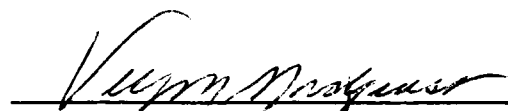
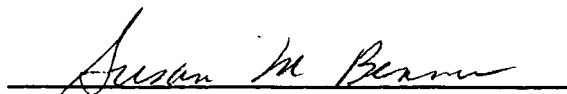
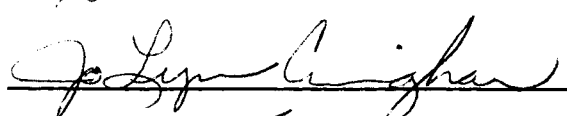
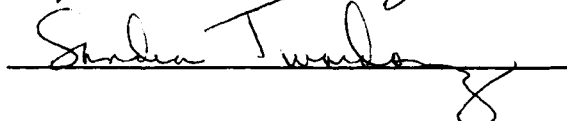


To the Graduate Council:

I am submitting herewith a dissertation written by Melinda M. Raab entitled "The Expression of Affection and Social Interaction in Families with Young Handicapped Children." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

  
Vey M. Nordquist, Major Professor

We have read this dissertation  
and recommend its acceptance:

Accepted for the Council:

  
Vice Provost  
and Dean of the Graduate School

THE EXPRESSION OF AFFECTION AND SOCIAL INTERACTION  
IN FAMILIES WITH YOUNG HANDICAPPED CHILDREN

A Dissertation  
Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville

Melinda M. Raab

March 1987

To Tom,  
who endured with love and understanding,  
and  
To Jewell Barnes Menger,  
who wanted us all to be lifelong learners

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## ABSTRACT

The purposes of this research were a) to describe differences in mothers' versus fathers' expressions of affection and social interaction to handicapped versus nonhandicapped children, b) to describe differences in mothers' versus fathers' expressions of affection and social interaction to handicapped children during three evening routines, c) to describe differences in children's reactions to affection versus social interaction, and d) to describe differences in children's reactions to mothers versus fathers.

In-home observations were conducted by nonparticipant observers on three occasions during the evening dinner routines in each of 11 families having a handicapped child 2-4 years of age and at least one nonhandicapped child. Parents' facial, verbal, and physical expressions of affection and their social interaction behavior to handicapped and nonhandicapped children, as well as children's reactions to parents' behavior, were recorded. Multivariate methods were used to analyze the data.

The results indicated that mothers and fathers behaved differently to handicapped and nonhandicapped children. Mothers expressed more affectionate words and exhibited more social interaction to handicapped children than did fathers. Also, mothers expressed more of all types of behavior, and

fathers expressed more active and passive affectionate physical contact to handicapped children than to nonhandicapped children. Passive and active affectionate physical contact occurred least frequently during the dinner routine. Handicapped children were less responsive to affection and social interaction than were nonhandicapped children and were less responsive to social interaction than to affection. Handicapped children responded more frequently with positive reactions and less frequently with negative reactions to fathers than to mothers.

Implications include the need for further research concerning the role of affection in the development of handicapped children and the role of setting events in the expression of affection during family interactions. Also, there is a need for further consideration of the nature of affectionate interactions between nonhandicapped children, their handicapped siblings, and their parents.

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## CHAPTER I

## INTRODUCTION

One result of legislation and litigation regarding handicapped citizens over the past two decades has been an increasing number of handicapped children who remain in the home to be cared for by parents. Concomitantly, there has been an increasing interest in the relationships that develop between parents and their young handicapped children. Although researchers frequently have relied on self-report methodologies such as interviews and questionnaires to study these relationships, there is evidence to suggest that there is little agreement between parent self-report and actual parent behavior (Lytton, 1971). Thus, the direct observation of parent-child interaction recently has been used to glean information regarding parent and child behavior during interactions. For example, studies have been conducted concerning the quality of the linguistic environment in mother-child interactions with a focus on mothers as teachers of language (Buckhalt, Rutherford, & Goldberg, 1978; Gutman & Rondal, 1979; Cunningham, Rueler, Blackwell, & Deck, 1981). Other researchers have been concerned with the maternal controlling or directive aspects of interactions between mothers and their handicapped children, particularly their retarded children (Breiner & Forehand, 1982; Cunningham et

al., 1981; Eheart, 1982). Also, the reciprocal nature of mother-child interactions with a focus on the contingent responsiveness of children to mothers' interactions has been of interest (Cunningham et al., 1981; Terdal, Jackson, & Garner, 1976).

In spite of increased interest in interactions between parents and their handicapped children, the information we have is limited. Partly because of evidence that there is a difference between parental behavior exhibited in home and laboratory settings (Belsky, 1979; Martin, Johnson, Johansson, & Wahl, 1976), researchers have recognized the need for descriptive research concerning in-home family interactions (Crnic, Friedrich, & Greenberg, 1983; Marfo, 1984; Stoneman & Brody, in press). However, there has been little documentation of family interactions during daily routines. In addition, the majority of studies have involved mothers' interactions with retarded children; fathers, siblings, and children with other handicapping conditions seldom have been studied. One specific area that rarely has been addressed is the expression of affection in homes of handicapped children.

### Rationale

Twardosz and Nordquist (1983) recently reviewed the evidence for the importance of the expression of affection.

In a number of studies concerning the child-rearing practices of parents of nonhandicapped children, parental warmth, acceptance, or affection has been found to be related to positive outcomes in children (Maccoby, 1980). For example, the expression of affection has been shown to be related to children's cognitive development (Radin, 1971, 1974), moral development (Hoffman, 1977; Hoffman & Saltzstein, 1967), self-concept (Coopersmith, 1967; Sears, 1970), altruism (Zahn-Waxler, Radke-Yarrow, & King, 1979), and secure attachment (Clarke-Stewart, 1973). Furthermore, infants' secure attachment to caregivers has been shown to be a predictor of future competence in problem-solving (Matas, Arend, & Sroufe, 1978), curiosity (Arend, Gove, & Sroufe, 1979), and social interaction with peers (Waters, Wippman, & Sroufe, 1979). In addition, in planning therapeutic and educational intervention procedures, clinicians often use a model in which affectionate behaviors are used as positive reinforcers (Twardosz & Nordquist, 1983).

Although such extensive research has not been conducted in families with handicapped children, there is reason to believe that the expression of affection is quite important for these families as well. For example, in families of mentally retarded children, high parental pride, affection, and warmth have been found to be characteristic of child-oriented, expressive families (Mink, Nihira, & Meyers, 1983).

and related to children's school adjustment (Nihira, Mink, & Meyers, 1981). Also, researchers have suggested that the nature of mothers' and infants' attachment is critical to the development of interactions in families of severely impaired children and may be related to family discord or the early burnout of parents as caregivers (Blacher & Meyers, 1983). In describing interventions to enhance the quality of interactions between parents and developmentally delayed children, Bromwich (1976) argued for first establishing an affective base for mutually satisfying interactions.

Investigations of the expression of affection may be particularly important in families with handicapped children. Children may be irritable, unresponsive, or difficult to care for; may make slow progress; or may have other characteristics that make affectionate interactions difficult (Bromwich, 1976; Kogan, Tyler, & Turner, 1974; Twardosz & Jozwiak, 1981). Researchers have reported that the continuous day-to-day caregiving responsibilities and the time required to care for the child are among the greatest problems faced by parents of handicapped children (Dunlap & Hollinsworth, 1977; Kazak & Marvin, 1984).

Problems associated with caregiving may be particularly burdensome for parents of physically handicapped children who have additional disabilities and who are moderately to

severely handicapped. These children may present problems or deficits in motor development, social and adaptive behavior, learning, memory and attention, or speech and language acquisition. Severely handicapped children also may have feeding problems, bowel or bladder problems, or neurological problems such as seizures. Similarly, they may exhibit self-stimulatory or self-injurious behavior (Blacher, 1984). The demands of caring for a child who presents such deficits may be great. Beckman (1983) reported that high levels of parental stress were associated with characteristics of the severely handicapped such as slow rate of progress, difficult temperament, little social responsiveness, stereotypic behavior patterns, and unusual caregiving demands.

The expression of affection with children having these characteristics may be difficult. However, we know little of the expression of affection in such stress-producing situations. Although the expression of affection in day care centers (Twardosz et al., in press) and in families with nonhandicapped children (Twardosz, Raab, & Richman, 1985) recently has been investigated, there is a need for continued documentation of the kinds of affectionate interactions that occur every day between children and their caregivers (Twardosz & Nordquist, 1983). There is little systematic knowledge of the ways in which parents of handicapped children express affection toward their

handicapped children or of the times of day or kinds of family activities in which the expression of affection is hindered or facilitated.

### Theoretical Orientation

The theoretical orientation for this study was drawn from an operant framework that has been the usual focus of social learning theory and applied behavior analysis. The framework will be used to describe the development and role of affection for young children.

Gewirtz (1969) described an operational-learning framework in examining early social development and learning. In this framework, social behavior is described as following the general laws of behavior, with the relevant stimuli mediated by people instead of by other factors in the environment. The constructs of this operational-learning approach are the same as those used for examining other groups of nonsocial behavior.

According to Gewirtz (1969), contact events such as hugging, kissing, rocking, stroking, and other kinds of affectionate behavior can function as positive reinforcers. A reinforcing stimuli is an event that strengthens the response that it follows. When a neutral stimulus is associated with a reinforcer so that it acquires reinforcing properties, it is said to be a conditioned reinforcer. When

a stimulus is paired with a variety of reinforcers under a variety of stimulus conditions, it may become a generalized conditioned reinforcer that may be effective in maintaining a number of responses under a wide range of setting conditions. Thus, the kinds of behavior that become conditioned reinforcers for an individual depend on that individual's reinforcement history.

Parents' affectionate behavior also may become discriminative stimuli for child responses, or stimuli that, after consistent pairing with a specific consequence, come to signal that a response is likely to result in that consequence. Thus, a discriminative stimulus may increase the probability that a previously reinforced response will occur and may come to exert control over that response (Kazdin, 1980).

Gewirtz (1969) maintained that many classes of events can come to function as discriminative stimuli for a wide range of child behavior. Events such as touching, holding, caressing, or even a parent's appearance may function as unconditioned stimuli, or they may become conditioned reinforcers or discriminative stimuli. Gewirtz argued that whether a stimulus such as affectionate behavior was an unconditioned or conditioned reinforcer for children at different stages of development was an empirical question.

Gewirtz (1969) used the concepts of discriminative and reinforcing stimuli to explain ways in which parents' and

children's behavior may condition the other's environment. A parent's affectionate behavior (e.g., holding, tickling, or kissing) may produce a response of smiles or laughter from the child. If the child's response is followed by a reinforcing stimulus such as additional physical contact, then the parents' initial affectionate behavior may come to exert control over the child's response. The child's response of smiling and laughter can reinforce the adult behavior of holding and tickling. Thus, the affectionate behavior of each is maintained by the reinforcing properties of the other. In addition, these expressive behaviors may be concurrent with emotional responses such as liking or loving, which also are reinforcing.

That parents and children thus can shape and maintain one another's responses quite successfully is consistent with a bidirectional approach to parent-child interaction that has been a recent focus of researchers (Bugental, 1985). Investigators can look not only at the reinforcing properties of the adult for the child (i.e., parent effects on children) but also at the reinforcement value of the child's response to the adult (i.e., child effects on parents) as well as at the interaction of parent and child behavior upon each other (Bell, 1968). For example, Yarrow, Waxler, and Scott (1971) found that when child behavior was considered as antecedent to adult behavior, children who

displayed frequent attention-seeking or help-seeking behavior received more nonnurturance from adults. In addition, adults were more likely to initiate subsequent contact with children who responded positively to their initiations than with children who were nonresponsive. Giving support to the interpretation of a reciprocal relationship in the maintenance of parent and child behavior are suggestions from correlational studies of mother-child interaction. For example, Hatfield, Ferguson, and Alpert (1967) found that in interactions during structured play settings maternal warmth was related to child warmth. Also, Babad, Alexander, and Babad (1983) found that when mothers and children were rated as smilers or nonsmilers, maternal smiling status was related to child smiling status.

For this study, affection was conceptualized as positive feelings of liking or love that are expressed by verbal, facial, or physical responses (Twardosz, Schwartz, Fox, & Cunningham, 1979). The facial expression of affection includes smiling or laughing at or with others. The verbal expression of affection is the expression of affectionate words such as compliments, praise, and endearments. The physical expression of affection includes both active physical contact such as hugging, kissing, or caressing and passive physical contact such as sitting on one's lap or holding hands.

### Assumptions

This research was based on the assumption that the development of handicapped children may be influenced by the kinds of interactions they experience within their family units. Thus, there were two corollary assumptions: that positive and pleasant family interactions are desirable and may be beneficial to handicapped children and that parents' feelings of affection toward their handicapped and nonhandicapped children is expressed by observable facial, verbal, and physical behavior.

### Objectives

The purpose of this research was to describe the expression of affection in families of young handicapped children. Specific objectives were (a) to identify differences in mothers' and fathers' expressions of affectionate and social behavior to their handicapped and nonhandicapped children (b) to identify differences in mothers' and fathers' expressions of affectionate behavior and social interaction to handicapped children during different evening routines, (c) to identify differences in handicapped and nonhandicapped children's reactions to affection and social interaction, and (d) to identify differences in handicapped and nonhandicapped children's reactions to their mothers and fathers.

## CHAPTER II

## REVIEW OF RELATED LITERATURE

Twardosz and Nordquist (1983) noted recently that researchers have not agreed on a definition of affection or on the kinds of behavior that might be involved in its expression. Also, researchers have used a variety of labels to describe similar concepts. For example, affection has been described as a feeling or emotion about a person who may act as a source of support, physical contact (Smith, 1982), or attachment (Sroufe & Waters, 1977). Other conceptual labels have included positive emotion (Clarke-Stewart, 1973), warmth, or nonverbal approval (Kazdin & Klock, 1973). Investigators have considered verbal, facial, and physical behavior such as praise or endearments (Acker, Acker, & Pearson, 1972), smiling or laughing (White, 1978), hugging or kissing (Tracy & Ainsworth, 1981), and lying against or other kinds of touching (Twardosz et al., in press) to be affectionate in nature.

Twardosz and Nordquist (1983) concluded that it may be necessary to refer to operational definitions of particular kinds of behavior included in a study as well as to the conceptual labels used to guide the study. Thus, for the purpose of this review, observational studies that include the physical, verbal, or facial aspects of parents' interactions with handicapped children have been included.

In addition, other studies in which there are reports of parents' attitudes and perceptions of handicapped children or of the impact of handicapped children on the family have been included.

### Impact of Handicapped Children on Parents

The majority of investigations concerning the impact of handicapped children on their parents have involved mentally retarded children, and few observational studies have been conducted. Most information has been obtained through retrospective, self-report methodologies such as interviews and questionnaires. Researchers usually have been concerned with mothers of handicapped children, and relatively little is known about fathers. However, there are suggestions from the literature that both mothers and fathers experience stressors and attitudes or perceptions that may have implications for family interaction.

Compared to families with nonhandicapped children, families with handicapped children may experience inordinate stress (Friedrich & Friedrich, 1981; Kazak & Marvin, 1984; Wikler, 1981) that may influence the quality of the parent-child relationship (Bubolz & Whiren, 1984; Frodi, 1981). Stress associated with having a handicapped child may arise from a variety of sources. For example, a number of researchers have suggested that parental stress in families with handicapped children may be related to child

characteristics. Beckman (1983) found that for families with handicapped children under 3 years of age, the lower the child's rate of progress and social responsiveness, the greater the amount of stress reported by mothers. In addition, difficult temperament and extra caregiving demands were related to increased stress. Gallagher, Beckman, and Cross (1983) noted that with increasing age, handicapped children are increasingly difficult to manage. Other sources of stress include the number of parents in the home (Beckman, 1983), the financial burdens of caring for the handicapped child (Price-Bonham & Addison, 1978), interactions with professionals (Turnbull & Turnbull, 1978) and formal and informal social supports (Fotheringham & Creal, 1974; Waisbren, 1980; Friedrich & Friedrich, 1981).

Parenting a handicapped child also may have an impact on parents' perceptions of their family and community roles. Cummings, Bayley, and Rie (1966) found that mothers of mentally retarded children reported a lower sense of competence as mothers and more depressive feelings, preoccupation with their handicapped child, and difficulty controlling anger than did mothers of chronically ill, neurotic, or normal children. Fathers of mentally retarded children also scored high on scales of depressive feelings and preoccupation with children; they ranked low on self-acceptance and self-confidence as fathers and reported experiencing low satisfaction in community and family

relationships (Cummings, 1976). Fathers also have been described as reporting more stress over physical attributes of the child that might stigmatize the family in the community than over other, less salient, attributes (Price-Bonham & Addison, 1978).

There have been suggestions that the impact a handicapped child has on the family may have implications for the kinds of interactions that occur in the home. For example, Blacher (1984) suggested that in families of severely handicapped children, a child's physical deformity and unattractiveness, limited cognitive competence and social skills, limited mobility, and limited communicative ability may affect behavioral interchanges in the home. Affectionate interchanges may be difficult. Also, abusive behavior toward children is more likely to occur in situations of great stress, such as those experienced by parents of handicapped children (Frodi, 1981). There is evidence that a disproportionately high number of abused children are handicapped (Frodi, 1981; Sandgrund, Gaines, & Green, 1974). Negative parental behavior has been attributed in part to the aversive physical and temperamental characteristics of handicapped children, as well as to patterns of parent-child interactions and environmental stress (Frodi, 1981).

### Role Allocations

There are indications from the findings of several studies that mothers and fathers may assume different family roles that have implications for the number and kinds of interactions they experience with their handicapped children. Fathers often may be peripheral to parenting but may serve other family functions. That is, although mothers of handicapped children traditionally have been responsible for the primary care of the children, fathers have viewed their roles as ones of provider and protector (Gallagher, Cross, & Scharfman, 1981; Gallagher, Scharfman, & Bristol, 1984; Kazak & Marvin, 1984).

For example, Kazak and Marvin (1984) found that fathers of spina bifida children spent less time caring for their children in the evening than either their wives or fathers of nonhandicapped children did. For fathers of mentally retarded sons, extremes of great involvement or total withdrawal have been reported (Tallman, 1965). Cummings (1976) suggested that a structure of family role allocations in which mothers assumed primary responsibility for the care of the handicapped child and fathers were peripheral to that care resulted in fewer opportunities for fathers to help the child or to express concrete evidence of their love for the child. In addition, parents' perceptions and concerns about their child's future functioning may be influenced by the

roles they assume (Gumz & Gubrium, 1972). That is, mothers may be concerned about the child's ability to sustain relationships, but fathers may be concerned about the child's future roles outside the family (whether the child will be able to support himself or herself).

The characteristics of families' role divisions, however, may not be particularly different from those of families with nonhandicapped children. Clarke-Stewart (1978) reported that in homes of 14 young nonhandicapped children, mothers were the predominant caretakers. Gallagher, Scharfman, and Bristol (1984) found no major differences between families with handicapped and nonhandicapped children in parents' role allocations. Fathers reported that their major roles were those of provider, protector, defender, and outside home caretaker. In general, mothers assumed the roles of food shopper, food preparer, and inside home caretaker, as well as most of the child care roles. Although some child care roles were shared (e.g., child discipline, recreation advisor), mothers of handicapped children expressed dissatisfaction and wanted their husbands to accept more child care responsibility. Other findings regarding the similarities between families with handicapped children and families with nonhandicapped children have been reported by Linder and Chitwood (1984). They found that fathers' contact time with young handicapped children (about 20 hours a week) was comparable to the

contact time reported by fathers of nonhandicapped children.

It might be inferred from the results of these studies that mothers of handicapped children, in their primary role as caretaker, may have more opportunities than do fathers to interact with and express affectionate behavior toward their handicapped children. However, there are suggestions that mothers' opportunities to do so may be confounded by the increased stress related to the caregiving demands of the child (Beckman, 1983).

### Parent-Child Interaction

There is little available information regarding the affective interchanges in families with handicapped children. There are suggestions from the literature focused on nonhandicapped children that the types of affective interchanges during play that occur between parents and children may be different for fathers and mothers. For example, Clark-Stewart (1978) found no differences between mothers and fathers in the frequency of social-physical play with their young children but found differences in the type of play. Fathers were noted for robust, physically stimulating kinds of play, whereas mothers were characterized by caretaking and quieter, nurturing kinds of play. Brooks-Gunn and Lewis (1982), however, suggested that interactions with handicapped children may be different from interactions with nonhandicapped children because

handicapped children's facial, postural, or verbal limitations may make certain expressions of emotion unavailable or delayed or because the parents' expectations may be different. The majority of observational studies concerning parent-child interaction have been conducted with retarded children.

### Parents' Behavior to Mentally Retarded Children

The majority of research concerning interactions of parents with their retarded children has been focused on either the maternal linguistic environment or mothers' control and directiveness in play settings. A number of researchers have studied various aspects of maternal speech, such as frequency and mean length of utterance, different types of sentences, or repetitions (Buckhalt et al., 1978; Rondal, 1977), and concluded that when the maternal linguistic environment is considered in terms of the child's mental competence, mothers of retarded children and mothers of nonretarded children tend to regulate speech in a similar fashion according to the child's level of functioning (Marfo, 1984). In addition, mothers of retarded children appear to give more commands and directives (Breiner & Forehand, 1982; Cunningham et al., 1981; Eheart, 1982) and provide more lead-taking in play interactions (Jones, 1980) than do mothers of nonretarded children. In spite of this body of literature regarding mother-retarded child

interactions, there actually is little information concerning the ways parents express affection toward their retarded children. However, findings from a few studies provide some evidence of affectionate interactions.

For example, mothers of retarded children appear to be less contingently responsive to the appropriate behavior of their handicapped children. Cunningham et al. (1981) reported that mothers of retarded children were less likely to provide contingent positive responses to children's cooperative behavior during play situations than were mothers of nonhandicapped children. Similarly, Terdal et al. (1976) studied mothers' positive and negative consequences to children's compliant and noncompliant behavior. They reported that mothers gave undifferentiated positive responses to the noncompliant as well as the compliant behavior of their retarded children. Thus, it appears that mothers of retarded children may be less concerned with the appropriateness of their children's behavior than with eliciting any kind of participation from them.

In another study concerning parent-child affective exchanges, Brooks-Gunn and Lewis (1982) investigated the behavior of Down's syndrome, motorically impaired, developmentally delayed, and nonhandicapped children under 3 years of age in free play settings with their mothers. They recorded mothers' smiles and vocalizations and children's

positive and negative affect and communicative behavior. Mothers displayed more interactive smiles to older handicapped children (24 months) than to younger ones, and this difference was enhanced when the children were grouped according to their developmental ages rather than their chronological ages. Mothers' smiling did not differ as a function of their children's handicapping conditions. However, mothers of nonhandicapped children were more likely to smile as a proportion of their total behavior and more likely to smile in interaction sequences than were mothers of handicapped children. Although mothers of older nonhandicapped children were more responsive to their children's smiles than were mothers of younger nonhandicapped children, mothers of handicapped children were not more responsive to older children than to younger children. The authors concluded that the mothers of handicapped children did not facilitate their children's positive emotional expressions. Again, these mothers of retarded children did not appear to adjust their behavior to elicit appropriate responses from their children.

In two of the few studies conducted in homes, Stoneman and her colleagues recently reported descriptive findings from observations of young Down's syndrome children and their parents during semistructured play sessions (Stoneman, Brody, & Abbot, 1983) and during a variety of daily activities (Stoneman & Brody, in press). These

investigators were concerned with the kinds of roles (e.g., teacher, manager, helper, playmate, or observer) that parents might assume and with other kinds of behavior (e.g., positive or negative affect, positive or negative touch, or positive or negative verbalization) that parents might express with their handicapped children. Analyses of differences between parents revealed that during the semistructured play sessions, mothers of Down's syndrome children assumed the teacher role more often than did either their husbands or parents of nonhandicapped children. In addition, parents of handicapped children played with children less frequently; assumed the manager role more frequently; and displayed more positive verbal, positive physical, and touching behavior than did parents of nonhandicapped children. During the daily routines, mothers were engaged with their handicapped children, in general, more often than were fathers. Although there were no differences between the parents in their assumption of the playmate role, mothers assumed the teacher and manager roles, talked to handicapped children, and engaged in positive and negative interactions with them more often than fathers did.

Stoneman et al. (1983) also considered contextual influences on parent-retarded child interaction because of evidence suggesting that in families of nonhandicapped children, parents behave differently in triadic and dyadic

interactions with children. For example, Clarke-Stewart (1978) found that mothers of young children displayed less positive and responsive talk and less play with children when the fathers were at home than they did when fathers were not present. Also, in triadic interactions, mothers played with children more than fathers did. In addition, Brody and Stoneman (1981) observed laboratory free play settings and found that personal space, touching, and facial expressions of family members were influenced by the number of family members present. That is, in triads, there were larger spatial boundaries, less touching, and more positive facial expressions than in dyadic situations. Again, fathers seemed to defer to mothers during the triadic situations; there were greater father-child spatial boundaries and less father-child touching than were found for mothers and children. Thus, Stoneman et al. (1983) included a mother-father-child play setting in their study of families of Down's syndrome children and of nonhandicapped children and reported that in triadic settings, fathers of both groups of children observed more frequently and verbalized less frequently than did mothers. Parents of Down's syndrome children assumed the helper, manager, and teacher roles and displayed positive verbal, positive physical, and touching behaviors more frequently than did parents of nonhandicapped children.

In summary, few researchers have included affectionate behavior in studies of parents' interactions with their retarded children. However, there is evidence that parents do interact in affectionate ways with their retarded children and do not seem to differentiate among the types of child behavior that receive affectionate responses. Although fathers rarely have been included, there is some indication from the in-home studies that in some situations, fathers interact with their retarded children less frequently than do mothers. These results appear to be consistent with parents' self-reports of family role allocations (Gallagher, Scharfman, & Bristol, 1984).

#### Parents' Behavior to Physically Handicapped Children

Very few researchers have conducted observations of interactions between physically or motorically impaired children and their parents. However, there are suggestions that physically handicapping conditions may have implications for the kinds of affectionate behavior that parents express toward their handicapped children.

Kogan et al. (1974) observed 10 cerebral palsied children (1-4 years of age) in physical therapy and unstructured play settings with their mothers and in therapy sessions with physical therapists. The series of observations were conducted three times over a 2-year period. Using a 7-point Likert-type scale, the

investigators rated mothers on relative status (directing, exerting control, teaching, displaying assertiveness), affection (exhibiting or seeking warmth, friendliness, or personal consideration), and involvement. Affection included behaviors such as smiling, sharing enjoyment, using a friendly tone of voice, and displaying physical closeness (affect scale score of 5) as well as using statements of praise or acceptance or love or engaging in direct physical expressions such as hugging or kissing (affect scale score of 6 or 7). The investigators reported that as mothers continued to participate in therapy over the 2-year period, there was a gradual decrease in the amounts of warmth and acceptance they displayed toward their children during the therapy sessions (affect scale score of 5). There were no changes, however, in mothers' praise and direct physical expressions of affection. Similarly, mothers displayed progressively fewer positive feelings during the play sessions over the 2-year period and had lower rates of positive feelings than a group of mothers of nonhandicapped children did. The mothers' affect decrement was related to the gross motor deficits of their handicapped children. Specifically, the less the child's progress in gross motor skills, the greater the mothers' affect decrement over the 2-year period. This was particularly true for children who were unable to walk. The researchers suggested that the mothers began to concentrate more on the child's deficit

areas during physical therapy and play sessions and were less able to appreciate areas of competence. Kogan (1980) suggested that an intervention of guided instruction during therapy might serve as a preventative measure for reducing stress and conflict in mother-child interactions and thereby slow or prevent the reduction of positive feelings.

In other studies, Wasserman and her colleagues (Wasserman & Allen, 1985; Wasserman, Allen, & Solomon, 1985) videotaped mothers with their physically impaired toddlers at 9, 12, 18, and 24 months of age. They included orthopedically impaired children as well as children with facial anomalies such as cleft palate and cleft lip. Mothers of the handicapped children exhibited an increasing trend in the level of encouragement (including praise) as the children increased in age, and they displayed a greater level of encouragement than mothers of premature children displayed (Wasserman, Allen, & Solomon, 1985). However, compared to mothers of premature and healthy children, these mothers also showed a greater degree of withdrawal from their children after 18 months of age (Wasserman & Allen, 1985). That is, when maternal ignoring was scored for directing attention away from the child for at least 7 consecutive seconds, mothers of the physically impaired toddlers ignored their children more often than did the control mothers. Ignoring was particularly prevalent for mothers of children with facial anomalies. Neither a

concurrent low IQ or a decrease in IQ over the previous 12 months was predictive of ignoring.

Thus, there are some indications from studies with physically impaired children that although mothers may work very hard to encourage their handicapped children to respond or to sustain activity, they also may be at risk for decreasing other positive behavior toward their children. None of the studies were conducted in homes and none included fathers. Thus, there is no evidence regarding the types of affectionate interactions that might occur within the family during daily activities.

#### Attachment Behavior of Parents and Children

Attachment is an affectional tie that binds a person to another and endures over time (Ainsworth & Bell, 1970). Attachment may be manifested in different ways in different contexts; attachment behaviors are those that promote proximity or contact and include smiling, following, vocalizing, and clinging. Thus, the study of attachment has included affectionate behavior as well as other behavior that might occur during interaction and caregiving (Twardosz et al., 1983).

Although researchers have drawn conclusions regarding attachment from interviews (Emde & Brown, 1978), mothers' reports (Stone & Chesney, 1978), and observations of mother-child interactions (Greenberg, 1971), a frequently used

procedure is the Strange Situation described by Ainsworth and Bell (1970). The Strange Situation is a laboratory procedure used during the first 2 years of life in which a child's ability to receive comfort in a stressful situation and to resume exploration is assessed in a series of episodes of separation from and reunion with the mother, with and without a stranger present. Researchers record the child's reactions to these episodes, including the tendency to seek and maintain proximity to the mother, the tendency to show evidence of distress, the tendency to resist contact with the stranger, and the ability to be comforted by the mother. Attachment is classified by three types: secure, anxious avoidant, and ambivalent. A securely attached infant tolerates the mother's absence while alone and in the stranger's presence; seeks proximity, contact, and interaction with the mother; and does not resist contact. An anxious avoidant infant shows passivity and fails to seek proximity or interaction with the mother during reunion episodes. An ambivalent infant is resistant, shows much distress during separation, and alternately seeks and resists contact with the mother during reunion episodes. These procedures have been used to assess attachment in families with nonhandicapped (e.g., Waters, Wippman, & Sroufe, 1979) and handicapped (e.g., Berry, Gunn, & Andrews, 1980) children.

There has been an interest in describing the attachment behavior of handicapped children because there are suggestions that the quality of attachment could be related to abuse or neglect, to family discord, to decisions to place the child out of the home, and to the early burnout of parents as caregivers (Blacher & Meyers, 1983). Thus, researchers have used the Strange Situation, other observational procedures, interviews, and questionnaires to draw conclusions about attachment in young handicapped children. Few researchers have been concerned with mothers' attachment to their handicapped children, although Blacher and Meyers suggested that it may be critical to the development of family dynamics in families with severely handicapped children. Specifically, without positive child responses, mothers may withdraw, and maternal attachment may be affected (Blacher, 1984).

Several researchers have used the Strange Situation procedure to investigate the attachment behavior of Down's syndrome children. Down's syndrome children have been found to be similar to nonhandicapped children in their sensitivity to the Strange Situation and in their patterns of response, particularly during stranger-present episodes (Berry et al., 1980; Cichetti & Serafica, 1981; Serafica & Cichetti, 1976), but they are quantitatively different in their degree of responsiveness (Cichetti & Serafica, 1981). That is, the Down's syndrome children rarely cried or showed

fearfulness when separated from their mothers. Thus, Down's syndrome children are described as following the same stages of attachment as nonhandicapped children but at a slower pace (Blacher & Meyers, 1983). Similarly, Cichetti and Sroufe (1976) found that the course of development of positive affect (laughing and smiling) of Down's syndrome children was delayed but proceeded in the same sequence as that of nonhandicapped children.

Researchers using other procedures have confirmed a delay in the discreet attachment behavior of Down's syndrome children. For example, using observational methods as well as interviews and developmental testing, Emde and Brown (1978) noted diminished smiling, eye contact, and social responsiveness of Down's syndrome infants compared to nonhandicapped children. In addition, there are suggestions that the attachment of parents to their Down syndrome children may be hindered by the children's delayed affect (Emde, Katz, & Thorpe, 1978).

There are indications from results of investigations with children with other handicapping conditions that there may be delays or disruptions in the formation of attachment for these children as well. For example, Stone et al. (1978) interviewed and obtained reports from 15 mothers of blind, brain-injured, multiply handicapped, and Down's syndrome children; they also conducted observations of mother-child interactions. They concluded that all infants

displayed delays in one or more kinds of attachment behavior. In addition, Greenberg (1971) observed mothers and their developmentally disabled infants and reported that the disabled children cried, were withdrawn, were avoidant, and showed no response to separation. As a group, mothers responded in a less uniform manner than did mothers of nonhandicapped children. However, Fraiberg (1974) suggested that for blind infants, attachment behavior was similar to those of nonhandicapped children.

In one of the few studies with a focus on the mother, Rosen (1955) found that half of 36 mothers with retarded children reported that their own feelings hindered their acceptance of their child. The mothers seemed unable to make overtures to their children and unable to respond to their children's overtures.

In a recent review of attachment formation in handicapped children, Blacher and Meyers (1983) concluded that when handicapping conditions preclude a cuddling and comforting relationship, disruptions in attachment formation may be likely. They suggested that severely handicapped children may never achieve the level of cognition and reciprocity necessary for complete attachment. In addition, the child's lack of response to the mother's overtures may threaten the mother's attachment.

### Responsiveness of Handicapped Children

A number of researchers have investigated the responsiveness of mentally retarded children in play settings with mothers and have concluded that compared to nonhandicapped children, young retarded children were less contingently responsive to mothers' initiations (Buckhalt et al., 1978; Eheart, 1982; Terdal et al., 1976; Vietze et al., 1978) and engaged in more solitary play (Cunningham et al., 1981). In addition, Kogan, Wimberger, and Bobbit (1969) observed mentally retarded children, 3-7 years of age, and found that these children did nothing with their mothers more often than they interacted with them. However, these investigators suggested that although mothers and their retarded children characteristically displayed neutral behaviors together, the children also were sensitive to affective interactions with their mothers. In general, mothers' affective displays were matched by children's affective displays.

Handicapped children's responsiveness to fathers rarely has been investigated. However, in a recent study, Stoneman et al. (1983) found that young Down's syndrome children responded differentially to mothers and to fathers. During semistructured play sessions, both handicapped and nonhandicapped children directed more negative affect toward mothers than toward fathers but responded more often to the teaching attempts of fathers than of mothers. In addition,

naturalistic observations of families' daily activities of Down's syndrome children and their parents revealed that handicapped children complied with mothers' managing attempts less frequently than with the managing attempts of fathers (Stoneman & Brody, in press).

In addition, there are suggestions that the affectionate responses of handicapped children may be related to the type of handicapping condition. For example, Brooks-Gunn and Lewis (1982) compared the behavior of physically impaired, developmentally delayed, Down's syndrome, and nonhandicapped children under 3 years of age during laboratory free play sessions. Smiles comprised only 3-6% of the handicapped children's behavior, and 29% of the handicapped children never smiled. The occurrence of smiles was less for handicapped children than for nonhandicapped children. Physically impaired children smiled more frequently as a proportion of their total behavior than did Down's syndrome or developmentally delayed children. The proportions of children's smiles that were in response to mothers' interactions decreased with age for both handicapped and nonhandicapped children. Again, physically impaired children displayed a higher response proportion than Down's syndrome or developmentally delayed children. However, when affectionate behavior other than smiling has been observed (e.g., physical closeness; statements of

praise, acceptance, or love; or active physical expressions, including hugging and kissing), investigators have found no differences in the affective responses of physically handicapped and retarded children (Kogan & Tyler, 1973).

Other investigators have confirmed the lower response rates for positive affect (smiles, laughter, affectionate contact, or positive physical expression) of physically handicapped children compared to nonhandicapped children in interactions with their mothers (Wasserman, Allen, and Solomon, 1985). Kogan and Tyler (1973) reported that children with cerebral palsy focused their attention on their mothers less often than did nonhandicapped children and that these lower involvement ratings were related to the children's level of language development rather than to the level of motor development. However, Gallagher, Jens, and O'Donnel (1983) found high negative correlations between children's muscle tone and laugh response (but not smile response) and suggested that the physical status of the handicapped children may have prevented them from producing laughter. Developmental age, rather than muscle tone, was related to the children's smile response.

In summary, it appears that both mentally and physically handicapped children may be less actively engaged with and less contingently responsive to parents than are nonhandicapped children. Handicapped children's ability to respond affectionately may be related to cognition or to

physical limitations. However, there are indications that parents' affectionate behavior may elicit similar responses from children.

### Siblings of Handicapped Children

Nonhandicapped siblings of handicapped children have received little attention from researchers. In general, there have been two lines of research concerning nonhandicapped siblings. First, researchers have focused on the impact of a handicapped child on the functioning of a nonhandicapped sibling. The second area of interest has been the relationship between handicapped and nonhandicapped siblings. Almost no research has included findings concerning the relationship between nonhandicapped siblings and their parents.

### Impact of a Handicapped Child on Nonhandicapped Siblings

Although researchers and clinicians may have assumed that nonhandicapped siblings may experience great stress (Lobato, 1983), the results of studies regarding the impact of a handicapped child on nonhandicapped siblings have been equivocal. There are suggestions from several investigations that the detrimental effects on nonhandicapped siblings are minimal. For example, Cleveland and Miller (1977), in a retrospective study, found that adult nonhandicapped siblings of younger retarded brothers

and sisters reported that, as children, they had adapted and coped successfully. Also, Graliker, Fishler, and Koch (1962) found that adolescent siblings of younger retarded brothers and sisters reported a favorable impact of having a retarded sibling. Considering siblings of children with cystic fibrosis, myelodysplasia, cerebral palsy, and multiply handicapping conditions, Breslau, Weitzman, and Messenger (1981) found no differences between mother reports of the overall psychological functioning on siblings of these handicapped children and those of nonhandicapped children.

Other investigators, however, have suggested that some nonhandicapped children may be harmed by the experience of having a handicapped sibling. Grossman (1972) interviewed college-age siblings of mentally retarded children and reported that although 45% had benefitted from having a retarded sibling, another 45% had been harmed. They reported feelings of guilt and resentment about the handicapped child. Also, nonhandicapped siblings of Down's syndrome children (Gath, 1973) and of children with myelomeningocele (Tew & Laurence, 1973) were more likely to be rated by mothers and teachers as deviant or as exhibiting school-related problems than were siblings of nonhandicapped children.

The impact of a handicapped child on a nonhandicapped sibling has been found to be mediated by the gender and birth order of the nonhandicapped child (Lobato, 1983).

That is, there may be more problems for younger brothers and older sisters of handicapped children (Breslau et al., 1981; Grossman, 1972). Female siblings have been described as assuming a portion of the caregiving responsibilities for the handicapped child (Cleveland et al., 1977; Grossman, 1972).

### Relationship Between Siblings

A number of researchers have suggested that the reaction of a nonhandicapped child to a handicapped sibling is similar to the reaction of the parents. That is, the parents' feelings and reactions were important to the siblings' acceptance of the handicapped child (Graliker et al., 1962; Grossman, 1972; Tew et al., 1973). In addition, nonhandicapped children have reported that they engaged in caregiving interactions with their handicapped siblings and exhibited more positive and less negative affect toward them than toward their nonhandicapped siblings (Miller, 1974).

### Parent-Nonhandicapped Sibling Relationship

Researchers rarely have considered the nature of the relationship between parents and nonhandicapped siblings. Again, the findings are equivocal. There are indications that the relationship is a healthy one. For example, Graliker et al. (1962) reported that adolescent siblings of younger mentally retarded children considered that their relationships with parents were healthy. Also, mothers of

children with cystic fibrosis, cerebral palsy, and multiply handicapping conditions have reported that they did not spend less time with their nonhandicapped children than with their handicapped children and that the extra care required by their handicapped children did not adversely affect their relationships with their nonhandicapped children (Breslau et al., 1981). This finding contradicts the suggestion that the energies and resources of parents may be consumed by the handicapped child's needs, with resulting adverse effects on the nonhandicapped sibling. Grossman (1972) found that of siblings who had been harmed by the experience of having a retarded brother or sister, some felt they had been neglected by their parents in favor of the handicapped child. Indeed, mothers of physically handicapped children have reported that they believed their nonhandicapped children had had to take second place to the handicapped children (McAndrew, 1976).

### Summary

Although few researchers have investigated the expression of affectionate behavior in families with handicapped children, there are suggestions from studies concerning parental stress and family role allocations that affectionate interactions may be difficult. Parents, especially mothers, may experience stress related to the care of the handicapped child and to aversive child

characteristics. Mothers who are the primary caregivers may have increased opportunities to express affection compared to fathers, but these opportunities may be confounded by stress related to the caregiving demands of their handicapped children. Also, there are suggestions that handicapping conditions might make affectionate relationships so difficult that disruptions in attachment formation may be likely.

However, there is evidence from observational studies of retarded children that parents do interact in affectionate ways with their children but may not differentiate among the types of child behavior that receive affectionate responses. Mothers have been reported to interact with their retarded children more frequently and more affectionately than do fathers.

Although mothers of physically impaired children may attempt to encourage and sustain child activity, they may be at risk for decreasing affectionate behavior toward their children. There is no available information concerning the affectionate behavior of fathers of physically handicapped children or the types of affectionate exchanges that might occur among family members during daily activities.

In general, handicapped children have been described as being less responsive to parents than are nonhandicapped children. Although they may respond to affective behavior with similar affect, their responses may be decreased by the

limitations of their handicapping conditions. In addition, handicapped children have been reported to respond differently to mothers' and to fathers' behavior.

There is almost no available information concerning the nature of the relationship between parents and nonhandicapped siblings of handicapped children. Although there are some indications that nonhandicapped siblings adapt well and experience healthy relationships with parents, other evidence suggests that they may be neglected by parents because of the caregiving requirements of the handicapped child.

## CHAPTER III

### METHODS

This research was a focused examination of in-home interactions in families with young handicapped children. It involved a naturalistic approach with documentation by nonparticipant observers of family interactions during daily evening routines.

#### Hypotheses

Hypotheses for this study were formulated on the basis of parents' affectionate behavior and social interaction to their handicapped and nonhandicapped children and on the basis of children's reactions to parents' affectionate behavior and social interaction. The hypotheses for this study were:

1. There is a difference in the affectionate behavior and social interaction expressed by mothers versus fathers to handicapped versus nonhandicapped children.
2. There is a difference in the affectionate behavior and social interaction expressed by mothers versus fathers to handicapped children during three evening routines.
3. There are differences in handicapped versus nonhandicapped children's reactions to affection versus social interaction.

4. There are differences in handicapped versus nonhandicapped children's reactions to the behavior of mothers versus fathers.

### Design

A passive-observational design was used for this study (Cook & Campbell, 1979). The independent variables for the study were type of evening routine, type of recipient, and type of parent, all of which were repeated measures factors. Thus, all hypotheses involved design over measures dimensions. Parents' affectionate and social interaction behavior and children's positive, negative, neutral, and no reactions were the dependent variables for the study.

### Subjects

Subjects were 11 two-parent families each with 2 (9 families) or 3 (2 families) children, one of whom had a primary physical handicap or motor delay. The handicapped children (7 females, 4 males) ranged in age from 2.25 - 4.5 years ( $M = 3.7$  years,  $SD = 0.8$  years). They presented a variety of handicapping conditions, including 6 with cerebral palsy, 3 with myelomeningocele, one with Pierre Robin syndrome and Kniest Dysplasia with accompanying cleft palate, and one Down's syndrome child with associated low muscle tone and motor delay. In addition, 7 of the children had an associated seizure disorder, and all but 1 of the

children who did use speech had an accompanying speech or language delay. The children's gross motor skills ranged from having very little head and trunk control (4 children) to walking unsteadily without the aid of braces (2 children). Three children were ambulatory with the aid of braces and a walker, and 7 children used a wheelchair during a portion of their day. The children's communication skills ranged from using no meaningful signs to using age-appropriate language. Self-help skills also varied. Five children fed themselves independently or with little assistance from parents, 4 children were completely dependent on adults for feeding and ate blended or baby food, and 1 child had extreme difficulty swallowing. Three children were working toward independent toileting but still needed assistance. The others were dependent on adults for toileting functions.

There were 13 nonhandicapped siblings (9 males, 4 females) ranging in age from 5 months to 11.6 years ( $M = 5.6$  years,  $SD = 3.6$  years). The siblings had no identified or apparent handicapping conditions. Nine children were older, and 4 were younger than their handicapped siblings.

Mothers ranged in age from 26 to 35 years ( $M = 30.5$  years,  $SD = 3.4$  years). Three mothers were employed outside the home. One was a nurse; another was an office manager; the third was an interior decorator. Three mothers had

completed college, 6 had attended college, 1 had completed high school, and 1 had completed grade school.

Fathers ranged in age from 26 to 39 years ( $M = 32.5$  years,  $SD = 3.5$  years). Eight fathers were employed in a variety of full time occupations, including sales, technical writing, data processing, plumbing and heating, electrical engineering, and management. Three fathers were not engaged in full-time employment at the time of the study. One, a student, worked at part-time positions; another was temporarily unemployed; the third was the primary caretaker in the family and occasionally worked outside the home in the evenings. One father had completed graduate school, 4 had completed college, 4 had attended college, and 2 had attended high school.

Couples had been married an average of 10.1 years ( $SD = 4.3$  years, range of 4 - 16 years). Four families rented, and 7 families owned their homes. Seven families categorized their socioeconomic level as middle class, and 4 families categorized themselves as lower class.

Families were recruited through agencies serving handicapped children in Knox, Anderson, Blount, and Jefferson Counties, Tennessee. Two-parent households with at least one nonhandicapped child and another child 2-4 years of age who had a physically handicapping condition met the criteria for the study. Each agency director notified these parents by letter or by phone to tell them of the

study. Those parents who expressed interest were contacted by phone, and with their permission, in person, to explain the research and their participation in it. The first 11 families who met the criteria and agreed to participate served as subjects. The informed consent form is provided in Appendix A.

### Measurement

The Affection Measurement System for Family Interaction (Twardosz, Richman, & Bowen, 1984) was used to measure parents' affectionate behavior to and social interaction with other family members. In addition, a family information form was used to obtain demographic information about each family (Appendix B).

The Affection Measurement System for Family Interaction (Twardosz et al., 1984), adapted from another measurement system that previously was used in day care centers (Twardosz, Schwartz, Fox, & Cunningham, 1979), involved the direct observation of family members' behavior during evening routines. This system is quite similar to the previous system but was modified slightly to include examples of affectionate behavior that might occur in families. It includes four categories of affectionate behavior: smiling, affectionate words, active affectionate physical contact, and passive affectionate physical contact.

Also included are categories of social interaction and no interaction. Operational definitions for these categories of behavior are provided in Table 1.

### Procedures

Parents' behavior was measured by direct observation in the home setting during three evening routines. Each observation consisted of three 30-second intervals. Each 30-second interval consisted of a 10-second observation interval and a 20-second recording interval. Observers observed and recorded the occurrence of behavior of one parent for three consecutive intervals and then observed the other parent for three consecutive intervals. This observe and record procedure was repeated continuously throughout the observation period.

Observers also recorded the recipients of each parent behavior. The recipient was the person to whom a parent directed a behavior. If a parent directed a behavior to more than two people, the recipient was recorded as "group." Possible recipients of parent behavior were the handicapped child, the nonhandicapped child, and the other parent.

Finally, the observers recorded each recipient's reaction to parent behavior. Reactions were recorded as positive, negative, neutral, or no reaction. Operational definitions of these categories of reactions are provided in Table 2.

Table 1

Operational Definitions of Parents' Behavior

| Behavior                              | Definition                                                                                                                                                                                                                                                                                                  |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Smiling                               | Subject smiles or laughs at or with someone for any part of the interval.                                                                                                                                                                                                                                   |
| Affectionate words                    | Subject addresses someone with endearments, compliments, or praise; tells someone s/he likes or loves him/her or that she enjoys being with him/her; or verbally teases someone in an affectionate manner.                                                                                                  |
| Active affectionate physical contact  | Subject touches another in an active affectionate manner such as hugging, cuddling, putting arm around, kissing, tickling, patting, stroking, caressing, wrestling playfully or jostling, rocking, unessential grooming, or touching playfully with an object.                                              |
| Passive affectionate physical contact | Subject engages in physical contact for at least 5 consecutive seconds such as sitting on or holding someone on lap; lying or leaning against someone; holding hands; contact while dancing. This category does not include physical contact associated with caregiving routines, restraint, or discipline. |
| Social interaction                    | Subject interacts with someone for any part of the interval in any way other than smiling, affectionate words, or active or passive affectionate contact.                                                                                                                                                   |
| No interaction                        | Subject does not interact in any way with anyone for the entire interval.                                                                                                                                                                                                                                   |

Table 2

Operational Definitions of Children's Reactions

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| Reaction          | Definition                                                                                                                                                                                                           |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Positive reaction | Recipient responds by smiling, laughing, saying affectionate words, or being actively physically affectionate. Passive affectionate physical contact is not scored as a positive reaction.                           |
| Negative reaction | Recipient responds by crying; screaming or whining, frowning or pouting; being physically aggressive; disapproving of, commanding, or asking an individual to stop a behavior; or tattling or threatening to tattle. |
| Neutral reaction  | Recipient responds in any way that cannot be scored as positive or negative. This category includes passive affectionate physical contact.                                                                           |
| No reaction       | Recipient does not respond in any way to the subject's behavior.                                                                                                                                                     |

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In addition to recording the occurrence and recipients of behavior and recipients' reactions, observers recorded information regarding the family routine and context in which the behavior occurred. The family routine was defined as the period of time either before dinner, during dinner, or after dinner. The context was defined as the activity in which the subject was involved when the behavior occurred, such as caregiving, play, work, or discipline.

### Validity

Twardosz et. al (1979) validated previously a similar version of this measurement system. They prepared a series of 18 3-minute videotape segments of caregiver-child interactions during a variety of activities in day care centers. Four pairs of trained observers scored the videotape segments in 10-second intervals using the behavioral definitions in the affection measurement system. In addition, 85 volunteers, recruited from a variety of community organizations and groups, rated the videotapes as containing "little" to "much" affection. A 7-point Likert-type scale was used. Moderate relationships were found between observer scores and community ratings on the affectionate behaviors. Multiple correlations between the four affectionate behaviors and the ratings was .85, accounting for 73% of the variance. The authors concluded that the results provided evidence for the concurrent, as

well as social, validity of the affection measurement system.

### Reliability

Interobserver agreement was obtained on one observation visit in each of 10 families by having two observers simultaneously but independently record parents' affectionate and social behavior, the recipients of parents' behavior, and the recipients' reactions to parents' behavior. Agreement scores entailed an interval-by-interval comparison of observer scores. Interobserver agreement was computed by using Cohen's Kappa (Hartman, 1977), which is designed to compute reliability on behaviors that occur at low frequencies and takes into account agreements that occur by chance. Agreement scores were computed for each type of behavior for the number of reliability observations in which any occurrence of that behavior was recorded by either observer. Occurrences of all types of behavior except passive affectionate physical contact and affectionate words were observed during every reliability observation period. Thus, agreement scores for passive affectionate physical contact and for affectionate words are based on nine and seven reliability observations, respectively. Agreement scores for parents' expressions of behavior were: smiling, .84 (range of .67 - .93); affectionate words, .86 (range of .58 - 1.00); active affectionate physical contact, .87

(range of .76 - 1.00); passive affectionate physical contact, .93 (range of .66 - 1.00); social interaction, .93 (range of .83 - .97); and no interaction, .97 (range of .88 - 1.00).

Interobserver reliability on recipients was computed by dividing the number of agreements on recipients of a behavior (provided there was an agreement on the occurrence of that behavior) by the number of agreements plus disagreements and multiplying by 100. Interobserver agreement on recipients was 95.4% (range of 91.1% - 97.9%). Agreement on reactions was computed in the same manner by considering those instances in which there was an agreement on both the occurrence and the recipient of the behavior. Interobserver agreement on reactions was 87.5% (range of 80.7% - 95.5%).

### Procedures

Prior to beginning the home observations, parents were asked at a separate visit to complete the parent information form and to provide information about their evening schedule. Then observations were made by nonparticipant observers in the home of each family once per week for 3 weeks. Each observation was made during the family's evening dinner routines, beginning approximately 1/2 hour before the regularly scheduled dinnertime and ending approximately 1/2 hour after the completion of the meal.

Families were encouraged to go about their regular evening activities as usual, paying as little attention as possible to the observer.

The observations were conducted by five primary observers and two reliability observers. Each primary observer was assigned to conduct all three observation visits to a particular family. Observers were recruited from undergraduate classes in the Department of Child and Family Studies. They were trained to use the affection measurement system by having them study an observation manual, take quizzes, observe videotapes, and make practice observations in The University of Tennessee Child Development Laboratories. Observers were required to achieve a criterion of 80% reliability for each category included in the system before beginning in-home observations.

#### Data Reduction and Transformation

Raw data of mothers' and fathers' affectionate and social behavior were converted to percentages. The percentage of intervals in which each type of affectionate behavior and social interaction was directed to handicapped and nonhandicapped children was computed by dividing the number of intervals in which each child was recorded as a recipient of each behavior by the number of intervals in

which each parent was observed and multiplying by 100. Mothers were observed an average of 223 intervals (SD = 30.8), and fathers were observed an average of 201 intervals (SD = 72.9). To avoid a disproportionate representation of families with more than one nonhandicapped child, mean percentages of parents' behavior to nonhandicapped children in these 2 families were averaged. The percentage of intervals in which mothers' and fathers' behavior occurred to handicapped children during each family routine (before, during, and after dinner) was computed by dividing the number of times a parent directed the behavior to a handicapped child by the number of observation intervals in which each parent was observed during each routine and multiplying by 100.

Mean percentages of handicapped and nonhandicapped children's reactions to affection were computed by dividing the number of intervals in which each child gave a positive, neutral, negative, or no reaction to affection by the number of intervals in which that child received any type of affectionate behavior and multiplying by 100. Mean percentages of handicapped and nonhandicapped children's reactions to social interaction were computed by dividing the number of intervals in which each child gave a positive, neutral, negative, or no reaction to social interaction when only social interaction was directed to that child by the number of intervals in which that child was a recipient of

social interaction only and multiplying by 100. The mean percentages computed in this manner correspond to the conditional probabilities for the occurrence of each reaction given that the reaction was to the particular behavior (affection or social interaction). Mean percentages of handicapped and nonhandicapped children's reactions to mothers and fathers were computed in the same manner.

Log transformations were performed on all means before entering these data into any analyses. In comparisons of low-rate behaviors, differences between means are more evident when log transformations are performed.

### Data Analysis

The first, third, and fourth hypotheses were tested using a multivariate method for analyzing 2 x 2 repeated measures designs described by O'Brien and Kaiser (1985). The method is an alternative to the traditional analysis of variance procedure and involves testing a series of contrasts taken over the repeated measures dimensions. This method avoids assumptions of the traditional method that carry restrictions of equivalence on the variances of the repeated measures and on the correlations between pairs of repeated measurements. The second hypothesis was tested using a repeated measures multivariate analysis of variance procedure. The repeated measures for these hypotheses were

the parental couple (mothers and fathers), the type of recipient (handicapped and nonhandicapped children), the type of evening routine (before, during, or after dinner), and the type of behavior received (affection or social interaction).

The independent variables for the first hypothesis were the type of parent and type of recipient, and the dependent variables were the mean percentages of the four types of affectionate behavior and social interaction. The independent variables for the second hypothesis were the type of parent and the evening routine, and the dependent variables were the mean percentages of the four types of affectionate behavior and social interaction directed to handicapped children. The independent variables for the third hypothesis were the type of behavior (affection or social interaction) and the type of recipient, and the dependent variables were the mean percentages of positive, negative, neutral, and no reactions to parents' affection and social interaction. The independent variables for the fourth hypothesis were the type of parent and the type of recipient, and the dependent variables were the mean percentages of the four types of reactions to mothers' and fathers' behavior. Because of the exploratory nature of this study, a criterion level of .10 was used for these analyses.

## CHAPTER IV

## RESULTS

Interactions occurred during a variety of contexts during the evening routines. Mothers were observed while cooking dinner; performing other household tasks such as washing dishes, vacuuming, and folding clothes; reading mail or the newspaper, watching television, or listening to music; caring for children by feeding, bathing, diapering, or dressing them or by giving them medicine; playing with children in activities such as coloring, word games, and water play; as well as eating and engaging in dinnertime conversation. Fathers were observed while engaged in these same activities, while repairing cars and toys, and while doing carpentry work. One father regularly prepared the family meal and three others helped with dinner on at least one occasion.

Hypothesis 1

The first hypothesis was that there are differences in mothers' versus fathers' behavior to handicapped versus nonhandicapped children. The independent variables were the type of parent (mothers or fathers) and the type of recipient (handicapped or nonhandicapped children). The dependent variables were the mean percentages of parents'

expressions of the four types of affectionate behavior and social interaction to the recipients.

Mean percentages of the four types of affectionate behavior and social interaction expressed by mothers and fathers to handicapped and nonhandicapped children are presented in Table 3. Although there was much variability among the families, an examination of the means reveals several patterns. In general, social interaction was the most frequently exhibited behavior to both categories of recipients. Of the four types of affectionate behavior, affectionate words were expressed least frequently to both handicapped and nonhandicapped children. For example, handicapped children were recipients of affectionate words an average of 0.87% of the intervals in which fathers were observed and 2.40% of the intervals in which mothers were observed. Passive affectionate physical contact was the affectionate behavior expressed most frequently to handicapped children ( $M = 10.45$ ,  $SD = 9.41$  from fathers;  $M = 9.11$ ,  $SD = 7.13$  from mothers).

The multivariate test revealed there was not an interaction effect between parent and type of recipient,  $F(5, 6) = 0.85$ ,  $p = .56$ . Neither was there a main effect for type of recipient,  $F(5, 6) = 2.27$ ,  $p = .17$ . However, the multivariate test conducted for the parent main effect revealed there were differences between parents,  $F(5, 6) = 13.18$ ,  $p = .004$ . Thus, the null hypothesis was rejected.

Table 3

Mean Percentages of Parents' Affectionate Behavior and Social Interaction to Handicapped and Nonhandicapped Children

| Parent                  | Behavior |      |      |       |       |
|-------------------------|----------|------|------|-------|-------|
|                         | Sm       | AW   | AC   | PC    | SI    |
| Handicapped children    |          |      |      |       |       |
| Mothers                 |          |      |      |       |       |
| M                       | 5.66     | 2.48 | 5.76 | 9.11  | 34.28 |
| SD                      | 2.26     | 2.40 | 4.12 | 7.13  | 6.76  |
| Fathers                 |          |      |      |       |       |
| M                       | 5.39     | 0.87 | 5.16 | 10.45 | 18.15 |
| SD                      | 4.67     | 0.95 | 4.06 | 9.41  | 10.34 |
| Nonhandicapped children |          |      |      |       |       |
| Mothers                 |          |      |      |       |       |
| M                       | 2.27     | 0.65 | 1.44 | 4.79  | 14.85 |
| SD                      | 1.10     | 0.51 | 2.33 | 12.42 | 9.00  |
| Fathers                 |          |      |      |       |       |
| M                       | 3.59     | 0.73 | 3.48 | 3.76  | 17.36 |
| SD                      | 3.64     | 1.16 | 5.47 | 4.56  | 16.65 |

Note. Parents' behavior was recorded as smiling (Sm), affectionate words (AW), active affectionate physical contact (AC), passive affectionate physical contact (PC), and social interaction (SI). The values represent mean percentages of the occurrence of each behavior across all observation visits and across the three routines. The values are based on the number of observation intervals in which each parent was observed.

Follow-up univariate tests were conducted to determine which types of behavior made the most important contributions to the overall differences between parents. Differences between mothers and fathers were mainly because of the occurrence of affectionate words and social interaction (see Table 4). An inspection of the means indicated that mothers exhibited more affectionate words and social interaction toward their children than did fathers (see Table 3).

Although simple effects tests normally would be conducted only to investigate the nature of an overall interaction effect between the independent variables, the likelihood of finding a significant interaction in these analyses is lessened because of the small sample size and the diminished power of the statistical tests. Thus, although there was not a parent by recipient interaction effect, to investigate further the nature of the difference between parents, follow-up simple effects multivariate tests were conducted separately for handicapped and nonhandicapped children as recipients of parents' behavior. There were no overall differences between mothers and fathers in their behavior to nonhandicapped children,  $F(5, 6) = 1.56$ ,  $p = .30$ . Follow-up univariate tests revealed there were no differences between parents in the occurrence of any type of affectionate behavior or social interaction directed to nonhandicapped children (see Table 5). Thus, mothers and

Table 4

Univariate Tests of Differences Between Mothers' Versus Fathers' Behavior to Children

| Dependent variable                       | F     | df    | p   |
|------------------------------------------|-------|-------|-----|
| Smiling                                  | 2.02  | 1, 10 | .18 |
| Affectionate words                       | 6.94  | 1, 10 | .02 |
| Active affectionate<br>physical contact  | 0.002 | 1, 10 | .90 |
| Passive affectionate<br>physical contact | 0.29  | 1, 10 | .60 |
| Social interaction                       | 12.28 | 1, 10 | .01 |

Note. The multivariate test conducted for the parent main effect revealed that there were overall differences between parents,  $F(5, 6) = 13.18$ ,  $p = .004$ .

Table 5

Univariate Tests of Differences Between Mothers' Versus Fathers' Behavior to Handicapped and Nonhandicapped Children

| Dependent variable                    | Handicapped children |       |      | Nonhandicapped children |       |     |
|---------------------------------------|----------------------|-------|------|-------------------------|-------|-----|
|                                       | F                    | df    | p    | F                       | df    | p   |
| Smiling                               | 1.57                 | 1, 10 | .24  | 0.47                    | 1, 10 | .51 |
| Affectionate words                    | 7.07                 | 1, 10 | .02  | 2.35                    | 1, 10 | .16 |
| Active affectionate physical contact  | 1.08                 | 1, 10 | .32  | 0.07                    | 1, 10 | .79 |
| Passive affectionate physical contact | 0.16                 | 1, 10 | .70  | 0.15                    | 1, 10 | .70 |
| Social interaction                    | 13.99                | 1, 10 | .004 | 0.94                    | 1, 10 | .36 |

Note. The simple effects multivariate tests for mothers' versus fathers' behavior revealed there were overall differences between parents in their behavior to handicapped children,  $F(5, 6) = 4.61$ ,  $p = .05$ , but not to nonhandicapped children,  $F(5, 6) = 1.56$ ,  $p = .30$ .

fathers behaved similarly to nonhandicapped children. However, the multivariate test of mothers' and fathers' behavior to handicapped children indicated there were overall differences between parents in their behavior toward their handicapped children,  $F(5, 6) = 4.61, p = .05$ . These differences were mainly because of the occurrence of affectionate words,  $F(1, 10) = 7.07, p = .02$ , and social interaction,  $F(1, 10) = 13.99, p = .004$  (see Table 5). Mothers expressed more affectionate words and exhibited more social interaction to handicapped children than did fathers (see Table 3). Thus, it appears that the overall main effect for parent was mainly because of differences in mothers' and fathers' behavior to handicapped, rather than nonhandicapped, children.

Although there was no overall main effect for recipient, univariate tests were significant for affectionate words, active and passive affectionate physical contact, and social interaction (see Table 6). Again, although there was not a significant overall parent by recipient interaction effect, simple effects tests were conducted to clarify further the nature of parents' behavior to handicapped and nonhandicapped children. That is, follow-up multivariate tests of the simple effects of type of recipient were conducted separately for mothers and fathers. There were no overall differences between handicapped and nonhandicapped children's receipt of

Table 6

Univariate Tests for Differences Between Handicapped Versus Nonhandicapped Children's Receipt of Parents' Behavior

| Dependent variable                       | F     | df    | p    |
|------------------------------------------|-------|-------|------|
| Smiling                                  | 1.21  | 1, 10 | .30  |
| Affectionate words                       | 6.57  | 1, 10 | .03  |
| Active affectionate<br>physical contact  | 14.60 | 1, 10 | .003 |
| Passive affectionate<br>physical contact | 12.00 | 1, 10 | .01  |
| Social interaction                       | 5.81  | 1, 10 | .04  |

Note. The multivariate test conducted for the recipient main effect revealed there were no overall differences between handicapped and nonhandicapped children,  $F(5, 6) = 2.27$ ,  $p = .17$ .

fathers' behavior,  $F(5, 6) = 1.40$ ,  $p = .34$ . However, results from univariate analyses revealed differences for active affectionate physical contact and passive affectionate physical contact (see Table 7). It appears that fathers exhibited these types of affectionate behavior to their handicapped children more often than to their nonhandicapped children. The multivariate test for mothers' affectionate behavior and social interaction to children revealed overall differences between handicapped and nonhandicapped children's receipt of mothers' behavior,  $F(5, 6) = 5.6$ ,  $p = .03$ . Follow up univariate tests revealed differences for each type of affectionate behavior as well as social interaction (see Table 7). Mothers expressed more affectionate words and exhibited more smiles, active affectionate physical contact, passive affectionate physical contact, and social interaction toward their handicapped children than toward their nonhandicapped children (see Table 3, p. 57).

Thus, as expected, differences were found in mothers' and fathers' behavior to handicapped and nonhandicapped children. Differences between parents were attributable primarily to their interactions with their handicapped, rather than nonhandicapped, children. Handicapped children were recipients of affectionate words and social interaction more often from mothers than from fathers. The expression

Table 7

Univariate Tests for Differences Between Handicapped Versus Nonhandicapped Children's Receipt of Mothers' and Fathers' Behavior

| Dependent variable                    | Mothers |       |      | Fathers |       |     |
|---------------------------------------|---------|-------|------|---------|-------|-----|
|                                       | F       | df    | p    | F       | df    | p   |
| Smiling                               | 17.56   | 1, 10 | .002 | 0.14    | 1, 10 | .72 |
| Affectionate words                    | 8.54    | 1, 10 | .02  | 1.66    | 1, 10 | .23 |
| Active affectionate physical contact  | 10.13   | 1, 10 | .01  | 8.44    | 1, 10 | .02 |
| Passive affectionate physical contact | 10.19   | 1, 10 | .01  | 8.68    | 1, 10 | .01 |
| Social interaction                    | 23.86   | 1, 10 | .001 | 1.04    | 1, 10 | .33 |

Note. The simple effects multivariate tests revealed there were overall differences between handicapped versus nonhandicapped children's receipt of mothers' behavior,  $F(5, 6) = 5.6$ ,  $p = .03$ , but not of fathers' behavior,  $F(5, 6) = 1.40$ ,  $p = .34$ .

of other types of affectionate behavior to handicapped children was similar for mothers and fathers. Mothers and fathers were similar to each other in their expressions of affectionate behavior and social interaction to nonhandicapped children. In addition, handicapped children received more of all types of behavior from mothers and more active and passive affectionate physical contact from fathers than nonhandicapped children did. Fathers' smiling, affectionate words, and social interaction were expressed at similar rates to handicapped and nonhandicapped children.

### Hypothesis 2

The second hypothesis was that there are differences in mothers' versus fathers' behavior to handicapped children during the three evening routines. The independent variables were the type of parent (mothers or fathers) and the evening routine (before, during, or after dinner). The dependent variables were the mean percentages of parents' expressions of the four types of affectionate behavior and social interaction directed to handicapped children.

The MANOVA procedure revealed there was no parent by routine interaction effect,  $F(10, 32) = 0.96$ ,  $p = .49$ . In addition, there was no main effect for parent,  $F(5, 6) = 1.83$ ,  $p = .24$ . That is, there were no overall differences between mothers and fathers in their interactions with handicapped children during the evening routines. However,

there was a main effect for routine,  $F(10, 32) = 2.23$ ,  $p = .04$ . Parents interacted differently with handicapped children during the different evening routines. Thus, the null hypothesis was rejected.

To determine which types of behavior made the most important contributions to the overall differences among routines, follow-up repeated measures univariate tests were conducted for each type of affectionate behavior and social interaction (see Table 8). These tests revealed that differences among evening routines were mainly because of the occurrence of active affectionate physical contact and passive affectionate physical contact. Smiling, affectionate words, and social interaction were not important contributors to the differences among routines.

To compare the mean percentages of active and passive affectionate physical contact during each of the three routines, Duncan's Multiple Range Tests were conducted for these variables. The results of these tests, along with the mean percentages of parent's affectionate behavior and social interaction, are presented in Table 9. These tests revealed that for parents' expressions of active affectionate physical contact, both before and after dinner routines were different from the dinner routine but not different from each other. This type of affectionate behavior occurred more frequently before and after dinner

Table 8

Univariate Tests for Differences Among Routines as  
Occasions for Parents' Affectionate Behavior and Social  
Interaction to Handicapped Children

| Dependent variable                       | F    | df    | p    |
|------------------------------------------|------|-------|------|
| Smiling                                  | 0.42 | 2, 20 | .66  |
| Affectionate words                       | 1.64 | 2, 20 | .22  |
| Active affectionate<br>physical contact  | 7.85 | 2, 20 | .003 |
| Passive affectionate<br>physical contact | 9.19 | 2, 20 | .002 |
| Social interaction                       | 1.15 | 2, 20 | .34  |

Table 9

Mean Percentages of Parents' Affectionate Behavior and Social Interaction to Handicapped Children Before, During, and After Dinner

| Routine       | Behavior |      |          |           |       |
|---------------|----------|------|----------|-----------|-------|
|               | Sm       | AW   | AC       | PC        | SI    |
| Before dinner |          |      |          |           |       |
| M             | 6.75     | 2.09 | 6.41 (A) | 12.63 (B) | 23.70 |
| SD            | 8.31     | 3.31 | 7.54     | 21.74     | 15.81 |
| During dinner |          |      |          |           |       |
| M             | 4.06     | 1.09 | 2.19 (B) | 3.21 (C)  | 27.49 |
| SD            | 3.27     | 1.90 | 2.80     | 5.63      | 18.34 |
| After dinner  |          |      |          |           |       |
| M             | 4.87     | 1.78 | 6.92 (A) | 13.00 (A) | 27.28 |
| SD            | 4.31     | 2.08 | 5.58     | 12.58     | 15.27 |

Notes. Parents' behavior was recorded as smiling (Sm), affectionate words (AW), active affectionate physical contact (AC), passive affectionate physical contact (PC), and social interaction (SI). Values represent mean percentages of affectionate behavior and social interaction directed to handicapped children during the different evening routines.

Means with different letters differ significantly at  $p < .05$ .

than during dinner. Also, each of the three evening routines were different from one another in the occurrence of passive affectionate physical contact. Passive affectionate physical contact occurred most frequently after dinner and least frequently during dinner. Passive affectionate physical contact occurred both before and after dinner over four times as often as during dinner.

### Hypothesis 3

The third hypothesis was that there are differences in handicapped versus nonhandicapped children's reactions to affection versus social interaction. The independent variables were the type of behavior (affection or social interaction) and the type of recipient (handicapped or nonhandicapped children). The dependent variables were the mean percentages of positive, negative, neutral, and no reactions to affection when any type of affectionate behavior was directed to the recipient and to social interaction when only social interaction was directed to the recipient.

Mean percentages of handicapped and nonhandicapped children's positive, neutral, negative, and no reactions to affection and social interaction are presented in Table 10. In general, the most frequently expressed reaction by both handicapped and nonhandicapped children was a neutral reaction. Handicapped children exhibited neutral reactions

Table 10

Mean Percentages of Handicapped and Nonhandicapped  
Children's Reactions to Affection and Social Interaction

| Behavior                | Reaction |         |          |       |
|-------------------------|----------|---------|----------|-------|
|                         | Positive | Neutral | Negative | No    |
| Handicapped children    |          |         |          |       |
| Affection               |          |         |          |       |
| M                       | 25.82    | 63.23   | 2.14     | 8.61  |
| SD                      | 17.70    | 17.82   | 2.75     | 16.67 |
| Social interaction      |          |         |          |       |
| M                       | 5.07     | 73.91   | 6.29     | 13.99 |
| SD                      | 4.24     | 14.37   | 7.97     | 13.09 |
| Nonhandicapped children |          |         |          |       |
| Affection               |          |         |          |       |
| M                       | 37.93    | 55.05   | 2.23     | 3.38  |
| SD                      | 22.20    | 19.67   | 3.22     | 3.88  |
| Social interaction      |          |         |          |       |
| M                       | 4.30     | 79.46   | 4.30     | 5.46  |
| SD                      | 4.24     | 11.55   | 4.24     | 7.69  |

Note. The values represent mean percentages of the occurrence of each reaction during intervals in which any type of affectionate behavior and during intervals in which only social interaction was directed to the recipient.

in 63.23% of the intervals in which they were recipients of affection and in 73.91% of the intervals in which they were recipients of social interaction only. Neutral reactions were exhibited by nonhandicapped children in 55.05% of their affection intervals and in 79.46% of their social interaction only intervals. Negative and no reactions of nonhandicapped children and negative reactions of handicapped children were exhibited at low rates to both affection and social interaction. However, the mean percentages of handicapped children's no reactions to affection and social interaction seemed to stand apart from this pattern. Handicapped children exhibited no reactions in 8.61% of the intervals in which they were recipients of affection and in 13.99% of the intervals in which they were recipients of social interaction only.

The multivariate test indicated that there was an interaction between type of recipient and type of behavior,  $F(4, 7) = 1.43$ ,  $p = .07$ . Thus, the null hypothesis was rejected. To determine where the important contributions to the overall interaction lay, follow-up univariate tests were conducted for each of the four dependent variables. These tests revealed that positive reactions were the most important contributors to the overall difference (see Table 11).

To investigate the nature of the interaction between recipient and type of behavior, simple effects multivariate

Table 11

Univariate Tests for Handicapped Versus Nonhandicapped  
Children's Reactions to Affection Versus Social Interaction

| Dependent variable | F    | df    | p   |
|--------------------|------|-------|-----|
| Positive           | 7.06 | 1, 10 | .02 |
| Neutral            | 2.77 | 1, 10 | .12 |
| Negative           | 0.38 | 1, 10 | .55 |
| No                 | 0.94 | 1, 10 | .35 |

Note. The multivariate test revealed there was an overall interaction effect between recipient and type of behavior,  $F(4, 7) = 1.43$ ,  $p = .07$ .

tests were conducted separately for handicapped and nonhandicapped children. These tests indicated there was a difference in handicapped children's reactions,  $F(4, 7) = 6.20$ ,  $p = .02$ , and in nonhandicapped children's reactions,  $F(4, 7) = 7.50$ ,  $p = .01$ , to affection and social interaction. Follow-up univariate tests were conducted to determine the contributions of the four dependent variables to the overall differences (see Table 12). These tests revealed that handicapped children's neutral and no reactions were the most important contributors to the overall differences between affection and social interaction. For nonhandicapped children, differences between affection and social interaction were mainly because of their positive and neutral reactions. An inspection of the means revealed that handicapped children gave more neutral and no reactions to social interaction than to affection (see Table 10). Although handicapped children responded positively to affection about five times as often as to social interaction, the univariate test for positive interaction was not significant. Nonhandicapped children gave more positive reactions to affection than to social interaction and more neutral reactions to social interaction than to affection. Negative and no reactions were not important contributors to the overall difference in nonhandicapped children's reactions to affection and social interaction.

Table 12

Univariate Tests for Differences Between Affection Versus Social Interaction as Stimuli for Children's Reactions

| Dependent variable | Handicapped children |       |     | Nonhandicapped children |       |      |
|--------------------|----------------------|-------|-----|-------------------------|-------|------|
|                    | F                    | df    | p   | F                       | df    | p    |
| Positive           | 1.16                 | 1, 10 | .31 | 13.03                   | 1, 10 | .005 |
| Neutral            | 5.29                 | 1, 10 | .04 | 6.77                    | 1, 10 | .03  |
| Negative           | 2.02                 | 1, 10 | .19 | 0.22                    | 1, 10 | .65  |
| No                 | 5.69                 | 1, 10 | .04 | 0.03                    | 1, 10 | .86  |

Note. The simple effects multivariate tests revealed there were differences in handicapped children's reactions,  $F(4, 7) = 6.20$ ,  $p = .02$ , and in nonhandicapped children's reactions,  $F(4, 7) = 7.50$ ,  $p = .01$ , to affection versus social interaction.

In addition, simple effects multivariate tests were conducted separately for affection and social interaction. There was no overall difference between handicapped and nonhandicapped children in their reactions to affection,  $F(4, 7) = 1.77, p = .24$ . However, the univariate test for no reaction was significant (see Table 13). Handicapped children gave no reactions to affection more frequently than did nonhandicapped children. The multivariate test for social interaction revealed that there was a difference in handicapped and nonhandicapped children's reactions to social interaction,  $F(4, 7) = 3.52, p = .07$ . Follow-up univariate tests revealed that no reaction was the most important contributor to the overall difference between handicapped and nonhandicapped children (see Table 13). An inspection of the means revealed that handicapped children gave no reactions to social interaction more frequently than did nonhandicapped children (see Table 10, p. 69). There were no differences between handicapped and nonhandicapped children in their positive, neutral, or negative reactions to social interaction.

Therefore, hypothesis 3 was supported. There was a difference in handicapped versus nonhandicapped children's reactions to affection versus social interaction. It appeared that handicapped children gave no reactions to affection and to social interaction more often than nonhandicapped children did. In addition, handicapped

Table 13

Univariate Tests for Differences Between Handicapped Versus Nonhandicapped Children in Their Reactions to Affection and Social Interaction

| Dependent variable | Affection |       |     | Social interaction |       |     |
|--------------------|-----------|-------|-----|--------------------|-------|-----|
|                    | F         | df    | p   | F                  | df    | p   |
| Positive           | 2.66      | 1, 10 | .13 | 0.90               | 1, 10 | .37 |
| Neutral            | 2.18      | 1, 10 | .17 | 1.07               | 1, 10 | .33 |
| Negative           | 0.58      | 1, 10 | .46 | 1.84               | 1, 10 | .20 |
| No                 | 4.30      | 1, 10 | .07 | 9.55               | 1, 10 | .01 |

**Note.** The simple effects multivariate tests revealed there were overall differences between handicapped versus nonhandicapped children's reactions to social interaction,  $F(4, 7) = 3.52$ ,  $p = .07$ , but not to affection,  $F(4, 7) = 1.77$ ,  $p = .24$ .

children's no reactions occurred more frequently to social interaction than to affection. A neutral reaction was a more frequent response to social interaction than to affection for both handicapped and nonhandicapped children. Nonhandicapped children gave positive responses to affection more frequently than to social interaction.

#### Hypothesis 4

The fourth hypothesis was that there are differences in handicapped versus nonhandicapped children's reactions to mothers versus fathers. The independent variables were the type of recipient (handicapped or nonhandicapped children) and the type of parent (mothers or fathers). The dependent variables were the mean percentages of children's positive, negative, neutral, or no reactions to parents when parents interacted in any way with a recipient.

Mean percentages of handicapped and nonhandicapped children's positive, neutral, negative, and no reactions to mothers' and fathers' behavior are presented in Table 14. Of the four types of reactions, children's neutral reactions were expressed most frequently. For example, handicapped children responded with neutral reactions to 71.23% of interactions from mothers and 67.06% of interactions from fathers. Negative reactions were expressed least frequently. Children responded with negative reactions in less than 6% of their interactions with either parent.

Table 14

Mean Percentages of Handicapped and Nonhandicapped  
Children's Reactions to Mothers' and Fathers' Behavior

| Parent                  | Reaction |         |          |       |
|-------------------------|----------|---------|----------|-------|
|                         | Positive | Neutral | Negative | No    |
| Handicapped children    |          |         |          |       |
| Mothers                 |          |         |          |       |
| M                       | 13.06    | 71.23   | 4.44     | 11.11 |
| SD                      | 9.00     | 13.85   | 4.52     | 13.93 |
| Fathers                 |          |         |          |       |
| M                       | 18.41    | 67.06   | 2.80     | 11.44 |
| SD                      | 12.05    | 17.03   | 3.96     | 18.04 |
| Nonhandicapped children |          |         |          |       |
| Mothers                 |          |         |          |       |
| M                       | 11.52    | 73.48   | 5.03     | 8.99  |
| SD                      | 7.07     | 10.81   | 5.47     | 5.10  |
| Fathers                 |          |         |          |       |
| M                       | 16.97    | 75.48   | 1.79     | 5.31  |
| SD                      | 10.66    | 9.57    | 3.10     | 5.36  |

Note. The values represent mean percentages of the occurrence of each reaction during intervals in which a parent directed any type of behavior to the recipient.

The multivariate test indicated there was no parent by recipient interaction,  $F(4, 7) = 0.55$ ,  $p = .71$ . Neither was there a main effect for recipient,  $F(4, 7) = 0.98$ ,  $p = .48$ . Thus, there were no overall differences between handicapped and nonhandicapped children in their reactions to parents' behavior. However, there was a main effect for parent,  $F(4, 7) = 7.67$ ,  $p = .01$ . That is, there were overall differences in children's reactions to mothers in comparison to fathers. Thus, the null hypothesis was rejected.

To determine which of the reactions made the most important contributions to the overall differences between parents, follow-up univariate analyses were conducted for each type of reaction. Differences between mothers and fathers were mainly because of children's negative reactions,  $F(1, 10) = 17.53$ ,  $p = .002$ , and no reactions,  $F(1, 10) = 3.77$ ,  $p = .08$ . Children gave negative and no reactions to mothers more often than to fathers. Positive and neutral reactions were not important contributors to the overall differences between parents (see Table 15).

Although there was no overall interaction effect between recipient and parent, simple effects multivariate tests were conducted separately for handicapped and nonhandicapped children to further clarify the nature of the differences between parents. These tests revealed there were overall differences between parents in the reactions they received from handicapped children,  $F(4, 7) = 3.12$ ,

Table 15

Univariate Tests for Differences Between Mothers Versus Fathers as Recipients of Children's Reactions

| Dependent variable | F     | df    | p    |
|--------------------|-------|-------|------|
| Positive           | 0.001 | 1, 10 | .98  |
| Neutral            | 0.33  | 1, 10 | .58  |
| Negative           | 17.53 | 1, 10 | .002 |
| No                 | 3.77  | 1, 10 | .08  |

Note. The multivariate test for the parent main effect revealed there were overall differences in children's reactions to mothers in comparison to fathers,  $F(4, 7) = 7.67$ ,  $p = .01$ .

$p=.09$ , but not from nonhandicapped children,  $F(4, 7) = 0.97$ ,  $p = .48$ . Thus, it appeared that differences in the ways children responded to mothers in comparison to fathers were mainly because of the reactions of handicapped, rather than nonhandicapped, children. Follow-up univariate tests for handicapped children's reactions revealed that positive and negative reactions were the most important contributors to the differences in the ways handicapped children responded to mothers and to fathers (see Table 16). An inspection of the means revealed that handicapped children responded with negative reactions to a higher percentage of interactions from mothers than from fathers and with positive reactions to a greater percentage of interactions from fathers than from mothers (see Table 14).

Because this finding appeared to be contradictory to the findings regarding mothers' expressions of affection to handicapped children, follow-up descriptive statistics were obtained to determine the proportion of each parent's interactions to handicapped children that were affectionate. Of mothers' interactions with handicapped children, 43.1% were affectionate. However, 66.8% of fathers' interactions to handicapped children were affectionate.

Follow-up univariate tests also were conducted for the main effect for child (see Table 17). These tests revealed that there were differences between handicapped and nonhandicapped children in their neutral and no reactions.

Table 16

Univariate Tests for Differences Between Mothers Versus Fathers as Recipients of Reactions from Handicapped and Nonhandicapped Children

| Dependent variable | Handicapped children |       |     | Nonhandicapped children |       |     |
|--------------------|----------------------|-------|-----|-------------------------|-------|-----|
|                    | F                    | df    | p   | F                       | df    | p   |
| Positive           | 3.27                 | 1, 10 | .10 | 0.14                    | 1, 10 | .72 |
| Neutral            | 1.67                 | 1, 10 | .23 | 0.23                    | 1, 10 | .64 |
| Negative           | 6.21                 | 1, 10 | .03 | 2.48                    | 1, 10 | .15 |
| No                 | 0.001                | 1, 10 | .99 | 3.02                    | 1, 10 | .11 |

Note. The simple effects multivariate tests revealed there were overall differences between parents in the reactions they received from handicapped children,  $F(4, 7) = 3.12$ ,  $p = .09$ , but not from nonhandicapped children,  $F(4, 7) = 0.97$ ,  $p = .48$ .

Table 17

Univariate Tests for Differences Between Handicapped Versus Nonhandicapped Children in Their Reactions to Parents

| Dependent variable | F    | df    | p   |
|--------------------|------|-------|-----|
| Positive           | 0.09 | 1, 10 | .78 |
| Neutral            | 3.31 | 1, 10 | .10 |
| Negative           | 1.29 | 1, 10 | .28 |
| No                 | 3.24 | 1, 10 | .10 |

Note. Th multivariate test for the recipient main effect revealed there were no overall differences between handicapped versus nonhandicapped children in their reaction to parents,  $F(4, 7) = 0.98$ ,  $p = .48$ .

In general, handicapped children responded with more no reactions and fewer neutral reactions than did nonhandicapped children.

Follow-up simple effects multivariate tests then were conducted separately for mothers and fathers to investigate further differences between handicapped and nonhandicapped children. These tests revealed there were no overall differences between handicapped and nonhandicapped children in their reactions to mothers,  $F(4, 7) = 0.77$ ,  $p = .58$ , or to fathers,  $F(4, 7) = 0.88$ ,  $p = .52$ . The univariate tests for each type of reaction revealed no differences between handicapped and nonhandicapped children for any type of reactions to mothers or for positive, neutral, or negative reactions to fathers (see Table 18). However, the univariate test for no reactions to fathers was significant,  $F(1, 10) = 3.95$ ,  $p = .07$ . It appears that handicapped children gave no reactions to a greater percentage of interactions from fathers than did nonhandicapped children.

Table 18

Univariate Tests for Differences Between Handicapped Versus Nonhandicapped Children in Their Reactions to Mothers and Fathers

| Dependent variable | Mothers |       |     | Fathers |       |     |
|--------------------|---------|-------|-----|---------|-------|-----|
|                    | F       | df    | p   | F       | df    | p   |
| Positive           | 0.43    | 1, 10 | .52 | 0.00    | 1, 10 | .99 |
| Neutral            | 0.75    | 1, 10 | .41 | 2.80    | 1, 10 | .12 |
| Negative           | 1.25    | 1, 10 | .29 | 0.49    | 1, 10 | .50 |
| No                 | 0.43    | 1, 10 | .53 | 3.95    | 1, 10 | .07 |

Note. The simple effects multivariate tests revealed there were no overall differences between handicapped versus nonhandicapped children in their reactions to mothers,  $F(4, 7) = 0.77$ ,  $p = .58$ , or to fathers,  $f(4, 7) = .88$ ,  $p = .52$ .

## CHAPTER V

## DISCUSSION

The results of this study indicated there was support for all four hypotheses. First, it appeared that mothers and fathers behaved differently to handicapped and nonhandicapped children. Mothers expressed more affectionate words and exhibited more social interaction to handicapped children than did fathers. Compared to nonhandicapped children, handicapped children received more active and passive affectionate physical contact from fathers and more of all types of behavior from mothers. Second, it can be inferred from the results that the different evening routines were occasions for differences in some types of parental behavior toward handicapped children. Dinner time was the evening routine during which parents expressed active and passive affectionate physical contact least frequently to handicapped children. Third, handicapped and nonhandicapped children responded differently to affection and social interaction. Specifically, it appeared that handicapped children were less responsive to affection and social interaction than were nonhandicapped children, and they were less responsive to social interaction than to affection. Both handicapped and nonhandicapped children gave neutral responses to social interaction more frequently than to affection, and

nonhandicapped children gave positive responses more frequently to affection than to social interaction. Finally, there were differences in children's reactions to mothers and to fathers. Handicapped children responded more frequently with positive reactions and less frequently with negative reactions to fathers' behavior than to mothers' behavior. Handicapped children responded to both parents with fewer neutral reactions and to fathers with more no reactions than nonhandicapped children did.

#### Parents' Behavior to Children

It appeared from the results of this study that the patterns of parents' expressions of affectionate behavior and social interaction were similar to patterns observed in families of nonhandicapped children (Twardosz, Raab, & Richman, 1985) and in day care centers (Twardosz et al., in press). Specifically, in all three cases, social interaction was the most frequently occurring type of behavior. Affectionate words occurred least frequently. Passive affectionate physical contact occurred more often than did active affectionate physical contact. The patterns were different, however, for smiling. During meal routines in day care centers and in families with nonhandicapped children, smiling was the most frequently occurring type of affectionate behavior. However, in families with

handicapped children, passive affectionate physical contact was exhibited to handicapped children nearly twice as often as was smiling. This finding might be indicative of the increased physical needs and decreased mobility and independent ambulation of the handicapped children.

### Behavior to Handicapped Children

It can be inferred from the results that mothers were more actively engaged with their handicapped children than were fathers. These findings are consistent with results from studies with retarded children (Stoneman et al., 1983; Stoneman & Brody, in press). Although there are indications that mothers who are primarily responsible for the caregiving demands of their handicapped children may experience increased stress (Beckman, 1983; Kazak & Marvin, 1984) that may have implications for the quality of parent-child interactions (Blacher, 1984), the mothers in this study were quite affectionate toward their handicapped children. They seemed to try quite consistently to engage their handicapped children in interactions. This finding is consistent with Marfo's (1984) suggestion that mothers work very hard to obtain any responses from their handicapped children.

Cummings (1976) suggested that when mothers assume the role of primary caregiver, fathers consequently have fewer opportunities to perform tasks that are helpful to

handicapped children, that show evidence of their love for their children, and that help mediate stress. However, Cummings also noted that even fathers who are away from home during the day experience, through mothers' reports, reminders of their children's handicapping conditions. Anecdotal evidence from observers suggested that father participants did receive such reminders. That is, a major topic of conversation at dinner was the children's handicapping conditions. Whether such topics served as reminders of the children's deficiencies, resulting in increased stress, or as avenues for facilitating the fathers' participation in their children's day, resulting in reduced stress, cannot be determined from the data. However, fathers were affectionate toward their handicapped children. Only mothers' affectionate words and social interaction to handicapped children were greater than were fathers'. Thus, it appeared that neither mothers' reports to fathers of their children's behavior during the day or fathers' more infrequent engagement in caregiving tasks served to inhibit greatly fathers' expression of affection toward their handicapped children.

It may be important to note that the parents who participated in the study were from two-parent households. In addition, some of the fathers were observed to be occasional active participants in the caregiving responsibilities for their handicapped children. Perhaps

some of the stress related to the caregiving demands of handicapped children was alleviated by shared responsibilities, and affectionate interactions was less difficult. These findings may not generalize to single-parent households. Single parents of handicapped children have been described as experiencing increased stress and increased demands on their time compared to married parents (Beckman, 1983; Holroyd, 1974). Affectionate interactions may be more difficult for these parents. Thus, whether patterns of affectionate interactions are different for single parents is an empirical question.

One of the factors in two-parent households that may help alleviate stress and contribute to the improved quality of mother-child interactions is the indirect effect of fathers' presence (Lamb, 1983; Stoneman & Brody, 1984). Lamb suggested that although fathers may be less involved than mothers with their handicapped children, they may have indirect effects by providing mothers with emotional support that facilitates the formation of the mother-child relationship. In addition, fathers may provide financial support that gives mothers the freedom to tend to the needs of handicapped children without the burden of economic concerns. Indeed, Kazak and Marvin (1984) suggested that a parenting relationship in which the mother is very involved and the father is somewhat peripheral to parenting may be a

highly functional type of family adaptation for families of handicapped children. The economic burden and caregiving demands of a handicapped child make such specialization very efficient. The families who participated in this study could have been characterized in this way. Only three of the mothers worked outside the home, and two of these worked in the evenings when the fathers were home to care for children. Only one father was the primary caretaker of the handicapped child during the day. Thus, it appears that these families had arrived at a type of role division that set the occasion for mothers' affectionate involvement with their handicapped children.

Findings concerning the expression of affection and social interaction to handicapped children during the different evening routines were expected. The nature of the tasks associated with meal time (e.g., serving food, eating, feeding the handicapped child) might have made the expression of active and passive affectionate physical contact less likely compared to the more unstructured times before and after dinner, when not every family member was involved in task-oriented behavior. Both before and after dinner characteristically were occasions when at least one of the parents was involved in some type of play or unstructured activity (such as watching television) with children. There have been suggestions that the nature of the activity has implications for the kinds of interactions

that occur between adults and children. For example, Brody, Stoneman, and Sanders (1980) found that when parents and children were watching television, there was more touching and physical contact (mother-child, father-child) than during play sessions. However, they also noted that fathers and children smiled and talked less while watching television than during play sessions. In addition, Twardosz et al. (in press) noted that in day care centers, teachers expressed less active and passive affectionate physical contact during meals than they did during large or small group activities or during indoor or outdoor freeplay. Thus, family activities before and after dinner may have served as setting events, or complex environmental conditions (Wahler & Fox, 1981), that set the occasion for the occurrence of affectionate physical behavior. Although the evening meal appeared to be a time that was not conducive to affectionate physical contact, parents did not use this time as an occasion for increased displays of facial (smiling) and verbal (affectionate words) expressions of affection.

#### Behavior to Nonhandicapped Children

It appeared from the results that mothers were engaged with and displayed all types of affectionate behavior to their nonhandicapped children less often than to their handicapped children. Although fathers' displays of social

interaction, smiles, and affectionate words were similar to both nonhandicapped and handicapped children, they gave less active and passive affectionate physical contact to their nonhandicapped children than to handicapped children. It might be inferred from these results that parents' resources and energies were devoted to the needs of handicapped children, and little was available for facilitating affectionate interaction with nonhandicapped children. However, without a reference group of families with only nonhandicapped children, this conclusion may be unfounded. There is no available information regarding parents' expression of affection to the nonhandicapped siblings compared to the expression of affection in families with no handicapped children. Another reasonable explanation is that parents may have been responding to the more advanced skills of the nonhandicapped children. Although four of the nonhandicapped children were younger than the handicapped child, all but one (an infant) exhibited motor and self-help skills that were more advanced than were those of their handicapped siblings. Thus, high rates of passive affectionate physical contact were not necessary to engage in interactions with nonhandicapped children.

### Children's Reactions to Parents

It can be inferred from the results that, in general, the handicapped children were less responsive to parents than were their nonhandicapped siblings and, specifically, did not respond more positively to parents' affectionate behavior compared to other interactions from parents. Findings that the handicapped children were less responsive than were nonhandicapped children are consistent with results from studies with retarded children (Eheart, 1982; Terdal et al., 1976) and physically impaired children (Brooks-Gunn & Lewis, 1982; Kogan & Tyler, 1973; Wasserman, Allen, & Solomon, 1985). Although it might be expected that parents would be less active with less interactive children, this was not a finding of this study. Parents, particularly mothers, were affectionate toward their handicapped children more often than toward their nonhandicapped children.

One explanation for this finding is that parents may have learned separate sets of responses for interactions with their handicapped and nonhandicapped children. Nonhandicapped children's motor and self-help skills and faster rates of progress may have been reinforcing to parents. Thus, it would not have been necessary for mothers to display high rates of affectionate behavior and social interaction to nonhandicapped children in order to be reinforced by them. However, it appeared that parents,

particularly mothers, worked hard (by exhibiting higher rates of affection and social interaction) to evoke responses from their handicapped children, who otherwise were unable to reinforce parents by exhibiting skills that were similar to those of their nonhandicapped siblings. Thus, parents may have attributed great value to handicapped children's responses. The handicapped children were more responsive to parents' affectionate behavior than to social interaction. Perhaps any type of response from handicapped children was so reinforcing to parents that high rates of affectionate behavior were maintained.

Even though handicapped children were less responsive to social interaction than to affection, their lack of any response may have helped to maintain mothers' high rates of social interaction toward them. Gewirtz (1969) noted that the absence of any response may serve as a positive reinforcer for a person who had earlier received a negative response. Thus, handicapped children's lack of response may have been reinforcing to mothers if, as infants, these children had been quite irritable.

In addition, although there are no data concerning the handicapped children's behavior when parents were not interacting with them, perhaps any interaction with handicapped children may have decreased the occurrence of crying and other negative behavior. Thus, decreases in negative responses may have served as negative reinforcers

for parents and may have helped to maintain parents' affectionate behavior and social interaction with handicapped children.

That handicapped children responded negatively more often and responded positively less often to mothers than to fathers appeared to be contradictory to findings that mothers gave some types of affectionate behavior to handicapped children more frequently than did fathers. However, when rates of each parents' affectionate behavior were calculated as a proportion of their total interactions with handicapped children, it appeared that a large proportion of fathers' behavior to handicapped children was affectionate. Affectionate behavior was a smaller proportion of mothers' behavior, probably because mothers' rates of social interaction (including caregiving activities such as feeding, diapering, dressing) were high. These findings are consistent with reports that fathers often are involved in stimulating, physical interactions with their children, and mothers are involved in quieter, nurturing kinds of interactions (Clarke-Stewart, 1978).

Despite these possible explanations for mothers' greater involvement with their handicapped children compared to interactions with nonhandicapped children, a simple stimulus-response interpretation of the data is quite limited. Other factors outside the immediate parent-child

dyad may have been operating to help maintain high rates of affectionate behavior and social interaction with less responsive children. Setting factors such as the mutual support available in two-parent households, efficient and functional division of parental responsibilities, and the type of family activity have been mentioned as complex conditions that may have set the occasion for the occurrence of affectionate behavior within the dyad. Other conditions that might be construed as setting events that might have facilitated the expression of affection include supportive interactions with friends, relatives, and professionals who care for handicapped children; religious belief systems that provide parents with perceived personal strength; and opportunities for respite care for handicapped children (Gallagher et al., 1983). Perhaps these were factors that influenced the nature of interactions in these families. Thus, it is impossible to rely wholly on an interpretation of the data that is concerned only with the parent-child dyad.

#### Limitations of the Study

There are limitations of this study that are related to the sample, the observational measurement system, and the procedures. Because of these limitations, the results of this study must be interpreted with caution.

### Sample

The small sample size used for this study imposes limitations on the generalizability of the findings. In addition, the power of the statistical tests was weakened by the small sample size. Thus, differences between parents or between recipients were found in follow-up simple effects tests but not in some of the multivariate tests. That is, differences found by the simple effects tests were not great enough to reveal overall differences in the multivariate tests. Also, there are limitations on the interpretation of the results because of the repeated testing.

In addition, the sample is self-selected. Subjects were simply those families who agreed to participate. It is probable that these families were coping quite well and could endure having an observer in their homes. It can be assumed that the results of this study are descriptive of this group of adequately functioning families who would allow observers into their homes. Thus, the generalizability of the data is limited. Families who were adapting less well and who were having difficulties interacting probably were among those who did not agree to participate in the study. Whether the interactions of such families are different from interactions in families who agreed to participate is an empirical question.

Another limitation of the sample concerns the group of handicapped children. Although they all were described as

moderately to severely handicapped with some physically handicapping condition or motor delay, the group actually was a quite heterogeneous one with a wide range of motor, communicative, and self-help skills. Generalizations to other physically handicapped children must be made with caution. In addition, the generalizability of the findings of this study to children with other handicapping conditions (e.g., blindness, deafness) is limited.

### Measures

There are several limitations of the observational measurement system that was used to record parents' affectionate behavior and social interaction and children's reactions. These limitations have implications for the validity of the findings.

First, this measurement system includes only measures of discreet types of affectionate behavior. Other, more molar, expressions of affection are not included. Twardosz, Raab, and Richman (1985) attempted to obtain information about molar expressions of affection by having family members record descriptions of incidents that they felt were particularly affectionate. However, the attempt was unsuccessful because most of the family recorders failed to complete the interaction forms. Anecdotal evidence from these families did reveal that they felt that more molar acts of affection, such as doing a favor for another family

member when it was not expected, also were a part of the affectionate expressions of their families. Thus, incorporating methods of recording molar units of behavior, such as narrative recording, might yield other useful information about the expression of affection in families.

Another limitation of the measurement system concerns the measurement of children's neutral reactions. A neutral reaction was scored if the child interacted in any way that could not be scored as positive or negative, including being in passive affectionate physical contact with the parent, even if no other response was exhibited. Because parents often were in passive contact with their handicapped children, the neutral reactions of these children may be elevated. That is, there may have been many instances in which handicapped children were scored as giving neutral reactions when they were in passive contact with parents but gave no other response. Thus, the measurement system does not distinguish between a child who gives a verbal response to a parent's interaction and one who simply allows the physical closeness of the parent. The distinction may be particularly important, however, when the question of interest concerns the contingent responsiveness of handicapped children. There are suggestions from the findings of this study that handicapped children were less responsive to parents' affectionate behavior and social interaction than were nonhandicapped children. This finding

probably would have been enhanced by reaction scores that distinguished between these types of neutral responses of handicapped children.

A third limitation of the measurement system concerns the low rates of occurrence of some of the types of affectionate behavior, particularly affectionate words. Although the sampling procedure may provide information that is representative of the frequency of occurrence of low-rate behaviors, other observation procedures may give richer information regarding the antecedents and consequents to those behaviors. For example, Irwin and Bushnell (1980) suggested that event sampling, rather than time sampling, might be an appropriate procedure for studying low-rate behaviors. In this procedure, the observer is not bound by time intervals. Rather, the observer waits for the behavior to occur and then records pertinent information in narrative form or on checklists. In this manner, observers could obtain more complete information about the types of affectionate words that are used in families and about the conditions under which those affectionate words are used.

### Procedures

Other limitations of the study concern the procedures that were used. For example, the time of day for observations may have been problematic. Although the evening routines were selected because it was believed that

it was a time when family members were likely to be at home together, special arrangements were made by at least two of the families. Also, the evening routines may not have been conducive to the expression of affection. Indeed, Risley, Clark, and Cataldo (1976) suggested that families identified early evening and dinnertime as one of the most difficult times of the day. Thus, generalizations of the findings of this study may not be made to other portions of the day when family members might be less task-oriented and more affectionate toward one another.

Also, more attention might have been given to the context of interactions. Although observers described the context in terms of what the subject was doing at the time of interactions, there were no records of the number of people in the room. In light of evidence of the differing behavior of parents in dyadic and triadic groupings (Brody et al., 1981; Clarke-Stewart, 1978; Stoneman et al., 1983) such information would be helpful in understanding the expression of affection during family activities.

The absence of a comparison group of families without handicapped children is another limitation of the study. Caution must be exercised that no assumptions are made concerning differences between these families and families with only nonhandicapped children.

In addition, the nonhandicapped children were characterized by a wide age range, both younger and older than their handicapped siblings. Because of the small sample, possible relationships between parents' expressions of affection and the age of the child were not investigated. However, such relationships may have implications for the validity of the findings if, in fact, parents expressed affection in different ways to children of different ages.

Finally, children were not observed as subjects, and parents' responsiveness to children's behavior was not considered. However, such a consideration also is important if the true nature of reciprocal interactions between parent and child is of interest. Brooks-Gunn and Lewis (1982) found that, compared to mothers of nonhandicapped children, mothers of handicapped children were less responsive to their children's smiles and thus were less likely to facilitate the positive emotional expressions of handicapped children. They noted that with responsive parents, children learn to communicate deliberately and learn to expect that parents will respond. Thus, data concerning parents' responsiveness to child behavior would have provided additional information that might be useful toward the understanding of reciprocity in affectionate interactions.

### Implications

The results of this study provide information that is suggestive of other needed research. In addition, there are implications for practitioners who work with parents of handicapped children.

### Implications for Theory and Research

One implication for future research is that additional information concerning low-rate affectionate behavior as a stimulus for child affectionate response would be useful for understanding the impact of the social environment on child behavior. Gewirtz (1969) noted that much of our understanding of learning theory was derived from intensive experimentation with animals under controlled circumstances and with extreme conditions of presenting discriminative and reinforcing stimuli. Thus, there is a need for additional information concerning the ways in which stimuli of low intensity, concurrent with competing stimuli that occur in natural settings, become functional for children's behavior.

Other research concerning the impact of events and conditions outside of the immediate dyadic interaction would be useful for theory-building. For example, Wahler, Leske, and Rogers (1979) suggested that for single mothers of oppositional children, the lack of supportive friendship contacts and the increased number of aversive helping agency contacts acted as setting events for aversive interactions

with their children. Parents of handicapped children also have been described as experiencing increased isolation from friends (Kazak & Marvin, 1984) and aversive relationships with professionals (Moos, 1976; Turnbull & Turnbull, 1978). Also, single parents of handicapped children have been described as experiencing increased stress because of the caregiving demands of their handicapped children (Beckman, 1983; Holroyd, 1974). Information about ways in which these kinds of events or conditions, as well as factors such as parents' religious beliefs or available respite care, might set the occasion for positive interactions with handicapped children would be useful for increasing our understanding of the role of setting events in stimulus-response interactions. Also, this information may help account for the maintenance of parents' high rates of behavior to less responsive handicapped children. Finally, an understanding of the role of setting events would be helpful to practitioners who may need to look beyond the dyad to improve affectionate parent-child interactions.

Other research that provides information regarding young handicapped children's affectionate initiations and parents' contingent responsiveness to those initiations would be helpful in understanding the ways in which handicapped children learn socially valued behavior patterns. Gewirtz (1969) suggested that if parents provide

children with discriminative and reinforcing stimuli, such as love and attention, children's socially desirable behaviors may be reinforced and become functional responses. A number of questions should be considered: To what extent do young handicapped children initiate affectionate interactions? How do the sensory and motor limitations associated with different handicapping conditions affect children's abilities to initiate and respond to affectionate behavior? Do affectionate responses from adults follow children's affectionate initiations? If not, what roles do parents play in shaping handicapped children's emotional expression? Finally, is the ability to initiate and respond to affectionate behavior important to the kinds of experiences handicapped children have with others outside the family?

Researchers also should investigate the outcome variables that are related to parents' expressions of affectionate behavior to handicapped children. Although there is abundant evidence that affection is related to positive outcomes in nonhandicapped children (Maccoby, 1980), there is relatively little information concerning the outcomes for handicapped children.

Examining more closely the nature of interactions between parents and nonhandicapped siblings of handicapped children is another area of needed research. In the majority of research concerning nonhandicapped siblings,

investigators have used retrospective, self-report methodologies (e.g., Graliker et al. 1962; Grossman, 1972), and little observational research has been conducted. Although Nordquist, Twardosz, and McEvoy (1983) found that in an integrated early education setting, nonhandicapped children were not adversely affected even though they received only half the amount of attention that handicapped children received, little is known about these effects in family settings. Thus, additional observational research with a comparison group of families without handicapped children would provide information that would be useful in drawing conclusions about the adequacy of parents' expressions of affection to nonhandicapped siblings.

Research concerning the expression of affection between handicapped children and nonhandicapped siblings also is needed. Only a few researchers have conducted observational studies of interactions between these children (Stoneman & Brody, in press). Miller (1974) suggested that nonhandicapped children were protective of their handicapped siblings and were reluctant to tease them or to engage in horseplay with them. Research in this area would be helpful in understanding the role that nonhandicapped children play as reinforcing agents in helping handicapped children learn modes of affectionate expression.

### Implications for Practice

One implication of the results of this study is that practitioners who work with handicapped children and their parents need to focus on the responsiveness of handicapped children and intervene in ways that teach handicapped children appropriate social responses to affectionate behavior. For example, mothers have been trained to use behavioral techniques in interactions with retarded children, resulting in greater synchrony in mother-child interactions (Marfo, Kysela, Barros, & Hillyard, 1981; Mash & Terdal, 1973). Other interventions that would facilitate children's responsiveness might involve attention given to the sensory and motor deficits of particular children. Certain types of affectionate behavior (e.g., smiling, laughing) may be difficult for some handicapped children. Thus, it may be necessary to teach these children other modes of affectionate expression.

Practitioners also need to be aware of the relationships between parents and nonhandicapped siblings. In this sample, the nonhandicapped siblings were recipients of affectionate behavior from parents less often than were handicapped children. Although there is no evidence to suggest that the levels of affectionate behavior were dysfunctional for these children, other researchers have suggested that parents may attend to their handicapped children at the expense of their nonhandicapped children

(Grossman, 1972; McAndrew, 1976). Thus, it may be important to focus interventions on the relationship between some nonhandicapped siblings and their parents.

It also would be important for practitioners to focus interventions on the different kinds of family activities that occur throughout the day and on the kinds of affectionate behavior that can be supported by these activities. Practitioners might help parents use the characteristics of a particular activity to facilitate the expression of certain types of affectionate behavior. For example, although dinner time may not be conducive to the expression of active and passive affectionate physical contact, it could be an occasion for increased verbal and facial expressions of affection. Games and play sessions, on the other hand may be occasions that facilitate the occurrence of physical expressions of affection such as tickling and jostling.

Finally, high levels of passive affectionate physical contact indicate that it would be important for practitioners to identify points at which some types of affectionate behavior such as holding and cuddling handicapped children become hindrances to their learning motor and self-help skills. It is possible that for some parents of physically handicapped children, engaging in passive affectionate physical contact is easier than

encouraging and teaching sitting, crawling, or walking. In these cases, it would be necessary to teach parents other ways to express affection as well as teaching ways to encourage the acquisition of motor skills.

## LIST OF REFERENCES

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- Acker, L. E., Acker, M. A., & Pearson, D. (1973). Generalized imitative affection: Relationship to prior kinds of imitation training. Journal of Experimental Child Psychology, 16, 111-125.
- Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. Child Development, 41, 49-67.
- Arend, R., Gove, F. L., & Sroufe, L. A. (1979). Continuity of individual adaptation from infancy to kindergarten: A predictive study of ego-resiliency and curiosity in preschoolers. Child Development, 50, 950-959.
- Babad, Y. E., Alexander, I. E., & Babad, E. Y. (1983). Returning the smile of the stranger: Developmental patterns and socialization factors. Monographs of the Society for Research in Child Development, 48(5, Serial No. 203).
- Beckman, P. J. (1983). Influences of selected child characteristics on stress in families of handicapped infants. American Journal of Mental Deficiency, 88, 150-156.
- Bell, R. Q. (1968). A reinterpretation of the direction of effects in studies of socialization. Psychological Review, 75, 81-95.
- Belsky, J. (1979). The effects of context on mother-child interaction: A complex issue. Quarterly Newsletter of the Laboratory of Comparative Human Cognition, 1, 29-31.
- Berry, P., Gunn, P., & Andrews, R. (1980). Behavior of Down's syndrome infants in a strange situation. American Journal of Mental Deficiency, 85, 213-218.
- Blacher, J. (1984). A dynamic perspective on the impact of a severely handicapped child on the family. In J. Blacher (Ed.), Severely handicapped young children and their families (pp. 3-50). New York: Academic Press.
- Blacher, J. B., & Meyers, C. E. (1983). A review of attachment formation and disorder in handicapped children. American Journal of Mental Deficiency, 87, 359-371.

- Breiner, J., & Forehand, R. (1982). Mother-child interactions: A comparison of a clinic referred developmentally delayed group and two non-delayed groups. Applied Research in Mental Retardation, 3, 175-183.
- Breslau, N., Weitzman, M., & Messenger, K. (1981). Psychologic functioning of siblings of disabled children. Pediatrics, 67, 344-353.
- Brody, G. H., & Stoneman, Z. (1981). Parental nonverbal behavior within the family context. Family Relations, 30, 187-190.
- Brody, G. H., Stoneman, Z., & Sanders, A. K. (1980). Effects of television viewing on family interactions: An observational study. Family Relations, 29, 216-220.
- Bromwich, R. M. (1976). Focus on maternal behavior in infant intervention. American Journal of Orthopsychiatry, 46, 439-446.
- Brooks-Gunn, J., & Lewis, M. (1982). Affective exchanges between normal and handicapped infants and their mothers. In T. Field & A. Fogle (Eds.), Emotion and early interaction (pp. 161-188). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Bubolz, M. M., & Whiren, A. P. (1984). The family of the handicapped: An ecological model for policy and practice. Family Relations, 33, 5-12.
- Buckhalt, J. A., Rutherford, R. B., & Goldberg, K. E. (1978). Verbal and nonverbal interaction of mothers with their retarded Down's syndrome and nonretarded infants. American Journal of Mental Deficiency, 82, 337-343.
- Bugental, D. B. (1985). Unresponsive children and powerless adults: Cocreators of affectively uncertain caregiving environments. In M. Lewis & C. Saarni (Eds.), The socialization of emotions (pp. 239-261). New York: Plenum.
- Cicchetti, D., & Serafica, F. C. (1981). Interplay among behavioral systems: Illustrations from the study of attachment, affiliation, and wariness in young children with Down's syndrome. Developmental Psychology, 17, 36-49.
- Cicchetti, D., & Sroufe, L. A. (1976). The relationship between affective and cognitive development in Down's

- syndrome infants. Child Development, 47, 920-929.
- Clarke-Stewart, K. A. (1973). Interactions between mothers and their young children: Characteristics and consequences. Monographs of the Society for Research in Child Development, 38 (6-7, Serial No. 153).
- Clarke-Stewart, K. A. (1978). And Daddy makes three: The father's impact on mother and young child. Child Development, 49, 466-478.
- Cleveland, D. W., & Miller, N. B. (1977). Attitudes and life commitments of older siblings of mentally retarded adults: An exploratory study. Mental Retardation, 15, 38-41.
- Cook, T. D., & Campbell, D. T. (1979). Quasi-experimentation: Design and analysis issues for field settings. Chicago: Rand McNally.
- Coopersmith, S. (1967). The antecedents of self-esteem. San Francisco: W. H. Freeman.
- Crnic, K. A., Friedrich, W. N., & Greenberg, M. T. (1983). Adaptation of families with mentally retarded children: A model of stress, coping, and family ecology. American Journal of Mental Deficiency, 88, 125-138.
- Cummings, S. T. (1976). The impact of the child's deficiency on the father: A study of fathers of mentally retarded and chronically ill children. American Journal of Orthopsychiatry, 46, 246-255.
- Cummings, S., Bayley, H., & Rie, H. (1966). Effects of the child's deficiency on the mother: A study of mothers of mentally retarded, chronically ill, and neurotic children. American Journal of Orthopsychiatry, 36, 595-608.
- Cunningham, C. E., Rueler, E., Blackwell, J., & Deck, J. (1981). Behavioral and linguistic developments in the interactions of normal and retarded children with their mothers. Child Development, 52, 62-70.
- Dunlap, W. R., & Hollingsworth, J. S. (1977). How does a handicapped child affect the family? Implications for practitioners. The Family Coordinator, 26, 286-293.
- Eheart, B. K. (1982). Mother-child interactions with nonretarded and mentally retarded preschoolers. American Journal of Mental Deficiency, 87, 20-25.

- Emde, R. N., & Brown, C. (1978). Adaptation to the birth of a Down's syndrome infant: Grieving and maternal attachment. Journal of the American Academy of Child Psychiatry, 17, 299-323.
- Emde, R. N., Katz, E. L., & Thorpe, J. K. (1978). Emotional expression in infancy: II. Early deviations in Down's syndrome. In M. Lewis & L. A. Rosenblum (Eds.), The development of affect (pp. 351-360). New York: Plenum Press.
- Fotheringham, J. B., & Creal, D. (1974). Handicapped children and handicapped families. International Review of Education, 20, 355-373.
- Fraiberg, S. (1974). Blind infants and their mothers: An examination of the sign system. In M. Lewis & L. A. Rosenblum (Eds.), The effect of the infant on its caregiver (pp. 215-232). New York: Wiley.
- Friedrich, W. N., & Freidrich, W. L. (1981). Psychosocial assets of parents of handicapped and nonhandicapped children. American Journal of Mental Deficiency, 85, 551-553.
- Frodi, A. (1981). Contribution of infant characteristics to child abuse. American Journal of Mental Deficiency, 85, 341-349.
- Gallagher, J., Beckman, P., & Cross, A. (1983). Families of handicapped children: Sources of stress and its amelioration. Exceptional Children, 50, 10-19.
- Gallagher, J., Cross, A., & Scharfman, W. (1981). Parental adaptation to a young handicapped child: The father's role. Journal of the Division for Early Childhood, 3, 3-14.
- Gallagher, R. J., Jens, K. G., & O'Donnell, K. J. (1983). The effect of physical status on the affective expression of handicapped infants. Infant Behavior and Development, 6, 73-77.
- Gallagher, J., Scharfman, W., & Bristol, M. (1984). The division of responsibilities in families with preschool handicapped children. Journal of the Division for Early Childhood, 8, 3-11.
- Gath, A. (1973). The mental health of siblings of congenitally abnormal children. Journal of Child

Psychology and Psychiatry, 13, 211-218.

- Gewirtz, J. L. (1969). Mechanisms of social learning: Some roles of stimulation and behavior in early human development. In D. A. Goslin (Ed.), Handbook of socialization theory and research (pp. 57-212). Chicago: Rand McNally.
- Graliker, B. V., Fishler, K., & Koch, R. (1962). Teenage reactions to a mentally retarded sibling. American Journal of Mental Deficiency, 66, 838-843.
- Greenberg, H. A. (1971). A comparison of infant-mother interactional behavior in infants with atypical behavior and normal infants. In J. Hellmuth (Ed.), The exceptional infant: Vol. 2. Studies in abnormalities (pp. 390-418). New York: Brunner/Mazel.
- Grossman, F. K. (1972). Brothers and sisters of retarded children. Syracuse, NY: Syracuse University Press.
- Gumz, E. J., & Gubrium, J. F. (1972). Comparative parental perceptions of a mentally retarded child. American Journal of Mental Deficiency, 77, 175-180.
- Gutman, A. J., & Rondal, J. A. (1979). Verbal operants in mothers' speech to nonretarded and Down's syndrome children matched for linguistic level. American Journal of Mental Deficiency, 83, 446-452.
- Hartman, D. P. (1977). Considerations in the choice of interobserver reliability estimates. Journal of Applied Behavior Analysis, 10, 103-116.
- Hatfield, J. S., Ferguson, L. R., & Alpert, R. (1967). Mother-child interaction and the socialization process. Child Development, 38, 365-414.
- Hoffman, M. L. (1977). Moral internalization: Current theory and research. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 10, pp. 86-133). New York: Academic Press.
- Hoffman, M. L., & Saltzstein, H. D. (1967). Parent discipline and the child's moral development. Journal of Personality and Social Psychology, 5, 45-47.
- Holroyd, J. (1974). The questionnaire on resources and stress: An instrument to measure family response to a handicapped family member. Journal of Community Psychology, 2, 92-94.

- Irwin, D. M., & Bushnell, M. M. (1980). Observational strategies for child study. New York: Holt, Rinehart, & Winston.
- Jones, O. H. M. (1980). Prelinguistic communication skills in Down's syndrome and normal infants. In T. M. Field, S. Goldberg, D. Stern, & A. M. Sostik (Eds.), High-risk infants and children: Adult and peer interactions (pp. 205-225). New York: Academic Press.
- Kazak, A. E., & Marvin, R. S. (1984). Differences, difficulties, and adaptation: Stress and social networks in families with a handicapped child. Family Relations, 33, 67-77.
- Kazdin, A. E. (1980). Behavior modification in applied settings. Homewood, IL: Dorsey Press.
- Kazdin, A. E., & Klock, J. (1973). The effect of nonverbal teacher approval on student attentive behavior. Journal of Applied Behavior Analysis, 6, 643-654.
- Kogan, K. L. (1980). Interaction systems between preschool handicapped or developmentally delayed children and their parents. In T. M. Field, S. Goldberg, S. Stern, & A. M. Sostik (Eds.), High-risk infants and children: Adult and peer interactions (pp. 227-247). New York: Academic Press.
- Kogan, K. L., & Tyler, N. (1973). Mother-child interaction in young physically handicapped children. American Journal of Mental Deficiency, 77, 492-497.
- Kogan, K. L., Tyler, N., & Turner, P. (1974). The process of interpersonal adaptation between mothers and their cerebral-palsied children. Developmental Medicine and Child Neurology, 16, 518-527.
- Kogan, K. L., Wimberger, H. C., & Bobbit, R. A. (1969). Analysis of mother-child interaction in young mental retardates. Child Development, 40, 799-812.
- Lamb, M. E. (1983). Fathers of exceptional children. In M. Seligman (Ed.), The family with a handicapped child: Understanding and treatment (pp. 125-146). New York: Grune & Stratton.
- Linder, T. W., & Chitwood, D. G. (1984). The needs of fathers of young handicapped children. Journal of the Division for Early Childhood, 8, 133-139.

- Lobato, D. (1983). Siblings of handicapped children: A review. Journal of Autism and Developmental Disorders, 13, 347-364.
- Lytton, H. (1971). Observational studies of parent-child interaction: A methodological review. Child Development, 42, 651-684.
- McAndrew, I. (1976). Children with a handicap and their families. Child: Care, Health, and Development, 2, 213-237.
- Maccoby, E. E. (1980). Social development: Psychological growth and the parent-child relationship. New York: Harcourt, Brace, Jovanovich.
- Marfo, K. (1984). Interactions between mothers and their mentally retarded children: Integration of research findings. Journal of Applied Developmental Psychology, 5, 45-69.
- Marfo, K., Kysela, G. M., Barrow, S., & Hillyard, A. (1981, March). Interactions between mothers and their developmentally delayed infants in an early intervention program. Paper presented at the 13th International Conference on Behavior Modification, Banff, Alberta, Canada.
- Martin, S., Johnson, S. M., Johansson, S., & Wahl, G. (1976). The comparability of behavioral data in laboratory and natural settings. In E. J. Mash, L. A. Hamerlynck, & L. C. Handy (Eds.), Behavior modification and families (pp. 189-203). New York: Brunner/Mazel.
- Mash, E. J., & Terdal, L. (1973). Modification of mother-child interactions: Playing with children. Mental Retardation, 11(5), 44-49.
- Matas, L., Arend, R. A., & Sroufe, L. A. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. Child Development, 49, 547-556.
- Miller, S. G. (1974). An exploratory study of sibling relationship in families with retarded children. Dissertation Abstracts International, 35, 2994b-2995b. (University Microfilms No. 74-26,606)
- Mink, I. T., Nihira, K., & Meyers, C. E. (1983). Taxonomy of family lifestyles: I. Homes with TMR children.

American Journal of Mental Deficiency, 87, 484-497.

Moos, R. (1976). Human adaptation. New York: D. C. Heath.

Nihira, K., Mink, I. T., & Meyers, C. E. (1981). Relationship between home environment and school adjustment of TMR children. American Journal of Mental Deficiency, 86, 8-15.

Nordquist, V. M., Twardosz, S., & McEvoy, M. A. (1983, December). Some effects of behavioral interventions on handicapped and nonhandicapped children in an integrated early education setting. Paper presented at the World Congress on Behavior Therapy, Washington, DC.

O'Brien, R. G., & Kaiser, M. K. (1985). MANOVA method for analyzing repeated measures designs: An extensive primer. Psychological Bulletin, 97, 316-333.

Price-Bonham, S., & Addison, S. (1978). Families of mentally retarded children: Emphasis on the father. The Family Coordinator, 27, 221-230.

Radin, N. (1971). Maternal warmth, achievement motivation, and cognitive functioning in lower-class preschool children. Child Development, 42, 1560-1565.

Radin, N. (1974). Observed maternal behavior with four-year-old boys and girls in lower-class families. Child Development, 45, 1126-1131.

Rondal, J. A. (1977). Maternal speech in normal and Down's syndrome children. In P. Mittler (Ed.), Research to practice in mental retardation: Vol 2. Education and training (pp. 239-243). Baltimore: University Park Press.

Rosen, L. (1955). Selected aspects in the development of the mother's understanding of her mentally retarded child. American Journal of Mental Deficiency, 59, 522-528.

Sandgrund, A., Gaines, R., & Green, A. (1974). Child abuse and mental retardation: A problem of cause and effect. American Journal of Mental Deficiency, 79, 327-330.

Sears, R. R. (1970). Relation of early socialization experiences to self-concepts and gender role in middle childhood. Child Development, 41, 267-289.

Serafica, F. C., & Cichetti, D. (1976). Down's syndrome

children in a strange situation: Attachment and exploration behaviors. Merrill-Palmer Quarterly, 22, 137-150.

Smith, C. A. (1982). Promoting the social development of young children: Strategies and activities. Palo Alto: Mayfield.

Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. Child Development, 48, 1184-1199.

Stone, N. W., & Chesney, B. H. (1978). Attachment behavior in handicapped infants. Mental Retardation, 16, 8-12.

Stoneman, Z., & Brody, G. H. (1984). Research with families of severely handicapped children: Theoretical and methodological considerations. In J. Blacher (ed.), Severely handicapped young children and their families: Research in review (pp. 179-214). New York: Academic Press.

Stoneman, Z., & Brody, G. H. (in press). Observational research on retarded children, their parents, and their siblings. In S. Landesman-Dwyer & P. Vietze (Eds.), The impact of residential environments on retarded persons and their care providers. Baltimore: University Park Press.

Stoneman, Z., Brody, G. H., & Abbot, D. (1983). In-home observations of young Down's syndrome children with their mothers and fathers. American Journal of Mental Deficiency, 87, 591-600.

Tallman, I. (1965). Spousal role differentiation and the socialization of severely retarded children. Journal of Marriage and the Family, 27, 37-42.

Terdal, L. E., Jackson, R. H., & Garner, A. M. (1976). Mother-child interactions: A comparison between normal and developmentally delayed groups. In E. J. Mash, L. A. Hammerlynck, & L. C. Handy (Eds.), Behavior modification and families (pp. 249-264). New York: Brunner/Mazel.

Tew, B., & Laurence, K. M. (1973). Mothers, brothers, and sisters of patients with spina bifida. Developmental Medicine and Child Neurology, 15, 69-76.

Tracy, R. L., & Ainsworth, M. D. S. (1981). Maternal affectionate behavior and infant-mother attachment patterns. Child Development, 52, 1341-1343.

- Turnbull, A. P., & Turnbull, H. R. (1978). Parents speak out: Views from the other side of a two-way mirror. Columbus, OH: Charles E. Merrill.
- Twardosz, S., Botkin, D., Cunningham, J. L., Weddle, K., Sollie, D., & Shreve, C. (in press). The expression of affection in day care. Child Study Journal.
- Twardosz, S., & Jozwiak, W. (1981). The expression of affection: Suggestions for research with developmentally disabled children. Analysis and Intervention in Developmental Disabilities, 1, 217-248.
- Twardosz, S., & Nordquist, V. M. (1983). The development and importance of affection. In B. B. Lahey & A. E. Kazdin (Eds.), Advances in clinical child psychology (Vol. 6, pp. 129-168). New York: Plenum Press.
- Twardosz, S., Raab, M. M., Richman, D. (1985). [The measurement of the expression of affection in families]. Unpublished raw data.
- Twardosz, S., Richman, D., & Bowen, S. (1984). Affection measurement system for family interaction. Unpublished manuscript.
- Twardosz, S., Schwartz, S., Fox, J., & Cunningham, J. L. (1979). Development and evaluation of a system to measure affectionate behavior. Behavioral Assessment, 1, 177-190.
- Vietze, P. M., Abernathy, S. R., Ashe, M. L., & Faulstich, G. (1978). Contingency interaction between mothers and their developmentally delayed infants. In G. P. Sackett (Ed.), Observing behavior (Vol. 1). Baltimore: University Park Press.
- Wahler, R. G., & Fox, J. (1981). Setting events in applied behavior analysis: Toward a conceptual and methodological expansion. Journal of Applied Behavior Analysis, 14, 327-338.
- Wahler, R. G., Leske, G., & Rogers, E. S. (1979). The insular family: A deviance support system for oppositional children. In L. A. Hamerlynck (Ed.), Behavioral systems for the developmentally disabled: I. School and family environments (pp. 102-127). New York: Brunner/Mazel.

- Waisbren, S. E. (1980). Parents' reactions to the birth of a developmentally disabled child. American Journal of Mental Deficiency, 84, 345-351.
- Wasserman, G. A., & Allen, R. (1985). Maternal withdrawal from handicapped toddlers. Journal of Child Psychology and Psychiatry and Allied Disciplines, 26, 381-387.
- Wasserman, G. A., Allen, R., & Solomon, C. R. (1985). At-risk toddlers and their mothers: The special case of physical handicap. Child Development, 56, 73-83.
- Waters, E., Wippman, J., & Sroufe, L. A. (1979). Attachment, positive affect, and competence in the peer group: Two studies in construct validation. Child Development, 50, 821-829.
- White, B. L. (1978). Experience and environment: Major influences on the development of the young child (Vol. 4). Englewood Cliffs, NJ: Prentice Hall.
- Wikler, L. (1981). Chronic stresses of families of mentally retarded children. Family Relations, 30, 281-288.
- Yarrow, M. R., Waxler, C. Z., & Scott, P. M. (1971). Child effects on adult behavior. Developmental Psychology, 5, 300-311.
- Zahn-Waxler, C., Radke-Yarrow, M., & King, R. A. (1979). Child-rearing and children's pro-social initiations toward victims of distress. Child Development, 50, 319-330.

## APPENDIXES

## APPENDIX A

## INFORMED CONSENT FORM

I understand the following:

1. A research study will be conducted by collecting information in a number of homes of handicapped children. The purpose of the study is to obtain descriptive information about the expression of affection during family routines and about the kinds of daily interactions parents may have with others outside the family. Participation in the study will involve about seven hours of our time over a period of three weeks. First, we will be asked to complete a short questionnaire about ourselves. Then, an observer will visit our home once a week for three weeks to observe approximately 1/2 hour before our family's evening meal until about 1/2 hour after the meal. On either the second or third visit a second observer also will observe to provide the researcher with a check on the information that is collected. In addition, on each visit, the observer will interview both my husband and I for approximately 10 minutes each. We will report information about the kinds of interactions we had during the day with people outside our family. Finally, we will have the opportunity to meet with the researcher to discuss any questions or ideas we may have about the research.
2. There are no anticipated risks to any members of our family. However, we may feel a little uncomfortable at first while being observed. The observers will not interact with us while they are observing, but we may tell them if we feel they are intruding.
3. Participation in this study will provide us with opportunities to think about and discuss our ideas about the expression of affection. We also will be able to obtain information about how we express affection during the family routines. Information from this study may be useful to professionals who try to understand the interactions in families of handicapped children and help families who may be having difficulties.
4. All information about our family will be kept confidential by the researcher. Only identification codes will be used by observers. Neither our names nor any other identifying information will be included on

data sheets or used in reporting the results of the study at professional conferences or in journals.

5. We may contact Melinda Raab at the Department of Child and Family Studies, 974-5316, or at her home, 687-7257, if we have any questions about the research project.
6. Participation in this study is voluntary. We may refuse to participate or we may withdraw from the study at any time by contacting Melinda Raab at 974-5316. Withdrawal from the study will in no way affect any services our child receives from any agency.

I freely consent to participate in the project under these conditions and to allow my children to participate.

Mother's signature\_\_\_\_\_

Date\_\_\_\_\_

## APPENDIX B

## FAMILY INFORMATION FORM

Please answer the following questions. The information will be useful in helping the researcher describe her sample. All information will be kept confidential. Thank you for your cooperation.

1. What is your gender? a. female b. male
2. What is your race?
  - a. Black
  - b. Hispanic
  - c. Native American
  - d. Oriental
  - e. White
  - f. Other
3. How old are you?\_\_\_\_\_
4. What is the highest level of education you have completed?\_\_\_\_\_  
Your Spouse?\_\_\_\_\_
  - a. grade school or less
  - b. some high school
  - c. high school
  - d. some college
  - e. college
  - f. some graduate school
  - g. graduate school
  - h. other
5. How long have you been married?\_\_\_\_\_
6. What is your occupation?\_\_\_\_\_
7. What is your spouse's occupation?\_\_\_\_\_
8. List all other people living in your household. Include age, birthdate, gender, and relationship to you.

| Name | Age | Birthdate | Gender | Relationship |
|------|-----|-----------|--------|--------------|
|------|-----|-----------|--------|--------------|

9. Please describe your child's handicapping condition.
10. How would you describe your family's socioeconomic level?
- a. lower class
  - b. middle class
  - c. upper class
11. In what type of dwelling do you live?
- a. detached house
  - b. duplex or attached house
  - c. apartment
  - d. mobile home
12. Do you own or rent?\_\_\_\_\_

## VITA

Melinda M. Raab attended the University of Georgia and received the Bachelor of Science in Chemistry degree in 1970. For the next 2 years, she remained at the university as an analytical chemist in the Departments of Chemistry and Geology. In 1981, she enrolled in the master's program in Child and Family Studies at The University of Tennessee, Knoxville, and completed that degree in 1983.

She is a member of Phi Kappa Phi; the National Association for the Education of Young Children; and the Council for Exceptional Children, Division for Early Childhood. She also is an advocate for Effective Advocacy for Citizens with Handicaps, Inc.