself. Performance-orientation was seen as an important variable to investigate because through most of the early intervention
programs mothers are taught and encouraged to stimulate and encourage their children’s cognitive development (Gillette, 1992; White et al., 1992).

Directiveness and pace also load on Factor 2, but in the opposite direction from responsivity, sensitivity, and effectiveness. They could be reverse scored and included in the responsiveness score, but because researchers (e.g., Crawley & Spiker, 1983; Marfo, 1990) continue to be very interested in the effects of mother’s directiveness when children have disabilities, and the opposite direction of the directiveness score to the other variable scores, it was decided to examine the effect of directiveness by itself, by using the rating of this one item. Examinations of correlation analyses, Cronbach’s alpha, and factor analyses revealed that pace, because of its large spread from directiveness and its opposite direction from the other variables, did not contribute to the variables being studied and was thus eliminated.

The children at each site were videotaped for a 15- to 20-minute interaction involving mother-child dyads. During this time a period of free play, story reading, clean up, and separation took place. This was done either at the center in which the child attended regularly or in the home. Regardless, it was completed in an environment familiar to the mother and child. Of the filmed interactions, the 10 minutes of free play were coded. All of the diagnosticians who conducted the taping were trained and worked under the direction of Gerald Mahoney, the author of the scale. They followed a standardized protocol that consisted of uniform play materials and directions given to the mothers (see Appendix B). The tapes were coded using the Maternal Behavior
Rating Scale (MBRS) (Mahoney, 1992; Mahoney & Powell, 1988). Interrater reliability ratings were performed, resulting in item-by-item agreement equalling .60. The ratings of the original rater were used in the case of discrepancies; however, agreement within one point equalled .96.

Videos from the EIRI data set were previewed to eliminate filmed interactions with father and child, grandmother and child, or father, mother, and child in order to create a more homogeneous sample. Only those videos with mother and child were included in this investigation.

Child and Family Functioning Measures

The Battelle Developmental Inventory (BDI) (Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984) was administered to the children to measure child developmental functioning. Test-retest reliabilities as reported in the BDI range from 0.84 to 0.99 for domain scores. Interrater reliabilities average 0.87 (White, 1987). Concurrent validity is strongly established as it correlates with other early development measures (McClean, McCormick, Bruder, & Burdg, 1987). The BDI developmental quotients used in the analyses were computed DQs (child's age equivalent score / child's chronological age x 100), as recommended by Boyd (1989).

The measures administered to the parents of the children in the study included a measure of parenting stress, family support, family resources, life events and changes, family adaptability and cohesion, and a family information survey to provide demographic information. The child measures and family
functioning and demographic measures used in the present study are summarized in Table 4. The Parenting Stress Index (PSI) (Abidin, 1983) assesses parental perceptions of stress relating to the parent-child system. Two domain scores are provided: child-related stress and stress in other areas of the parent’s life (e.g., depression, isolation, health). This test has been normed on a total of 2,633 parents. Test-retest coefficients have ranged from 0.55 to 0.82 for child-related stress and 0.69 to 0.91 for the parent-related stress (Abidin, 1990). Concurrent validity of the PSI has been investigated by comparing the measure to the Questionnaire on Resources and Stress (QRS) (Holroyd, 1974), and results showed that the two are strongly and positively related to each other ($r = 0.63$ between total PSI and QRS scores) (Sexton & Scott, 1990).

The Family Support Scale (FSS) (Dunst, Jenkins, & Trivette, 1984) was administered to determine the availability of sources of support in addition to perceived helpfulness of the sources of support provided to families rearing young children. The coefficient alpha reliability for this measure is 0.77, and 0.85 with the total scale score. Test-retest reliability was substantiated by short-term stability coefficients of 0.91 for total scale scores (Dunst, Trivette, & Jenkins, 1988). Criterion validity of the FSS was revealed by the predictability of personal and family well-being, number of parent-child interactions, and child progress (Dunst et al., 1984).

The Family Resource Scale (FRS) (Dunst & Leet, 1985) measures parental perceptions of the adequacy of different types of resources used. Factors include: general resources, time availability, physical resources, and external
## Table 4

**Description of Measures Administered**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Behavior Rating Scale (MBRS)</td>
<td>Assesses maternal interaction behaviors in mother-child dyads.</td>
</tr>
<tr>
<td>Battelle Development Inventory (BDI)</td>
<td>Measures the child developmental functioning. BDI developmental quotients (DQ) are computed (child’s age equivalent score / child’s chronological age x 100).</td>
</tr>
<tr>
<td>Parenting Stress Index (PSI)</td>
<td>Assesses parental perceptions of stress relating to the parent-child system.</td>
</tr>
<tr>
<td>Family Support Scale (FSS)</td>
<td>Assesses the availability of sources of support in addition to perceived helpfulness of the sources of support provided to families rearing young children.</td>
</tr>
<tr>
<td>Family Resource Scale (FRS)</td>
<td>Assesses the extent to which different types of resources are perceived by parents as adequate. Factors include: general resources, time availability, physical resources, and external support.</td>
</tr>
<tr>
<td>Family Inventory of Life Events and Changes (FILE)</td>
<td>Assesses life events and changes experienced by the family during the past 12 months. Areas of stress include: intrafamily, marital, pregnancy and childbearing, finance and business, work-family transitions, illness and family &quot;care,&quot; losses, overall transitions inside and outside of the family and legal.</td>
</tr>
<tr>
<td>Family Adaptation and Cohesion Evaluation Scale III (FACES)</td>
<td>Assesses the family’s level of adaptability and cohesion. Cohesion observes the degrees of separation or connection of family members to the family. Adaptability observes the degree to which the family system is flexible and able to change in various situations.</td>
</tr>
<tr>
<td>Family Information Survey</td>
<td>Provides demographic information about the family which includes information about family organization, income, education, and employment.</td>
</tr>
</tbody>
</table>
support. The coefficient alpha reliability for this measure is 0.94, which was computed from the correlations among the 30 items (Dunst & Leet, 1987). Test-retest reliability was supported by a coefficient of 0.52 ($p = 0.001$) for the total scale scores (Dunst & Leet, 1987). Showing moderate to strong correlations between the FRS and a 5-item scale designed to measure personal well-being demonstrated criterion-related validity (Dunst & Leet, 1987).

Life events and changes experienced by the family during the past 12 months was measured by Family Inventory of Life Events and Changes (FILE) (McCubbin, Patterson, & Wilson, 1983). The areas of possible stress addressed by the scale include: intrafamily, marital, pregnancy and childbearing, finance and business, work-family transitions, illness and family "care," losses, overall transitions inside and outside of the family, and legal. Reliability of the FILE using Cronbach's alpha is 0.81. Test-retest reliability is 0.80. Concurrent validity was established by comparing the FILE to the Family Environment Scale (FES) (Moos, 1974). Low, but significant correlations were reported, which supports the construct that stresses within the family would be expected to impact upon family functioning.

In order to determine the family's level of adaptability and cohesion, the Family Adaptation and Cohesion Evaluation Scale III (FACES III) (Olson, Portner, & Lavee, 1985) was administered (see Appendix C). The cohesion subscale measures the degree of separation or connection of family members to the family. The adaptability subscale assesses the degree to which the family system is flexible and able to change in various situations. High raw scores on
cohesion and adaptation, based on recent studies, are associated with healthy, positive family functioning (Olson & Tiesel, 1991). FACES III was normed on a total of 2,692 individuals. Internal consistency estimates of 0.62 for adaptability and 0.77 for cohesion are reported using Cronbach’s alpha. Test-retest reliabilities were 0.83 for cohesion and 0.80 for adaptability. The construct validity has been evaluated by studies reporting significant differences in scores on the FACES III between clinical families and nonclinical families (Olson et al., 1985). Linear scoring, as suggested by Olson and associates (1985), was used.

To obtain demographic information about the family, which includes information about family organization, income, education, and employment, the Family Information Survey (White, 1987) was completed by all subjects (see Appendix D). The Early Intervention Research Institute, which was responsible for the collection of these data, granted permission to use all of the above listed measures. Written verification of this is provided in Appendix E.
RESULTS AND DISCUSSION

Preliminary Analyses

In order to identify covariates, first an examination of correlations (.20 or higher and a p-value of .002 or less) between child characteristics, family demographics, and family functioning variables, and the four outcome measures of affect, responsivity, performance-orientation, and directiveness, was undertaken. Child characteristics included gender, developmental quotient, age, and general health. Marital status, ethnicity, income, education and age of mother, and working status were considered family demographics. Stressful events in the past year, parent- and child-related stress, family support and resources, and family cohesion and adaptability were the variables related to family functioning.

An arbitrary decision to select a correlation coefficient of .20 or higher as a cut-off point was made. As will be shown, the fact that those variables chosen at the .20 level or higher were significant in the analyses of covariance (ANCOVA) results reveals that this was a defensible strategy.

In the preliminary analyses, only one of the child characteristic variables, age of child, correlated with the single outcome measure, responsivity ($r = .20, p = .002$), and was, therefore, included as a covariate for responsivity. The only family demographic variables that correlated at .20 or higher with the outcome measures affect and responsivity were education of the mother (with affect, $r =$
.32, \( p = .000 \); with responsivity, \( r = .24, \ p = .000 \) and family income (with affect, \( r = .24, \ p = .000 \); with responsivity, \( r = .20, \ p = .002 \)). Thus, education of the mother and family income were included as covariates for the outcome variables affect and responsivity.

The family functioning variable that correlated at .20 with the outcome measures affect (\( r = .20, \ p = .002 \)), responsivity (\( r = .20, \ p = .002 \)), and performance-orientation (\( r = .20, \ p = .002 \)) was family cohesion. Parent- and child-related stress, support, resources, and adaptability were not correlated at the .20 level or higher with any of the outcome measures. Because cohesion was the only family functioning variable that correlated with the outcome measures of affect, responsivity, and performance-orientation, it was included as a covariate for these variables. None of the family functioning variables correlated with directiveness.

Intracorrelations were examined among child characteristics, family demographics, and family functioning variables. Significant correlations between education of the mother and family income (\( r = .52, \ p = .000 \)) and education and age of the mother (\( r = .48, \ p = .000 \)) were found.

In examining the relationship between the family functioning variables, negative relationships were found between stress and support (\( r = -.17, \ p = .008 \)), stress and resources (\( r = -.38, \ p = .000 \)), and stress and family cohesion (\( r = -.21, \ p = .001 \)). Measures of support and resources (\( r = .33, \ p = .000 \)), support and cohesion (\( r = .23, \ p = .000 \)), and cohesion and resources (\( r = .41, \ p = .000 \)) correlated positively with each other.
Ethnicity was highly correlated with many of the variables being examined. Because it is a dichotomous variable, it was included in the analyses as a factor instead of a covariate. As mentioned in the “Methods” section, there was a significant relationship between intervention group and the outcome variable, directiveness. To control for the impact that intervention may have had, it was also included as a factor for the analyses of directiveness.

After identifying the variables of interest in the preliminary analyses, ANCOVAs were conducted to examine the relationships of the outcome variables (affect, responsivity, performance-orientation, and directiveness) with the independent variables discussed above. The following sections present the results of these analyses as they relate to each of the four hypotheses described earlier.

Affective Behaviors Between Mother and Child

**Hypothesis I**

Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability, there will be no difference between mothers in single- and mothers in two-parent families in their affective (warmth, enjoyment, acceptance, inventiveness, expressiveness) maternal interactions with their child with a disability.

**Results**

A 2 (single-parent vs. two-parent) x 2 (Caucasian vs. African American)
ANCOVA was conducted for the dependent variable, affect. The independent variables (education of the mother, family income, and the family functioning measure, family cohesion) were used as covariates (Table 5). A main effect for ethnicity ($E[1, 220] = 13.78, p = .000$) was found. No main effect for marital status and no significant interaction between marital status and ethnicity emerged. See Table 6 for ANCOVA means, standard deviations, and adjusted means for affective maternal behaviors.

Table 5

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates $^a$</td>
<td>162.26</td>
<td>3</td>
<td>54.09</td>
<td>6.34</td>
<td>.000</td>
</tr>
<tr>
<td>Marital Status</td>
<td>1.56</td>
<td>1</td>
<td>1.56</td>
<td>.18</td>
<td>.670</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>117.53</td>
<td>1</td>
<td>117.53</td>
<td>13.78</td>
<td>.000</td>
</tr>
<tr>
<td>Marital Status x Ethnicity</td>
<td>.32</td>
<td>1</td>
<td>.32</td>
<td>.04</td>
<td>.846</td>
</tr>
<tr>
<td>Residual</td>
<td>1877.04</td>
<td>220</td>
<td>8.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>2295.41</td>
<td>226</td>
<td>10.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^a$ Covariates included education of mother, family income, and family cohesion.

Effect sizes were then computed for each factor. Effect sizes are defined as the mean difference between the groups (two-parent minus single-parent) on the ANCOVA scores, divided by the square root of the mean square error of the
Table 6

ANCOVA Means and Standard Deviations for Affective Maternal Behaviors

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single-Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>13.03</td>
<td>3.37</td>
<td>13.35</td>
</tr>
<tr>
<td>Caucasian</td>
<td>15.09</td>
<td>3.35</td>
<td>15.28</td>
</tr>
<tr>
<td><strong>Two-Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>13.09</td>
<td>3.01</td>
<td>13.01</td>
</tr>
<tr>
<td>Caucasian</td>
<td>15.57</td>
<td>2.90</td>
<td>15.15</td>
</tr>
<tr>
<td>Total Two-Parent</td>
<td>15.25</td>
<td>2.50</td>
<td>14.88</td>
</tr>
<tr>
<td><strong>Single- &amp; Two-Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>13.05</td>
<td>3.23</td>
<td>13.21</td>
</tr>
<tr>
<td>Caucasian</td>
<td>15.51</td>
<td>2.95</td>
<td>15.17</td>
</tr>
</tbody>
</table>

entire sample (see Cohen, 1977; Glass, 1976, for a more general discussion of the concept of effect size). All effects for this ANCOVA were less than one-fifth of a standard deviation.

Discussion

Results of the ANCOVA did not reveal significant differences between mothers in single- and two-parent families in their affective interactions with their child with a disability. However, a significant difference did emerge with
regard to ethnicity. African American single- and two-parent mothers showed lower scores on affect as they interacted with their children than did Caucasian mothers.

Preliminary analyses showed that the demographic variables of education of mother and family income, and the family functioning variable of family cohesion, were all significantly related to the mother's affective style. In examining maternal education and income, as it relates to marital status, studies have reported that differences on these variables generally exist between single- and two-parent families (Boyce, 1992; Simons, et al., 1993). The findings in this study agree, and the t tests revealed that mothers in single-parent families had significantly fewer years of education and lower income than their married counterparts (see Table 1).

In this study, lower levels of education and income were related to less positive expression and stimulation of mothers as they interacted with their children with a disability. Perhaps reduced income, possibly a consequence of less education, resulted in more stress. This may have led to a decreased amount of positive expression, and stimulation.

Responsive Behaviors Between Mother and Child

Hypothesis II

Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability,
there will be no difference between mothers in single- and mothers in two-parent families in their responsive (sensitivity, effectiveness, and responsivity) maternal interactions with their child with a disability.

Results

A 2 (single-parent vs. two-parent) x 2 (Caucasian vs. African American) ANCOVA was conducted using the dependent variable, responsivity. The independent variables (education of the mother, family income, age of the child, and the family functioning measure, family cohesion) were included as covariates in this analysis (Table 7). Results indicated a main effect for the independent variable, ethnicity \( (E[1, 219] = 5.96, p = .015) \). No main effect for marital status was found, nor was a significant interaction apparent between ethnicity and marital status. Effect sizes were computed for each factors; all effects were less than one-eighth of a standard deviation. Table 8 shows the ANCOVA means, standard deviations, and adjusted means for responsive maternal behaviors.

Discussion

The results did not show significant differences between mothers of single- and two-parent families. However, as in affective interactions, African American mothers showed lower scores on responsiveness when interacting with their children.

As a group, covariates (including mother's education, family income, and
Table 7

**ANCOVA on Responsive Maternal Behaviors by Marital Status and Ethnicity**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates a</td>
<td>70.00</td>
<td>4</td>
<td>17.50</td>
<td>3.67</td>
<td>.006</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.19</td>
<td>1</td>
<td>.19</td>
<td>.04</td>
<td>.840</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>28.44</td>
<td>1</td>
<td>28.44</td>
<td>5.96</td>
<td>.015</td>
</tr>
<tr>
<td>Marital Status x Ethnicity</td>
<td>1.79</td>
<td>1</td>
<td>1.79</td>
<td>.38</td>
<td>.540</td>
</tr>
<tr>
<td>Residual</td>
<td>1044.56</td>
<td>219</td>
<td>4.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1209.42</td>
<td>226</td>
<td>5.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a Covariates included education of mother, age of child, family income, and family cohesion.

Child age, and the family functioning variable, family cohesion) were significantly related to responsivity. The way in which education and income interact is unknown. Lower education seems to be related to lower wage-earning opportunities. For the single parent with a reduced income, the additional stress of trying to make ends meet, increased role demands, time constraints, and distress about needs not being met is possible. These situations could affect interactions, particularly if the parent is less likely to have time to be aware of and involved in her child’s activity. Lower education also could affect interactions because a mother who is less educated may not as
readily recognize or understand her child’s behavior and how to most appropriately respond to it.

Table 8

ANCOVA Means and Standard Deviations for Responsive Maternal Behaviors

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single-Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>8.06</td>
<td>2.19</td>
<td>8.43</td>
</tr>
<tr>
<td>Caucasian</td>
<td>9.73</td>
<td>2.41</td>
<td>9.69</td>
</tr>
<tr>
<td>Total Single-Parent</td>
<td>8.73</td>
<td>2.28</td>
<td>8.93</td>
</tr>
<tr>
<td><strong>Two-Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>8.55</td>
<td>2.09</td>
<td>8.59</td>
</tr>
<tr>
<td>Caucasian</td>
<td>9.74</td>
<td>2.24</td>
<td>9.37</td>
</tr>
<tr>
<td>Total Two-Parent</td>
<td>9.59</td>
<td>2.22</td>
<td>9.27</td>
</tr>
<tr>
<td><strong>Single- &amp; Two-Parent African American</strong></td>
<td>8.26</td>
<td>2.15</td>
<td>8.49</td>
</tr>
<tr>
<td><strong>Single- &amp; Two-Parent Caucasian</strong></td>
<td>9.74</td>
<td>2.26</td>
<td>9.41</td>
</tr>
</tbody>
</table>

Performance-Orientation Behaviors Between Mother and Child

**Hypothesis III**

Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability,
there will be no difference between mothers in single- and mothers in two-parent families in performance-orientation (achievement orientation and praise) maternal interactions with their child with a disability.

Results

A 2 (single-parent vs. two-parent) x 2 (Caucasian vs. African American) ANCOVA was conducted using the dependent variable, performance-orientation. The independent variable, family cohesion, was included as a covariate in this analysis (Table 9). No main effects were found for marital status or ethnicity. Moreover, no significant interaction was revealed between

Table 9

ANCOVA on Performance-Orientation Maternal Behaviors by Marital Status and Ethnicity

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>21.35</td>
<td>1</td>
<td>21.35</td>
<td>5.34</td>
<td>.022</td>
</tr>
<tr>
<td>Marital Status</td>
<td>4.75</td>
<td>1</td>
<td>4.75</td>
<td>1.19</td>
<td>.277</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>3.81</td>
<td>1</td>
<td>3.81</td>
<td>.95</td>
<td>.330</td>
</tr>
<tr>
<td>Marital Status x Ethnicity</td>
<td>.03</td>
<td>1</td>
<td>.03</td>
<td>.01</td>
<td>.936</td>
</tr>
<tr>
<td>Residual</td>
<td>919.59</td>
<td>230</td>
<td>4.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>975.76</td>
<td>234</td>
<td>4.17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a The covariate was family cohesion.
ethnicity and marital status. Effect sizes were computed for each factor and no significant effect size emerged; all effects were less than one-eighth of a standard deviation. Table 10 shows the ANCOVA means, standard deviations, and adjusted means for performance-orientation maternal behaviors.

Table 10

**ANCOVA Means and Standard Deviations for Performance-Orientation Maternal Behaviors**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single-Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>4.41</td>
<td>2.06</td>
<td>4.55</td>
</tr>
<tr>
<td>Caucasian</td>
<td>4.96</td>
<td>2.29</td>
<td>4.88</td>
</tr>
<tr>
<td>Total Single-Parent</td>
<td>4.63</td>
<td>2.16</td>
<td>4.68</td>
</tr>
<tr>
<td><strong>Two-Parent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>4.82</td>
<td>2.17</td>
<td>4.91</td>
</tr>
<tr>
<td>Caucasian</td>
<td>5.44</td>
<td>1.95</td>
<td>5.29</td>
</tr>
<tr>
<td>Total Two-Parent</td>
<td>5.36</td>
<td>1.98</td>
<td>5.24</td>
</tr>
<tr>
<td><strong>Single- &amp; Two-Parent African American</strong></td>
<td>4.57</td>
<td>2.10</td>
<td>4.69</td>
</tr>
<tr>
<td><strong>Single- &amp; Two-Parent Caucasian</strong></td>
<td>5.38</td>
<td>2.00</td>
<td>5.24</td>
</tr>
</tbody>
</table>

**Discussion**

The results support the assertion that the performance-orientation of
parent to child would not differ among mothers in single- and mothers in two-parent families. The interaction between mother and child, with regard to ethnicity, also showed no differences.

The covariate, family cohesion, was a significant contributor to performance-orientation interactions. Performance-orientation involves the amount of energy and encouragement from the parent through play, instruction, and sensory stimulation. It also incorporates verbal and nonverbal praise and expressions of approval. Family cohesion, because it measures the degree of separation or connection of family members to the family, would seem to relate to the amount of encouragement and attention received from the parent.

Directive Behaviors Between Mother and Child

**Hypothesis IV**

Regardless of education, age, ethnicity, income, social support, resources, family functioning, and characteristics of the child with a disability, there will be no difference between mothers in single- and mothers in two-parent families in their directive maternal interactions with their child with a disability.

**Results**

A 2 (single- vs. two-parent) x 2 (Caucasian vs. African American) x 2 (enhanced intervention vs. typical intervention) ANOVA was conducted using the dependent variable, directiveness. As discussed in the “Methods” section,
because of the significant relationship between intervention and directiveness, intervention was included as a factor to control for its impact. No covariates were used because of the lack of correlations above .20 on other independent variables (Table 11). Results indicated that there were no main effects for marital status, ethnicity, or intervention. There were also no interactions between marital status and ethnicity; intervention and marital status; intervention and ethnicity; or between marital status, intervention, and ethnicity.

Table 11

ANOVA on Directive Maternal Behaviors by Marital Status, Ethnicity, and Intervention

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>1.84</td>
<td>1</td>
<td>1.84</td>
<td>2.56</td>
<td>.111</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>2.37</td>
<td>1</td>
<td>2.37</td>
<td>3.30</td>
<td>.071</td>
</tr>
<tr>
<td>Intervention</td>
<td>2.37</td>
<td>1</td>
<td>2.37</td>
<td>3.30</td>
<td>.070</td>
</tr>
<tr>
<td>Marital Status x Ethnicity</td>
<td>.61</td>
<td>1</td>
<td>.61</td>
<td>.85</td>
<td>.356</td>
</tr>
<tr>
<td>Marital Status x Intervention</td>
<td>.00</td>
<td>1</td>
<td>.00</td>
<td>.00</td>
<td>.984</td>
</tr>
<tr>
<td>Intervention x Ethnicity</td>
<td>2.10</td>
<td>1</td>
<td>2.10</td>
<td>2.92</td>
<td>.089</td>
</tr>
<tr>
<td>Marital Status x Ethnicity x Intervention</td>
<td>.58</td>
<td>1</td>
<td>.58</td>
<td>.81</td>
<td>.369</td>
</tr>
<tr>
<td>Residual</td>
<td>166.75</td>
<td>232</td>
<td>.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>179.40</td>
<td>239</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 12 shows the ANOVA means and standard deviations for directive maternal behaviors.

### Table 12

**ANOVA Means and Standard Deviations for Directive Maternal Behaviors**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single-Parent</strong></td>
<td></td>
<td></td>
<td><strong>Two-Parent</strong></td>
<td></td>
</tr>
<tr>
<td>Typical Intervention</td>
<td></td>
<td></td>
<td>Typical Intervention</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>4.00</td>
<td>.79</td>
<td>African American</td>
<td>3.50</td>
</tr>
<tr>
<td>Caucasian</td>
<td>3.21</td>
<td>.70</td>
<td>Caucasian</td>
<td>3.25</td>
</tr>
<tr>
<td>Enhanced Intervention</td>
<td></td>
<td></td>
<td>Enhanced</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>3.35</td>
<td>.86</td>
<td>African American</td>
<td>3.11</td>
</tr>
<tr>
<td>Caucasian</td>
<td>3.33</td>
<td>1.16</td>
<td>Caucasian</td>
<td>3.10</td>
</tr>
<tr>
<td>Total Single-Parent</td>
<td>3.68</td>
<td>.83</td>
<td>Total Two-Parent</td>
<td>3.35</td>
</tr>
<tr>
<td>African American</td>
<td>3.27</td>
<td>.94</td>
<td>African American</td>
<td>3.17</td>
</tr>
<tr>
<td>Caucasian</td>
<td>3.50</td>
<td>.87</td>
<td>Caucasian</td>
<td>3.19</td>
</tr>
<tr>
<td>Total Single-Parent</td>
<td>3.64</td>
<td>.75</td>
<td>Total Two-Parent</td>
<td>3.29</td>
</tr>
<tr>
<td>Typical Intervention</td>
<td></td>
<td></td>
<td>Typical Intervention</td>
<td></td>
</tr>
<tr>
<td>Total Single-Parent</td>
<td>3.34</td>
<td>.99</td>
<td>Total Two-Parent</td>
<td>3.10</td>
</tr>
<tr>
<td>Enhanced Intervention</td>
<td></td>
<td></td>
<td>Enhanced Intervention</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>3.55</td>
<td>.88</td>
<td>Single- &amp; Two-Parent Enhanced Intervention</td>
<td>3.16</td>
</tr>
<tr>
<td>Caucasian</td>
<td>3.16</td>
<td>.84</td>
<td>Single- &amp; Two-Parent Typical Intervention</td>
<td>3.38</td>
</tr>
</tbody>
</table>

Effect sizes were computed and significant differences were found between single African American mothers and African American mothers from
two-parent families for intervention. For those African American families who received the typical intervention, single mothers were more directive than their counterparts in two-parent families. The effect size of -.58 was greater than one-half of a standard deviation. For the families who received the enhanced intervention, single mothers were still more directive than their married counterparts, but to a lesser degree. The effect size was -.35, which is approximately one-third of a standard deviation. The differences between the single- and two-parent Caucasian mothers were negligible with the effect sizes being .05 and -.23, respectively, for those receiving typical and enhanced intervention.

Discussion

Results examining directive interactions, again, showed no differences between mothers in single- and two-parent families, ethnicity, and the type of intervention. However, the difference between single- versus two-parent African American families, shows that single-parent African American mothers had higher scores on directiveness as they interacted with their children.

Summary of Findings

These analyses show no significant differences in affective maternal behaviors between single- and two-parent families. However, African American mothers had significantly lower affective scores than did Caucasian mothers. As a group, the covariates of maternal education, family income, and family
cohesion were related to the mother’s affective style. Results also revealed no significant differences between single- and two-parent families with regard to responsive maternal behaviors. As with affective maternal behaviors, responsivity and ethnicity were significantly related. The covariates including maternal education, family income, child age, and family functioning were, as a group, related to responsive maternal behaviors. There were no significant differences between single- and two-parent families in terms of marital status or ethnicity in the performance-orientation of the mother. Family cohesion, however, was significantly related to maternal performance orientation. Analyses showed no significant differences between single- and two-parent families, nor any significant effect of ethnicity for maternal directiveness. Moreover, the findings revealed that the type of intervention children received was not related to the directiveness of mothers.

Overall, the findings show that mothers in single- and two-parent families in this sample did not differ in their interactions with their child with a disability. Instead, the maternal behaviors of affect, responsivity, performance orientation, and directiveness were related to ethnicity, maternal education, family income, and family cohesion.

Limitations

When discussing the results, it is important to keep in mind the limitations of the sample. The differences found between Caucasian and African American
maternal affective and responsive behaviors were surprising. One possible explanation for the differences found is that perhaps the coders used the MBRS differently for the African American dyads than they did for the Caucasian dyads. However, correlational analyses indicate that the MBRS was used equivalently with both Caucasian and African American dyads. First, correlation analysis among the 12 MBRS variables was completed separately for the Caucasian sample and the African American sample. Next, the two correlation matrices were correlated using the Pearson r. The correlation coefficient was .88, indicating similar internal structure patterns of the MBRS for Caucasian and African American mothers (Alexandrova & Boyce, 1995).

Although the sample size in this study is larger than most, and the dispersion of the sample across multiple sites and regions strengthens the generalizability, the number of single-parent mothers is small. Using an extant data set, as was done in this study, involves certain constraints. Nonetheless, duplicating the present study with this sample size and multiple sites would be financially unfeasible.

Caution must be exercised in generalizing the ethnicity findings, since 68% of the African American sample comes from one site. The African American mothers in the South Carolina sample appear to have quite a unique culture (Twining & Baird, 1991). The involvement of extended family members in child-rearing that is typical for this group of African Americans may influence the dyadic interactions between mother and child (Twining & Baird, 1991). It is beyond the intent of this paper to investigate the relationship between the
values of this particular culture and maternal interaction behaviors. Even with these limitations, this study provided a viable opportunity to compare single- and two-parent maternal-child interactions when children have disabilities.

Another point to consider when interpreting the results would be the constraints of a 20-minute observation, and its obtrusiveness, as the mother is aware of being monitored and thus reacts accordingly. An ideal situation would consist of observing the mother-child dyad over a longer period of time in an unobtrusive setting. Again, because this was an extant data set, the available data used were derived from the videotapings. However, this procedure was standardized for all parents and thus the same limitations applied to the group as a whole.

Implications

The present research has implications for issues related to maternal interactions with a child with a disability in single- and two-parent families. This study reveals a clustering effect for both single- and two-parent families with the demographics of income, education, and cultural differences. For intervention specialists who work with children with disabilities, this information can be used to determine how to best tailor a treatment program to fit the needs of the family. When working with parents, a specialist can examine the family context and provide services that teach parents to become more affective, responsive, and
encouraging towards their child with a disability despite their demographic profile.

Because of the significant ethnicity outcomes in this study, areas for further research could include examining cultural variations to determine the effect that these differences may have. For example, does responsive parenting for the African American mother produce the same outcome for a child with a disability as it would for a responsive Caucasian mother? Researchers may also want to examine African American mothers from an urban environment to determine possible significant differences.

This present study measured mother-child interactions when the child was between the ages of 22 and 49 months. Future studies should be longitudinal, examining mother and child, beginning at the child’s birth. Intervention could then consist of educating the mother about appropriate maternal-child interactions with her child with a disability. Tracking the child’s developmental progress, and continuing to offer training to the parents over time, could provide important information to specialists in the field.
CONCLUSION

Responsive, supportive, and sensitive maternal-child interactions are considered important ingredients for the optimal early development of a child (Ainsworth et al., 1971; Ainsworth et al., 1978; Belsky et al., 1984; Goldberg et al., 1989; Martin, 1989). For children with disabilities, these favorable interactions can be a greater challenge to achieve. Much of the difficulty is a result of the unique demands and characteristics of children with disabilities, the accompanying stresses involved, and the amount of support received (Dunst & Trivette, 1986; Goldberg, 1977). For single parents, the challenges of interacting with their child with a disability could be greater because of the additional role responsibilities, possible financial constraints, and decreased amount of support in the home from the lack of another adult (Dunst & Trivette, 1986; Jones, 1987; McCubbin, 1989).

The study reported here examined this important topic through video-taped observations of mother-child dyads, the administration of family functioning measures, and the collection of family demographic information to 240 children with disabilities who were participating in a larger longitudinal research project. ANCOVA results indicated that there were no differences in maternal-child interactions between single- and two-parent families. However, within this sample, education and income were related to maternal-child behaviors. These findings have implications for intervention specialists who work with families with children with disabilities. The factors of income and
education need to be taken into account by specialists as they plan treatment programs for the family. Ethnic differences were also apparent. Nevertheless, the methodological limitations of this study, without the use of further replicative research, make the ethnic conclusions provisional.

The findings of this study reveal that, congruent with systems theory, it is important to look at the context within which the family lives. Contexts and transactions within the family and outside the family are influenced by many variables (Sameroff, 1983). In this study, the relationship of family income and maternal education, supports the notion that social and ecological forces impact interactions within the family (Bronfenbrenner, 1979).


Unpublished manuscript, Utah State University, Logan.


interaction observational coding systems: A review. In K. Marfo (Ed.),
Parent-child interaction and developmental disabilities (pp. 293-304).
New York: Praeger.
American family. In M. A. Twining & K. E. Baird (Eds.), Sea Island roots:
African presence in the Carolinas and Georgia (pp. 1-18). Trenton, NJ:
African World Press.
mother-child interactions in single- and two-parent families. Child
Development, 54, 1297-1311.
effects and costs of early intervention with handicapped children.
(Contract No. 800-85-0173). Logan: Utah State University, Early
Intervention Research Institute. (ERIC Clearinghouse on Handicapped
and Gifted Youth, No. ED 293 241)
about the benefits of involving parents in early intervention programs?
Helping divorced mothers of children with developmental disabilities.
Family Therapy Collection, 11, 44-62.
Appendix A
Maternal Behavior Rating Scale (Revised - 1992)
Gerald Mahoney
Family Child Learning Center
90 W. Overdale Dr.
Tallmadge, Ohio 44278
(216) 633-2055

1. **EXPRESSIVENESS** This item measures the tendency of the caregiver to express and react emotionally toward the child. It assesses the voice quality to express a range of emotions toward the child. Both intensity, animation and frequency are considered in these ratings.

   **Rating of [1]:** Highly inexpessive. Caregiver may inhibit body language appearing rigid; almost motionless. Caregiver exhibits flat affect; voice quality is dull and facial expression varies little.

   **Rating of [2]:** Low overt expressiveness. Parent appears bland but does exhibit some affective quality in body language, voice quality and facial expression. May not respond to situations that would normally elicit an emotional reaction.

   **Rating of [3]:** Moderate overt expressiveness. Parent responds to situations that would normally elicit an emotional reaction.

   **Rating of [4]:** Overtly expressive. Parent uses body language, voice quality and facial expression in an animated manner to express emotion toward the child. Parent is generally enthusiastic but not extreme in expressiveness.

   **Rating of [5]:** Highly expressive. Parent is extreme in expression of all emotions using body language, facial expression and voice quality. Appears very animated, these parents are "gushers."

2. **ENJOYMENT** This item assesses the parent's enjoyment of interacting with the child. Enjoyment is experienced and expressed in response to the child himself – his spontaneous expressions or reactions, or his behavior when interacting with his parent. There is enjoyment in child's being himself rather than the activity the child is pursuing.

   **Rating of [1]:** Enjoyment is absent. Parent may appear rejecting of the child as a person.

   **Rating of [2]:** Enjoyment is seldom manifested. Parent may be characterized by a certain woodiness. Parent does not seem to enjoy the child per se.

   **Rating of [3]:** Pervasive enjoyment but low-intensity. Occasionally manifests delight in child being himself.

   **Rating of [4]:** Enjoyment is the highlight of the interaction. Enjoyment occurs in the context of a warm relaxed atmosphere. Parent manifests delight fairly frequently.
Rating of [1]:  Very low. Positive affect is lacking. Parent appears cold and reserved, rarely expresses affection through touch, voice.

Rating of [2]:  Low. Parent occasionally expresses warmth through brief touches and vocal tone suggests low intensity of positive affect.

Rating of [3]:  Moderate. Pervasive low-intensity positive affect is demonstrated throughout the interaction. Fondness is conveyed through touch and vocal tones.

Rating of [4]:  High. Affection is expressed frequently through touch and vocal tone. Parent may verbalize terms of endearment.

Rating of [5]:  Very high. Parent openly expresses love for the child continually and effusively through touch, vocal tone and verbal endearments.

4. **SENSITIVITY TO CHILD’S INTEREST**  This item examines the extent to which the parent seems aware of and understands the child’s activity or play interests. This item is assessed by the parent’s engaging in the child’s choice of activity, parent’s verbal comments in reference to child’s interest and parent’s visual monitoring of child’s behavior or activity. Parents may be sensitive but not responsive - such as in situations where they describe the child’s interests but do not follow or support them.

Rating of [1]:  Highly insensitive. Parent appears to ignore child’s show of interest. Parent rarely comments on or watches child’s behavior and does not engage in child’s choice of activity.

Rating of [2]:  Low sensitivity. Parent occasionally shows interest in the child’s behavior or activity. Parent may suddenly notice where child is looking or what child is touching but does not continue to monitor child’s behavior or engage in activity.

Rating of [3]:  Moderately sensitive. Parent seems to be aware of the child’s interests; consistently monitors child’s behavior but ignores more subtle and hard-to-detect communications from the child.

Rating of [4]:  High sensitivity. Parent seems to be aware of the child’s interests; consistently monitors the child’s behavior but is inconsistent in detecting more subtle and hard-to-detect communications from the child.
Rating of [5]: Very high sensitivity. Parent seems to be aware of the child’s interests; consistently monitors the child’s behavior and follows interest indicated by subtle and hard-to-detect communications from the child.

5. RESPONSIVITY This item rates the appropriateness of the parent’s responses to the child’s behaviors such as facial expression, vocalizations, gestures, signs of discomfort, body language, demands, intentions.

   Rating of [1]: Highly unresponsive. There is a chronic failure to react to the child’s behaviors such as facial expression, vocalizations, gestures, signs of discomfort, body language, demands, intentions.

   Rating of [2]: Unresponsive. Parent’s responses are inconsistent and may be inappropriate or slow.

   Rating of [3]: Consistently responsive. Parent responds consistently to the child’s behavior but may at times be slow or inappropriate.

   Rating of [4]: Responsive. Parent responds to the child’s behavior appropriately and promptly throughout the interaction.

   Rating of [5]: Highly responsive. This parent responds promptly and appropriately to even subtle and hard-to-detect behavior of the child.

6. ACHIEVEMENT ORIENTATION This item is concerned with the parent’s encouragement of sensorimotor and cognitive achievement. This item assesses the amount of stimulation by the parent, which is overtly oriented toward promoting the child’s developmental progress. This item assesses the extent to which the parent fosters sensorimotor and cognitive development whether through play, instruction, training, or sensory stimulation and includes the energy which the parent exerts in striving to encourage the child’s development.

   Rating of [1]: Very little encouragement. Parent makes no attempt or effort to get child to learn.

   Rating of [2]: Little encouragement. Parent makes a few mild attempts at fostering sensorimotor development in the child but the interaction is more oriented to play for the sake of playing rather than teaching.

   Rating of [3]: Moderate encouragement. Parent continually encourages sensorimotor development of the child either through play or training but does not pressure the child to achieve.

   Rating of [4]: Considerable encouragement. Parent exerts some pressure on the child toward sensorimotor achievement, whether as unilateral pressure or in a pleasurable interactional way and whether wittingly or unwittingly.
Rating of [5]: Very high encouragement. Parent exerts much pressure on the child to achieve. Parent constantly stimulates him toward sensorimotor development, whether through play or obvious training. It is obvious to the observer that it is very important to the parent that the child achieve certain skills.

7. INVENTIVENESS This item assesses the range of stimulation parents provide their child; the number of different approaches and types of interactions and the ability to find different things to interest the child, different ways of using toys, combining the toys and inventing games with or without toys. Inventiveness is both directed toward and effective in maintaining the child’s involvement in the situation. Inventiveness does not refer merely to a number of different, random behaviors, but rather to a variety of behaviors which are grouped together and directed towards the child.

Rating of [1]: Very small repertoire. Parent is unable to do almost anything with the child, parent seems at a loss for ideas, stumbles around, is unsure of what to do. Parent’s actions are simple, stereotyped and repetitive.

Rating of [2]: Small repertoire. Parent does find a few ways to engage the child in the course of the situation, but these are of limited number and tend to be repeated frequently, possibly with long periods of inactivity. Parent uses the toys in some of the standard ways, but does not seem to use other possibilities with toys or free play.

Rating of [3]: Medium repertoire. Parent performs the normal playing behaviors of parenthood, shows ability to use the standard means of playing with toys, and the usual means of free play. Parent shows some innovativeness in play and use of toys.

Rating of [4]: Large repertoire. Parent shows ability to use all the usual playing behaviors of parenthood, but in addition is able to find uses which are especially appropriate to the situation and the child’s momentary needs.

Rating of [5]: Very large repertoire. Parent consistently finds new ways to use toys and/or actions to play with the child. Parent shows both standard uses of toys as well as many unusual but appropriate uses, and is continually able to change his/her behavior in response to the child’s needs and state.

8. PRAISE (verbal) This scale assesses how much verbal praise is given to the child. Examples of verbal praise are “good boy,” “that’s a girl,” “good job.” Praise in the form of smiles, claps or other expressions of approval are not included unless accompanied by a verbal praise. Praise may be given for compliance, achievement or for the child being himself.

Rating of [1]: Verbal praise is not used by the parents in the interaction even in situations which would normally elicit praise from the parent.

Rating of [2]: Parent uses verbal praise infrequently throughout the interaction.

Rating of [3]: Parent uses an average amount of verbal praise during the interaction. Parent praises in most situations which would normally elicit praise.
Rating of [4]: Praises frequently. Parent verbally praises the child frequently for behavior which would not normally elicit praise.

Rating of [5]: Very high frequency of verbal praise from the parent even for behavior which would not normally elicit praise.

9. EFFECTIVENESS This item refers to the parent’s ability to engage the child in the play interaction. It determines the extent to which the parent is able to gain the child’s attention, cooperation and participation in a reciprocal exchange characterized by balanced turntaking in play or conversation.

Rating of [1]: Parent is very ineffective in keeping the child engaged in the interaction. The parent makes attempts to elicit the child’s cooperation, but almost invariably fails. Most of the attempts are characterized by poor timing, lack of clarity or firmness, and/or appear to be half-hearted. Parent may give the appearance of helplessness where the child is concerned.

Rating of [2]: Parent mostly ineffective in keeping the child engaged in the interaction. In a few instances only, the parent is able to gain the child’s cooperation, but is most often unsuccessful.

Rating of [3]: Parent is successful in keeping the child engaged in the interaction but there is not reciprocal exchange of turns.

Rating of [4]: Parent keeps the child engaged throughout most of the interaction and often there is a reciprocal exchange of turns in play or conversation.

Rating of [5]: Parent is able to keep the child engaged willingly throughout the entire interaction. Additionally, the interaction will be characterized by balanced turntaking in play or conversation.

10. ACCEPTANCE This item assesses the extent to which the parent approves of the child and the child’s behavior. Acceptance is measured by the intensity of positive affect expressed toward the child and the frequency of approval expressed either verbally or nonverbally.

Rating of [1]: Rejecting. This parent rarely shows positive emotion. Parent is continually disapproving of the child and the child’s behavior.

Rating of [2]: Low acceptance. This parent shows little positive affect toward the child. Parent may show some disapproval of the child and the child’s behavior but mostly remains neutral.

Rating of [3]: Accepting. This parent indicates general acceptance of the child; parent approves of the child and child’s behavior in situations where approval would normally be appropriate. Moderate intensity of positive affect is displayed throughout the interaction.

Rating of [4]: Very accepting. Emphasis is on approval; this parent shows higher than
average positive affect and is generous with approval.

**Rating of [5]:** High acceptance. This parent is effusive with approval and admiration of the child. Parent approves and praises even ordinary behavior; intense positive affect is displayed throughout the interaction.

11. **PACE** This item examines the parent's rate of behavior. The parent's pace is assessed apart from the child's; it is not rated by assessing the extent to which it matches the child's pace but as it appears separately from the child.

**Rating of [1]:** Very slow. This parent is almost inactive. Pace is very slow with long periods of inactivity.

**Rating of [2]:** Slow. This parent's tempo is slower than average and there may be some periods of inactivity.

**Rating of [3]:** Average pace. This parent is neither strikingly slow nor fast. Tempo appears average compared to other parents.

**Rating of [4]:** Fast. This parent's pace is faster than average.

**Rating of [5]:** Very fast. Parent's rapid fire behavior does not allow the child time to react.

12. **DIRECTIVENESS** This item measures the frequency and intensity in which the parent requests, commands, hints or attempts in other manners to direct the child's immediate behavior.

**Rating of [1]:** Parent allows child to initiate or continue activities of his own choosing without interfering. Parent consistently avoids volunteering suggestions and tends to withhold them when they are requested or when they are the obvious reaction to the immediate situation. Parent's attitude may be "do it your own way."

**Rating of [2]:** Parent occasionally makes suggestions. This parent rarely tells the child what to do. He/she may respond with advice and criticism when help is requested but in general refrains from initiating such interaction. On the whole, this parent is cooperative and non-interfering.

**Rating of [3]:** The parent's tendency to make suggestions and direct the child is about equal to the tendency to allow the child self-direction. The parent may try to influence the child's choice of activity but allow him independence in the execution of his play, or he may let the child make his own choice but be ready with suggestions for effective implementation.

**Rating of [4]:** Directive. Parent occasionally withholds suggestions but more often indicates what to do next or how to do it. Parent produces a steady stream of suggestive remarks and may initiate a new activity when there has been no previous sign of inertia and/or resistance shown by the child.
Rating of [5]: Very directive. Parent continually attempts to direct the minute details of the child's "free" play. This parent is conspicuous for the extreme frequency of interruption of the child's activity-in-progress, so that the parent seems "at" the child most of the time -- instructing, training, eliciting, directing, controlling.
Appendix B
Videotaped Assessment of Parent-Child Interaction for Children Over 2 Years of Age

Introduction

The following script should be used for conducting a videotaped assessment of parent-child interaction. The purpose of this videotape is to elicit interaction between the primary caregiver and the child in free-play and structured activities which can then be analyzed to assess interaction patterns. Only the caregiver, the handicapped child, and the individual doing the videotaping should be present during the videotaping sequence. The entire taping session should last (21 minutes). It is important that the sequence of activities and time constraints be followed as outlined below.

Setting

The setting and the individual doing the videotaping should be equally unfamiliar to all caregivers/children, and it should be at a center-based location as opposed to in the home. Set up the videotape equipment in a small carpeted room (approximately 12' by 12'). The caregiver may choose to interact with the child on the floor or sitting in a chair. A comfortable adult-sized chair (or sofa) and an end table should be arranged in a corner area as shown below:

The camera should be positioned on a tripod approximately 8-10' from the subjects, should be at the eye level of the caregiver, and should not be directed toward a window. Videotape the caregiver and the child so that the frame includes both participants' faces and hands.

Materials

<table>
<thead>
<tr>
<th>TOYS</th>
<th>Recording Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Items from Battelle Kit</strong></td>
<td></td>
</tr>
<tr>
<td>a. dolls</td>
<td>a. video camera</td>
</tr>
<tr>
<td>b. ball</td>
<td>b. tripod</td>
</tr>
<tr>
<td>c. cloth</td>
<td>c. cordless microphone</td>
</tr>
<tr>
<td>d. fuzzy green bear</td>
<td>d. stop watch</td>
</tr>
<tr>
<td>e. play telephone</td>
<td></td>
</tr>
<tr>
<td>f. rattle</td>
<td></td>
</tr>
</tbody>
</table>
Additional Toys

a. large basket to hold toys
b. Fischer-Price blocks & shape sorter
c. xylophone
d. Fischer-Price pull toy
k. two age-appropriate picture books
   (place separate from toys)

Procedures for Camera Person

1. Learn the following script well, so that you can adhere to the standard directions and yet be natural in your presentation.
2. Place the basket of toys and the books near the area where the caregiver will sit.
3. Do a brief practice recording to ensure proper lighting, camera angle, audio recording, and position of furniture/materials. Do this before the parent and child arrive.
4. Get to know the caregiver and the child for a few minutes to create a relaxed setting. Discuss the instructions outlined below and the manipulation of materials to be used by caregiver and child. Make certain the parent has given signed informed consent prior to being videotaped.

Script:

"WE'RE INTERESTED IN OBSERVING (NAME OF CHILD) IN A PLAY SESSION. YOU WILL BE ASKED TO DO SEVERAL ACTIVITIES DURING THE (21-MINUTE) VIDEOTAPING SEQUENCE.

FIRST, I WOULD LIKE YOU TO SIMPLY RELAX AND PLAY TOGETHER (FOR 15 MINUTES) AS YOU WOULD AT HOME. YOU MAY USE THE TOYS IN THE BASKET IF YOU WANT TO, OR YOU MAY SPEND SOME TIME PLAYING YOUR FAVORITE GAMES WITHOUT USING THE TOYS. SAVE THE BOOKS FOR THE LATER READING ACTIVITY.

AFTER (15 MINUTES), ENCOURAGE YOUR CHILD TO PUT AWAY THE TOYS -- YOU MAY HELP, IF NECESSARY. DO THIS AS YOU NORMALLY WOULD AT HOME.

NEXT, YOU'LL READ A BOOK TO YOUR CHILD. THERE ARE TWO BOOKS. YOU MAY CHOOSE EITHER ONE, OR READ BOTH. (2 MINUTES)

FINALLY, SAY TO (NAME OF CHILD), "I WILL BE RIGHT BACK." LEAVE THE ROOM FOR 45 SECONDS, CLOSING THE DOOR BEHIND YOU. HOWEVER, IF YOU HEAR THAT YOUR CHILD IS IN DISTRESS, YOU MAY RETURN IMMEDIATELY. I'LL HAND YOU A STOPWATCH SO THAT YOU KNOW WHEN THE 45 SECONDS ARE UP.

THE VIDEOTAPING WILL CONTINUE FOR 2 MINUTES AFTER YOU RE-ENTER THE ROOM. YOU MAY DO WHATEVER YOU LIKE WHEN YOU RETURN. THE TOYS CAN BE USED AGAIN IF YOU WISH."
I'll let you know when to move on to the next activity, so don't feel that you have to remember all the steps. After videotaping has begun, please try to ignore me and interact only with (name of child). Do you have any questions?

After answering questions, show the parent how to use the stopwatch (if necessary) and place the cordless microphone on the parent (if microphone on recorder is not adequate).

Turn on camera. Start and stop stopwatch in accordance with the time frame given below. Verbally cue the parent as stated above.

- Free play: 15 minutes
- Pick up toys: 1 minute
- Read book(s): 2 minutes

Tell parent "It's time to leave. Tell (name of child) you'll be right back." Give parent the stopwatch. Tell parent to start watch once they have closed the door. Keep the camera focused on the child.

Parent out of room: 45 seconds

Continue recording after parent returns: 2 minutes.

For children over 4 years:
Add the following: duplo blocks, two 8-9 piece puzzles, two age-appropriate books, crayons/paper, playdo, play dishes.
Suggestions for Utilizing Videotaped Assessment Procedures

Environment/Stimuli:

1. Consider standardized materials/toys: Select items appropriate for a variety of developmental levels and to encourage behaviors being studied, i.e., turn-taking, motor movements equally novel/equally familiar.

2. Consider a standardized physical environment: Select an environment equally novel or equally familiar to parent and child. Videotaping in the home can be difficult due to a variety of confounding variables beyond your control. If videotaping in the home, make certain outside distractors (i.e., siblings, phone calls, pets, etc.) are not allowed to interrupt the taping.

3. Recommend appropriate attire for parent and child. People tend to dress up when being videotaped. Inform parent in advance if they will be sitting on floor or if child needs to wear minimal clothing for observations and/or facilitate motor activity.

4. Allow parent and child time to habituate to the camera. Allot 5-10 minutes of recorded interaction prior to beginning the assessment sequence.

5. Select a nonthreatening person to give the directions and to do the recording. Find someone who can develop a rapport with the parent and child and assist in making them feel as comfortable as possible. Consider selecting someone naive to the treatment that the parent and/or child may be receiving. Parents may feel a need to "perform" unnaturally if the service provider is doing the taping.

6. The camera operator should remain as unobtrusive as possible and interact with subjects during recording only when absolutely necessary.

Technical Considerations

1. Clearly identify subjects by stating identification at beginning and end of recording (name or I.D.#, date of taping, subject's age).

2. Use a tripod at all times and position camera evenly with the height of the subjects. Lower the tripod if child is being recorded or activity is on the floor.

3. Inadequate light is a frequent problem. Professional lights are intrusive for those being recorded. Select a room with plenty of light, but be careful not to be shooting into a window or you will not be able to observe your subjects.

4. The room should be small enough to allow the camera to pan the whole room without moving the tripod.

5. Record at standard speed and use tapes no longer than a 2-hour capability.

6. Use the "pause" button rather than "stop" for brief intermissions. This will avoid awkward skips/black-outs in the tape.

7. Select a carpeted room to avoid auditory distortions. Also be aware of background noises, i.e., fans, paper shuffling, etc.

8. The built-in microphones on the recorders are generally adequate provided that the subjects are not too far away.

9. Turn on automatic white balance adjustments.

10. A character generator can be used to record printed identification information over the video track.

11. ALWAYS DO A RECORDING TEST TO ENSURE PROPER CONDITIONS ARE IN PLACE.

12. Use board in front of camera between children for delineation.
Appendix C
FACES III

Family Adaptability & Cohesion Evaluation Scales

Brief Overview of FACES III

FACES III is the third version in a series of FACES scales developed to assess the two major dimensions on the Circumplex Model, i.e., family cohesion and family adaptability. The Circumplex Model was developed by David Olson and colleagues in an attempt to bridge research, theory, and practice. The Circumplex Model enables an individual to classify families into 16 specific types or three more general types, i.e., balanced, mid-range, and extreme.

FACES III is intended to be administered to families across the life cycle, from newlywed couples without children to retired couples. The items were developed to be readable and understandable to adolescents down to the age of 12 years old. Ideally, FACES III should be administered to all family members who can complete the inventory so that multiple family member reports can be compared and couple and family scores can be used.

FACES III is designed to obtain both perceived and ideal family functioning. The perceived-ideal discrepancy provides an inverse measure of family satisfaction. A couple version is also available for couples without children.

All forms are easy to administer and are simple to score. Norms and cutting points are available for: (1) parents across all stages of the life cycle; (2) parents and adolescents in the adolescent and launching stages; and (3) young couples without children.

Reliability and validity studies have been done to increase the scientific rigor of the scales. In terms of reliability, internal consistency and test-retest reliability scales are generally good.

In terms of validity, the face and content validity of the scales are very good. Regarding construct validity, the correlation between cohesion and adaptability has been reduced to zero. Also, the correlation between social desirability and adaptability has been reduced to zero. However, a correlation still remains between cohesion and social desirability.

While about 200 research projects are currently using FACES or FACES II, over ten studies have now been completed which demonstrate the validity of these scales. These studies have consistently demonstrated the ability of the FACES scales to discriminate between non-problem and problem families in predicted directions. As hypothesized by the Circumplex Model, significantly more non-problem families were balanced while significantly more problem families were extreme types.

In terms of both research and clinical work, data obtained from FACES III enables one to obtain a variety of useful assessments. The perceived-ideal
discrepancy for each person helps identify their level of satisfaction with current family functioning. In addition, for those families in therapy, the ideal provides some ideas regarding individual family members preferences and direction for change.

In addition to FACES III, a Clinical Rating Scale (CRS) for the Circumplex Model has been developed. The CRS can be used by a therapist for rating the family's behavior on cohesion, adaptability, and communication.

In closing, FACES III was developed to assess the major dimensions of the Circumplex Model and to provide an instrument with high levels of reliability, validity, and clinical utility. Currently there are over 200 studies being conducted using FACES and FACES II, and it is hoped that FACES III will prove to be a useful contribution to the field of marital and family assessment.
TABLE 1: CHARACTERISTICS OF FACES III

<table>
<thead>
<tr>
<th>Theoretical Domain and Model</th>
<th>FAMILY ADAPTABILITY &amp; COHESION EVALUATION SCALE (FACES III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Level</td>
<td>Family System</td>
</tr>
<tr>
<td>Focus of Assessment</td>
<td>Circumplex Model</td>
</tr>
<tr>
<td>Number of Scales and Items</td>
<td>Family as Whole</td>
</tr>
<tr>
<td>Norms</td>
<td>Perceived, Ideal; Satisfaction</td>
</tr>
<tr>
<td>Clini cal</td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>n = 2453 adults across life cycle</td>
</tr>
<tr>
<td>Consistency</td>
<td>n = 412 adolescents</td>
</tr>
<tr>
<td>Test Retest</td>
<td>Several types of problem families</td>
</tr>
<tr>
<td>Validity</td>
<td></td>
</tr>
<tr>
<td>Face Validity</td>
<td></td>
</tr>
<tr>
<td>Content Validity</td>
<td></td>
</tr>
<tr>
<td>Correlation between Scales</td>
<td>Face Validity</td>
</tr>
<tr>
<td>Correlation with Social</td>
<td>Content Validity</td>
</tr>
<tr>
<td>Desirability</td>
<td>Correlation between Scales</td>
</tr>
<tr>
<td>Concurrent Validity</td>
<td>Correlation with Social Desirability</td>
</tr>
<tr>
<td>Correlation between</td>
<td>Concurrent Validity</td>
</tr>
<tr>
<td>Family Members</td>
<td>Correlation between Family Members</td>
</tr>
<tr>
<td>Discrimination between</td>
<td></td>
</tr>
<tr>
<td>Groups</td>
<td></td>
</tr>
<tr>
<td>Clinical Utility</td>
<td></td>
</tr>
<tr>
<td>Usefulness of Self-Report</td>
<td></td>
</tr>
<tr>
<td>Scale</td>
<td>Clinical Rating Scale</td>
</tr>
<tr>
<td>Ease of Scoring</td>
<td>Very Good</td>
</tr>
<tr>
<td>Clinical Rating Scale</td>
<td>Very Good</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Very Easy</th>
<th>Yes</th>
</tr>
</thead>
</table>

**FACES II**
- Cohesion (r = .77)
- Adaptability (r = .62)
- Total (r = .68)

- FACES II (4-5 weeks)
  - .83 for cohesion
  - .80 for adaptability

- Very Good
- Very Good
- Cohesion & Adaptability (r = .03)

- SD & Adaptability (r = .00)
- SD & Cohesion (r = .39)

- Lack of evidence

- X=H/W/A (n = 370)
- Cohesion (r = .41)
- Adaptability (r = .25)

- Very Good
- Very Good
- Yes
David H. Olson, Joyce Portner, and Yoav Lavee

Describe your family now:

1. Family members ask each other for help.
2. In solving problems, the children's suggestions are followed.
3. We approve of each other's friends.
4. Children have a say in their discipline.
5. We like to do things with just our immediate family.
6. Different persons act as leaders in our family.
7. Family members feel closer to other family members than to people outside the family.
8. Our family changes its way of handling tasks.
9. Family members like to spend free time with each other.
10. Parent(s) and children discuss punishment together.
11. Family members feel very close to each other.
12. The children make the decisions in our family.
13. When our family gets together for activities, everybody is present.
14. Rules change in our family.
15. We can easily think of things to do together as a family.
16. We shift household responsibilities from person to person.
17. Family members consult other family members on their decisions.
18. It is hard to identify the leader(s) in our family.
19. Family togetherness is very important.
20. It is hard to tell who does which household chores.
### FACES III: Ideal Version

David H. Olson, Joyce Portner, and Yoav Lavee

<table>
<thead>
<tr>
<th></th>
<th>ALMOST NEVER</th>
<th>ONCE IN AWHILE</th>
<th>SOMETIMES</th>
<th>FREQUENTLY</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IDEALLY, how would you like YOUR FAMILY TO BE:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Family members would ask each other for help.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>In solving problems, the children's suggestions would be followed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>We would approve of each other's friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>The children would have a say in their discipline.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>We would like to do things with just our immediate family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Different persons would act as leaders in our family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Family members would feel closer to each other than to people outside the family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Our family would change its way of handling tasks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Family members would like to spend free time with each other.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Parent(s) and children would discuss punishment together.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Family members would feel very close to each other.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Children would make the decisions in our family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>When our family got together, everybody would be present.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Rules would change in our family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>We could easily think of things to do together as a family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>We would shift household responsibilities from person to person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Family members would consult each other on their decisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>We would know who the leader(s) was in our family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Family togetherness would be very important.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>We could tell who does which household chores.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix D
FAMILY INFORMATION SURVEY

Completed By: ______________________________________
Date Completed: ______________________________________

1. Child's name:
   Last       First       Middle

2. Address:
   Street
   City       State       ZIP Code

   Home phone number (or number where you can be reached): (___) ______-_______

Complete the following items for female and male caregivers.

3. Primary female caregiver
   (if none, leave blank and go to #4)
   a. Name: ______________________________________
   b. Currently living w/child? ___Yes ___No
   c. Relationship to child:
      ___ Natural
      ___ Foster
      ___ Adopted
      ___ Step-parent
      ___ Other (specify: ______________________)
   d. Marital Status:
      ___ Married/Living with someone
      ___ Separated
      ___ Divorced
      ___ Spouse deceased
      ___ Single
   e. Circle highest level of education completed by mother:
      1 2 3 4 5 6 7 8
      9 10 11 12
      13 14 15 16
      17 and over
   f. Current Occupation: ____________________________
   g. Work phone number (___) ______-_______

4. Primary male caregiver
   (if none, leave blank and go to #5)
   a. Name: ______________________________________
   b. Currently living w/child? ___Yes ___No
   c. Relationship to child:
      ___ Natural
      ___ Foster
      ___ Adopted
      ___ Step-parent
      ___ Other (specify: ______________________)
   d. Marital Status:
      ___ Married/Living with someone
      ___ Separated
      ___ Divorced
      ___ Spouse deceased
      ___ Single
   e. Circle highest level of education completed by father:
      1 2 3 4 5 6 7 8
      9 10 11 12
      13 14 15 16
      17 and over
   f. Current Occupation: ____________________________
   g. Work phone number (___) ______-_______
5. Total yearly income for household
   (check one)
   
<table>
<thead>
<tr>
<th>Income Range</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>below $5,000</td>
<td></td>
</tr>
<tr>
<td>$5,000 to $7,999</td>
<td></td>
</tr>
<tr>
<td>$8,000 to $10,999</td>
<td></td>
</tr>
<tr>
<td>$11,000 to $14,999</td>
<td></td>
</tr>
<tr>
<td>$15,000 to $19,999</td>
<td></td>
</tr>
<tr>
<td>$20,000 to $24,999</td>
<td></td>
</tr>
<tr>
<td>$25,000 to $29,999</td>
<td></td>
</tr>
<tr>
<td>$30,000 to $34,999</td>
<td></td>
</tr>
<tr>
<td>$35,000 to $39,999</td>
<td></td>
</tr>
<tr>
<td>$40,000 to $44,999</td>
<td></td>
</tr>
<tr>
<td>$45,000 to $49,999</td>
<td></td>
</tr>
<tr>
<td>$50,000 to $59,999</td>
<td></td>
</tr>
<tr>
<td>$60,000 to $74,999</td>
<td></td>
</tr>
<tr>
<td>over $75,000</td>
<td></td>
</tr>
</tbody>
</table>

6. How many people are living in the home?
   
<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults (over 18)</td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

7. How many of the children in the home have delays or disabilities? ________

8. In a study of this type, it is very important that we keep in touch with you. Please list the names, addresses, and phone numbers of persons who will know your location. Thank you.

<table>
<thead>
<tr>
<th>Name</th>
<th>Street</th>
<th>City</th>
<th>State</th>
<th>ZIP Code</th>
<th>Phone number: (___)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Street</th>
<th>City</th>
<th>State</th>
<th>ZIP Code</th>
<th>Phone number: (___)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Street</th>
<th>City</th>
<th>State</th>
<th>ZIP Code</th>
<th>Phone number: (___)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix E
MEMORANDUM

TO: Kristin Bollwinkel
FROM: Mark S. Innocenti, Co-Director
SUBJECT: Permission to Use EIRI Protocols and Data
DATE: June 8, 1995

Some concerns have been raised regarding the use of the following measures in your thesis: Battelle Developmental Inventory, Family Inventory of Life Events and Changes, Family Support Scale, Family Resource Scale, Parenting Stress Index, and Maternal Behavior Rating Scale. The information from these measures comes from the Early Intervention Research Institute's Longitudinal Studies data set. We have provided you with permission to use these data and the terms of this agreement have been written elsewhere. In regard to the specific measures used, EIRI has obtained permission to use these measures from the authors in cases where the measures are not published. For published measures, EIRI purchases the instruments and protocols according to procedures established with the publishers. The data obtained from all measures becomes the property of EIRI and the federal government. Your use of the above-mentioned measures in your thesis falls under our agreements which have addressed copyright issues.

MSI:meh