

MATERNAL DIRECTIVENESS:
ITS RELATION TO DEVELOPMENTALLY DELAYED
CHILDREN'S COMPETENCE AND INTERACTIONAL BEHAVIOR

FOR NEWFOUNDLAND STUDIES

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BARBARA WARD CAINES



MATERNAL DIRECTIVENESS:
ITS RELATION TO DEVELOPMENTALLY DELAYED CHILDREN'S
COMPETENCE AND INTERACTIONAL BEHAVIOR

by

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Abstract

The objectives of this study were to first examine the relationship among the four types of directiveness (response control, topic control, turntaking control, and inhibitive control) that mothers of developmentally delayed children exhibit, and second, to determine how these directive behaviors relate to the child's interactional behavior and developmental characteristics. Interactions between 25 mothers and their developmentally delayed children during 15 minutes of free-play and three minutes of an instructional task were coded independently using a behavior count system and a global rating scale (Multi-Pass Coding System). The correlational analyses indicated that a relationship exists among the four subtypes of directiveness and further suggested that maternal directive behaviors vary as a function of the child's on-line (interactional) behavior and developmental characteristics. In addition, the intercorrelations among maternal behaviors indicated that directiveness and warmth and sensitivity are not incompatible characteristics of maternal behavior. Finally, the results provided evidence to suggest there are notable individual differences in interaction patterns of mothers and their developmentally delayed children.

This study concludes with a discussion of the findings and a set of recommendations.

Table of Contents

	Page
Acknowledgements	ii
Abstract	iii
List of Tables	vii
CHAPTER	
I	
INTRODUCTION	1
Statement of Purpose	1
Background Information	2
Rationale	7
A Note on Choice of Terminology	10
II	
REVIEW OF THE LITERATURE	12
Defining Maternal Directiveness	12
Operationalization of the Directiveness	
Construct in the Mental Retardation	
Literature	17
Research Design	19
Comparative Studies	20
Correlational Studies	23
Descriptive Studies	24
Findings From Comparative Studies	25
Directiveness in Relation to	
Response Control	25

CHAPTER		Page
	Directiveness in Relation to Topic Control	35
	Directiveness in Relation to Turn-Taking Control	38
	Directiveness in Relation to Restrictions, Terminations and Interferences	40
	Findings from Studies Examining Individual Differences	44
	Summary	51
III	METHODOLOGY	53
	The Sample	53
	The Design	56
	The Instruments	56
	Batelle Developmental Inventory	56
	Multi-Pass: A Scheme for Coding Parent-Child Interaction	59
	Procedures	61
	Administration of Instruments	61
	Videotaping of Interactions	61
	Coding Videotaped Interactions	62
	Observer Training and Reliabilities	63
	Ethical Considerations	69

CHAPTER		Page
IV	RESULTS	70
	Relationships Among the Four Dimensions of Directive Behavior	70
	Relationship Between Child Behavior and Child Developmental Indices	72
	Relationship Between Selected Parental Behavior and Child Development and Behavior	75
	Relationship Between Maternal Directive Behavior and Child Competence and Interactional Behavior	76
	Relationships Between Maternal Directive Behaviors and Other Maternal Behaviors	79
	Relationship Between Maternal Instructional Behavior and Child Developmental Characteristics	81
	Summary of Main Findings	82
V	DISCUSSIONS AND CONCLUSIONS	85
	Recommendations	93
	References	96
	Appendices	
	Appendix A - Multi-Pass Coding System	108
	Appendix B - Videotaping Procedures	126

List of Tables

	Page
Table 1 Directiveness in Relation to Response Control	26
Table 2 Directiveness in Relation to Topic Control	36
Table 3 Directiveness in Relation to Turn-Taking Control	39
Table 4 Directiveness in Relation to Restrictions, Terminations and Interferences	41
Table 5 Geographic Distribution of Child Management Specialists (CMS) and Child Participants	54
Table 6 Breakdown of Children By Handicapping Condition	55
Table 7 Family Demographic Characteristics	57
Table 8 Definitions and Reliabilities For Behaviors Measured in Pass One	64
Table 9 Definitions and Reliabilities For Behaviors Measured in Pass Two	66
Table 10 Definitions and Reliabilities For Behaviors Measured in Pass Three	67
Table 11 Definitions and Reliabilities For Behaviors Measured on the Behavior Rating Scale	68
Table 12 Intercorrelations Among the Four Types of Maternal Directive Behaviors and Estimates of Shared Variance Between Pairs	72

	Page
Table 13 Relationships Between Child Behavior Categories and Child Developmental Measures	73
Table 14 Intercorrelations Among Child Behavior Categories	75
Table 15 Relationships Between Selected Parental Behavior and Children's Development and Behavior	77
Table 16 Relationships Between Maternal Directive Behaviors and Child Developmental Measures and Behavioral Ratings	78
Table 17 Relationships Between Maternal Directive Behaviors and Other Maternal Behaviors	80
Table 18 Relationships Between Maternal Instructional Behaviors and Child Developmental Characteristics	82

CHAPTER I

Introduction

Statement of Purpose

The purpose of this study was twofold. The first goal was to examine the relationship among the four types of directiveness that mothers of developmentally delayed children exhibit. The second purpose was to determine how these maternal directive behaviors relate to the behavior and developmental characteristics of developmentally delayed children.

Based upon a review of the relevant literature, the following research questions were selected for the purpose of this correlational study:

1. What relationship exists among the four dimensions of maternal directiveness?
2. What relationship exists between child behavior and child developmental characteristics?
3. What is the relationship between selected parental behaviors and child development and behavior?
4. What is the relationship between maternal directive behavior and child competence?
5. What relationship exists between maternal directive behavior and other maternal behaviors?
6. What is the relationship between maternal instructional behaviors and child developmental characteristics?

The following Section presents the background information for this study.

Background Information

It has been generally accepted throughout the literature that environmental influences, and genetic programming and maturational status interact to affect the course of mental development (Sattler, 1988). A major portion of the variation in children's performance on tests of mental ability and achievement has been attributed in the past three decades to differences in family environment or background (Henderson, 1981). Thus, the family environment--the major socializing agent of the young child--is crucial to a child's development, particularly in view of Bloom's (1964) conclusion (cited in Henderson, 1981) that most of a child's basic intellectual development is completed before the age of school attendance.

A major influential factor in the family environment involves the parent/child relationship. Study of this relationship has typically consisted of examining the behaviors, attitudes, beliefs and values that give shape to the social circumstances in which parents and children interact (Laosa, 1981). A child's most valuable intellectual experiences during early childhood occur in interaction with another person (Laosa, 1982). It is through the interaction process that early learning occurs and this, as Henderson (1981) suggests, builds the foundations for later information

processing. Infants are born with the capacity to adapt to the environment. However, the way an infant experiences his/her environment can affect his/her development, in particular, cognitive development. Therefore, it is evident that the infant's early years and environment are of critical importance to the child's development of competence. The parent-child interaction process is a crucial element of this early environment and provides the immediate context for the child's acquisition of competence (Ro, 1976).

Significant shifts have occurred in the past few decades in the way the parent/child interactional process is conceptualized. The traditional view of parent/child interaction as a unidirectional process, in which the parent was seen as having complete control and influence on the infant's behavior, is no longer considered appropriate. This approach leaves many issues unanswered. Bell's (1968) reinterpretation of the direction of effects in socialization studies is now widely accepted. The shift now is towards a bidirectional approach, implying that the parent and child have mutual effects on each other's behavior (Bell, 1974). As a result, the infant can be seen as a contributor to his/her own socialization. The infant contributes to social interaction by being responsive and by actively initiating social interactions (Bell, 1974). Furthermore, the infant at an early age is capable of a variety of perceptual and cognitive achievements, which in turn make the infant a capable partner in the

interactional system (Parke, 1976).

Thus, it becomes evident that the study of parent-child interaction really is a study of reciprocal exchanges between two interactive organisms. According to Bell (1974), although the parent and the child differ greatly in maturity, they do not differ in competence, in terms of their ability to affect each other.

However, when Bell (1968) proposed this concept of interaction, he failed to emphasize the temporal dimensions of mother-child interactions. Sameroff (1975) stressed the need to view parent-child relationships in terms of ongoing histories of interaction, which result in a better understanding of developmental outcomes. From this perspective, it is the minute to minute ongoing interactions between parent and child that are of importance. Sameroff (1975) suggests that if developmental processes are to be understood it will be through "a continuous assessment of the transactions between the child and his environment to determine how these transactions facilitate or hinder adaptive integration as both the child and his surroundings change and evolve" (p. 283). Thus, parent-child interaction is also viewed as a transactional process--a process which consists of the transactions between biological and environmental factors. Moreover, the term transaction stresses the multi-faceted effects that infant and parent have on each other as well as the effects that the behavior of each has on his/her own subsequent behavior

(Bromwich, 1981).

Under the transactional model, Marfo (1988) suggests that both parent and child mutually affect each other, through each partner's relatively stable and transient characteristics. This model represents further development of the bidirectional relationship of parent-child interactions in that it also recognizes the continual and progressive interaction between the organism and his/her environment (Kysela & Marfo, 1983).

A fair amount of parent-child interaction research has related measures of children's intellectual competence to various aspects of parental behavior, with the majority of these studies focusing on maternal behavior. Their findings suggest that the child's most valuable intellectual experiences during early childhood occur in interactions with another person who explains, reasons with, teaches, helps, entertains, converses with, praises, shares, and expands the child's activities (Laosa, 1982). It is generally accepted that these behaviors, as well as maternal warmth and sensitivity, are beneficial to the child's intellectual development. In contrast, child-rearing practices characterized by strict control, coaxing, commands, threats and punishment are believed to be less advantageous to the child's development (Clarke-Stewart, 1973).

Some studies suggest that certain types of stimulation may facilitate cognitive development (Ro, 1976). The extent to which the mother provides for frequent encounters with a

wide variety of situations can influence the infant's learning. Also, maternal visual attentiveness may influence and facilitate the infant's attentiveness to the environment and subsequent stimulation (Osofsky & Connors, 1979). In addition, the ways in which parents organize and arrange the infant's home environment and set limits on this setting can also indirectly influence cognitive and social development (Power & Parke, 1982).

Other environmental processes--attitudes, dispositions and patterns of interaction among family members--in the home have been found to correlate with children's intellectual development (Laosa, 1982).

In view of the reciprocal nature of the parent-child interactional system, it is necessary to examine the child characteristics and attributes that influence parental behavior. From the earliest weeks of life, it is the infant who effectively promotes many of the interactions (Beckwith, 1972). A number of infant characteristics have been acknowledged in the literature as affecting the mother-child relationship. These characteristics include temperament, sex, birth order, state, responsiveness to tactile, visual, and auditory stimuli, and vocalizations (Osofsky & Connors, 1979). Results from the increasing number of studies with infants force us, as Osofsky & Connors observe, to recognize infants as complex organisms with individualized patterns of reactivity and activity preferences from birth that coincide with,

infringe upon, and affect maternal interests.

Physical characteristics of infants can also affect maternal interactional style. For example, the infant's responses influence the mother's feelings and her behavior toward the infant. Infants who are disadvantaged or handicapped influence parental behavior in the interaction process, especially in the way a parent relates to the infant (Osofsky & Connors, 1979). Moreover, many infants with developmental delays or other neurologically based handicaps respond in ways sufficiently deviant to make mutually pleasurable interaction between mother and infant difficult to achieve (Bromwich, 1976). Thus, the early years are even more crucial for mentally handicapped and developmentally delayed children if optimal and developmentally enhancing parent-child interactions are to be achieved.

The following section presents a rationale for this study and the basis for the formulation of the research questions which it addresses.

Rationale

In recent years, many studies have sought to examine the effects of a child's handicapping condition on maternal interaction style, by comparing dyadic interactions involving mentally handicapped and nonhandicapped children (Buckhalt, Rutherford & Goldberg, 1978; Cunningham, Reuler, Blackwell & Deck, 1981; Eheart, 1982; Jones, 1980; Marshall, Hegrenes &

Goldstein, 1973; Stoneman, Brody & Abbott, 1983).

A recurring finding from this body of research is that, while mentally handicapped children are characterized by inactivity and unresponsiveness (Eheart, 1982; Terdal, Jackson & Garner, 1976), their mothers tend to be highly directive and unresponsive (Cunningham et al., 1981; Hanzlick & Stevenson, 1986).

Since, as Tannock (1988b) observes, the rate of language learning in normally developing children has been negatively correlated with measures of maternal directiveness (Nelson, 1973; Newport, Gleitman & Gleitman, 1977; McDonald & Pien, 1982;), maternal language addressed to mentally handicapped children has generally been interpreted as being less favourable for language learning than language addressed to normally developing children (Cardoso-Martins & Mervis, 1985; Cunningham et al., 1981). Because mentally handicapped children are exposed to significantly higher amounts of directiveness, it has been generally accepted that maternal directiveness must account, at least in part, for the poor developmental outcomes associated with mental handicap. However, as Marfo (1990) suggests, this opinion of maternal directiveness as an inherently negative interactional phenomenon precluding responsiveness is simplistic in its failure to distinguish between the adaptive qualities of parental behavior and the potential developmental effects of such adaptive behavior.

In contrast, other investigators have argued that mothers

of mentally handicapped children are no more directive or unresponsive than mothers of nonhandicapped children (O'Kelly-Collard, 1978; Rondal, 1978), and that mentally handicapped children are as responsive as (Cunningham et al., 1981) or more responsive (Hanzlick & Stevenson, 1986) than nonhandicapped children.

These divergent findings in the mental retardation literature, as Tannock (1988b) also observes, are confounded by: (a) failure to acknowledge the multidimensional nature of the directiveness construct; (b) methodological issues (nomothetic comparisons versus correlational analyses); and (c) the use of observational methods that fail to consider the mother and child as an interactive, dyadic unit.

In addition, the overwhelming majority of between group designs has failed to acknowledge that mothers of mentally handicapped children are a heterogeneous group and that variance does exist in mother-child dyads. In much of this research, the main goal has been to establish whether one group of mothers issues more directives than the other. Furthermore, few studies have attempted to identify factors (other maternal and child behaviors) associated with increased use of directives (Mahoney, 1988b; Maurer & Sherrod, 1987; Tannock, 1988b). Thus, there is a need for an increased focus on individual differences in the study of directiveness in order to identify variables that may be associated with maternal directiveness. Very few studies in the literature

have examined individual differences in terms of directiveness (Crawley & Spiker, 1983; Mahoney, 1983, 1988a, 1988b; Mahoney, Finger & Powell, 1985).

The significance of this correlational study is that it attempts to examine individual differences in patterns of mother-developmentally delayed child dyads, in terms of the multidimensional components of maternal directive behavior. There is a need to focus on sources of variations within groups of mother-handicapped child dyads. This study investigates a broader range of both maternal and child interactional behaviors and, thus, considers the mother and child as an interactive, dyadic unit.

A Note on Choice of Terminology

Clinically, the children in this study may more appropriately be classified under the two labels "developmentally disabled" and "developmentally delayed". Developmentally disabled children are those with chronic disabilities which result from mental and/or physical impairment and manifest themselves in substantial functional limitations in such areas as academic skills, communication, social skills, mobility, self-care, and capacity for independent living (Bernheimer & Keogh, 1986). Children with such conditions as Down syndrome, cerebral palsy, hydrocephalus and spina bifida are covered by the developmental disabilities label.

In contrast the term developmentally delayed is used to

describe children who manifest signs of slow development and language/communication problems, but who exhibit no clear signs of associated physical or biological impairments (Bernheimer & Keogh, 1986).

Sixty percent of the children in this study could be classified as developmentally disabled, while 40% fell under the developmentally delayed category. However, the term "developmental delayed" will be used generically to describe the entire sample.

CHAPTER II

Review of the Literature

Defining Maternal Directiveness

Research has highlighted the dyadic nature of the parent-child relationship (Bell, 1968; Lewis & Rosenblum, 1974). It is believed that a mutuality is established to which both partner's actively contribute. Thus, the parent-child relationship is a system characterized by directionality and reciprocity. This contradicts the early view of this relationship as one in which powerful adults shape child behavior. However, there are occasions where mothers do have to take the initiative and therefore, may exert greater influence over their child, and as Schaffer and Crook (1979) suggest, mothers often have "purposes and goals of their own which they need to convey to their children and with which the children are expected to comply" (p. 986). The far greater power potential of parents should not be ignored (Hoffman, 1975).

The term maternal control or "directiveness" then refers to both verbal and nonverbal behaviors employed by the mother to change the ongoing behavior of the child during any given time (Marfo, 1990). As such, the term should not be understood solely in a negative manner--one that depicts punishment, restraint, and force. Maternal control techniques are designed to influence the child's behavior. Such directive behavior is a common aspect found in interactions between two

or more individuals and, as Schaffer (1984) notes, the significance of control techniques is particularly marked in parent-child interactions during the early years. In view of this, directive behavior appears then to be a normal aspect of parenting--not an attribute to be construed as completely negative or limited to a pathological population. To interpret directive behavior as a negative parenting technique, neglects the many positive ways open to parents for influencing their child's behavior (Schaffer & Crook, 1979). Maternal control techniques or directives have been shown in the developmental literature to be influenced by the following characteristics of the child: age (Bellinger, 1979; Schaffer & Crook, 1979); linguistic ability (Schneiderman, 1983); cognitive development, and child's focus of attention at the time (Schaffer & Crook, 1979; Schaffer, Hepburn & Collis, 1983). Because maternal directives tend to be influenced by the characteristics of the child, this seems to imply that mothers show sensitivity when engaging in directive behavior. Nevertheless, there exists negative connotations regarding directiveness in the developmental literature.

McDonald and Pien (1982) found that mothers' directives had a significant negative relationship with mothers' questions to children ages 29 to 36 months. Nelson (1973) who followed 18 children (ages 10 to 15 months) for one year, found that maternal directions, instructions, commands and requests were negatively related to the child's progress in

comprehending language and acquiring an early vocabulary. Mothers' directions were also found to be negatively related to mothers' questions. Rubenstein and Howes (1979) found that in both homes and daycare centers, caregiver control and restrictiveness surfaced as negative influences on the developmental level of infant play. Newport et al. (1977) found that mothers' unintelligible utterances and affirmative imperatives predicted slow syntactic development in one- to two-year-old children.

In other investigations that have examined the maternal use of imperatives, similar findings have concluded that maternal control techniques were found to inhibit the child's development (Olson-Fulero, 1982; Clarke-Stewart, 1973).

The practice of perceiving directiveness as a negative interaction phenomenon has been further strengthened and sustained in the mental retardation literature by a number of studies that investigated the interaction patterns of mothers and their mentally handicapped children, in contrast to the interaction patterns of mothers and their nonhandicapped children. Generally, in much of this research, a significantly higher incidence of maternal directive behavior has been reported for mothers of mentally handicapped children compared to mothers of nonhandicapped children (Breiner & Forehand, 1982; Cunningham et al., 1981; Eheart, 1982; Mahoney & Robenalt, 1986).

Because maternal directiveness in the developmental

literature is perceived to be negatively related to the development of competence in children, and that mentally handicapped children are exposed to greater amounts of directiveness, it is often interpreted in the mental retardation literature that maternal directiveness must account for part of the poor developmental outcomes associated with mentally handicapped children (Marfo, 1990). Such interpretations lead to the understanding that a high incidence of maternal directiveness may be detrimental to the child's development.

However, in contrast, the child-driven theory (Mahoney, Fors & Wood, 1990) would not support the view of maternal directiveness as an inherently problematic and negative interaction behavior. According to this theory, maternal directive behavior is determined by the child's level of participation in the interaction. As such, this theory tends to suggest that the child's on-line behavior attracts maternal directive behavior. Mothers of mentally handicapped children are viewed as having higher rates of directive behavior because their children show greater passivity in interaction than do nonhandicapped children. Tannock's (1988b) findings indicate that maternal directiveness may serve as a supportive strategy to enhance developmentally immature children's ability to participate more fully in interaction. In addition, Maurer and Sherrod (1987) conceptualized maternal directive behavior as an adaptive strategy to enable and

intensify the child's participation in the interaction process.

The child-driven theory is consistent with Bell's control theory (Bell & Harper, 1977). According to Bell, it is assumed that both participants in a parent-child interaction exert two types of control (upper-limit and lower-limit) on each other's behavior "relative to the intensity, frequency or situational appropriateness of behavior shown by the other" (p. 65). In terms of the parent, lower-limit control behavior primes and stimulates the child's behavior where it is perceived to be below an acceptable level, or is nonexistent. Maternal directive behaviors would fall within the lower-limit control behaviors. In view of this theory, mothers of mentally handicapped children use greater amounts of lower-limit control behaviors due to their childrens' passivity than mothers of nonhandicapped children.

Both the child-driven and control theories provide support for observing maternal directiveness as an adaptive-strategic behavior. Because child pathology exists, as Schaffer (1984) notes, it should not be thought of as leading to a deviant dyadic pattern. Mothers can learn to compensate for infants' diminished capacities to participate in social interaction, in order to function satisfactorily in the parent-child system.

Operationalization of the Directiveness Construct in the
Mental Retardation Literature

Although the directiveness construct has had a number of definitions in the empirical literature, it is often characterized as a unidimensional construct. Several operational definitions exist in the research. Marfo (1990) presented an extensive discussion of different operational definitions. Four operational definitions, offered by Marfo (1990) will be examined in this section, each describing a different dimension of maternal directiveness: (a) response control; (b) topic control; (c) turn-taking control; and (d) restrictions, terminations and interferences.

The term "response control" refers to a mother's tendency to issue commands, ask command questions, or make demands of the child to respond. Each of these behaviors serves to solicit a response from the child (Tannock, 1988a, 1988b; Marfo, 1990). A number of studies have utilized this definition of directiveness either directly or indirectly (Breiner & Forehand, 1982; Buium, Rynders & Turnure, 1974; Cunningham et al., 1981; Cardoso-Martins & Mervis, 1985; Garrard, 1989; Hanzlik & Stevenson, 1986; Mahoney & Robenalt, 1986; Maurer & Sherrod, 1987).

"Topic control" involves the mother's tendency to control the topic by using utterances or turns, or by lead taking and introducing toys or activities, that are unrelated to the child's ongoing activity or topic (Tannock, 1988b).

Studies that have implemented topic control as an index of maternal control include Jones (1980), Tannock (1988a, 1988b), Mahoney (1983, 1988a), Mahoney et al. (1985), Eheart (1982), Cunningham et al. (1981), and Cardoso-Martins and Mervis (1985).

"Turntaking control", a more global operationalization of directiveness, addresses the extent to which mothers dominate the interaction by contributing long and frequent turns (Tannock, 1988a, 1988b). Using a procedure developed by Kaye and Charney (1980), a turn is defined as any behavior produced by either a parent or child during the interaction process. It could be "a single utterance with accompanying gestures, two or more utterances strung together without a pause between them or nonverbal acts" (Kaye & Charney, p. 214). Turns are usually classified into four categories: mands, responses, response-mands and unlinked turns. Indexing maternal directiveness under this system examines the ratio of maternal turns (in any category) to the total number of turns taken by the child (Mahoney & Robenalt, 1986).

Other investigations that have employed turntaking control as an index of control include Tannock (1988a, 1988b), Mahoney and Robenalt (1986), Mahoney et al. (1990), and Mahoney (1983).

The final operational definition of directiveness involves the mothers' tendency to restrict, terminate and interfere with the child's activity. Davis and Oliver (1980),

Stoneman et al. (1983), Kogan, Wimberger and Bobbit (1969) and Herman and Shantz (1983) have all coded restrictions, terminations or interferences as instances of maternal control.

It is evident from this discussion that each operational definition describes a different subtype of directive behavior. Many studies have restricted the investigation of directiveness to frequency counts of response control and as such have failed to address the complexity of directive behavior. Moreover, the discrepant findings in the literature are confounded by the variations in the definitions used to measure directiveness (Tannock, 1988b). Thus, as Marfo (1990) suggests, operationalizing directiveness in terms of the classification of subtypes discussed here provides a framework for interpreting the findings of individual investigations.

Research Design

Methodological issues, in particular the research designs have also resulted in conflicting findings in terms of maternal directiveness. In addition, the research design has also contributed to the negative connotations associated with directiveness. The three major research designs to be discussed in this section are comparative, correlative and descriptive designs.

Comparative studies.

Most research on the interaction of mothers and their handicapped children has focused on nomothetic (handicapped and nonhandicapped) comparisons. That is, a between group design has been utilized to investigate the interaction patterns of mother-handicapped and mother-nonhandicapped child dyads (Marshall et al., 1973; Eheart, 1982; Cunningham et al., 1981; Gutman & Rondal, 1979; Mahoney & Robenalt, 1986).

Three major matching procedures have been used in the comparative studies: chronological age matching (Marshall et al., 1973; Buium et al., 1974; Stoneman et al., 1983; Breiner & Forehand, 1982; Buckhalt et al., 1978; Herman & Shantz, 1983); mental age matching (Terdal et al., 1976; Eheart, 1982; Cunningham et al., 1981; Garrard, 1989; Jones, 1980; Marfo & Kysela, 1988); and language matching, usually on the basis of mean length of utterance (Rondal, 1977, 1978; Gutman & Rondal, 1979; Davis & Oliver, 1980; Cardoso-Martins & Mervis, 1985; Maurer & Sherrod, 1987; Mahoney & Robenalt, 1986; Tannock, 1988b).

Each of the matching procedures reveals different types of information. The chronological age (CA) match simply reveals whether a population of handicapped children differs from a population of nonhandicapped children at the same chronological age. Clearly, as Rosenberg & Robinson (1988) observe, it does little to distinguish between the effects associated with a disability versus the effects of child

abilities on maternal behavior. The CA match design is limited in its ability to identify reasons for group differences and as Marfo (1984) notes, it is not altogether clear whether such differences are attributable to differences in type of child (handicapped versus nonhandicapped) or to the level of functioning (low versus high functioning). It is a known fact that at a given CA, mentally handicapped and nonhandicapped children will differ in developmental levels and language abilities, and furthermore, these factors are known to influence maternal language (Tannock, 1988b).

This methodological problem has been addressed by matching children for mental age (MA). It has been suggested that MA matching procedures may offer a more sensitive measure for comparison as it allows investigators to control for a developmental lag on the part of the mentally handicapped child (Leifer & Lewis, 1984). Thus, a mental age match proposes to reveal similarities and differences when the children are functioning at similar developmental levels. However, when mentally handicapped and nonhandicapped individuals are matched on MA, there is no assurance that their specific skills and competencies will be similar (Stoneman, 1989). Moreover, as Stoneman (1989) observes, the use of MA match designs can be further compromised due to difficulties in obtaining valid MA assessments particularly with severely mentally handicapped children.

In addition, this matching procedure does not address the

issue that handicapped and nonhandicapped children matched for MA may still differ in language abilities. Mentally handicapped children do not appear to develop language on par with either CA or MA matched nonhandicapped children (Cardoso-Martins & Mervis, 1985). Mothers of mentally handicapped children change their own language as a function of the child's linguistic abilities (Rondal, 1988). Thus, in order to examine that maternal language to handicapped children is faulty, it must be shown, as Rondal observes that deficits exists in the input when handicapped and nonhandicapped children are compared at similar levels of language development. However, language matching either on the basis of mean length of utterance or a measure of receptive or expressive language does not always ensure comparable linguistic skills (Tannock, 1988b). For example, mentally handicapped children demonstrate more advanced-vocabulary (Rondal, 1978) and conversational-response (Leifer & Lewis, 1984), but less advanced syntactic abilities (Rondal, 1978) than MLU-matched nonhandicapped children. Generally the research produces discrepant findings regarding maternal directiveness when handicapped and nonhandicapped children are matched for language abilities (Rondal, 1977, 1978; Gutman & Rondal, 1979; Cardoso-Martins & Mervis, 1985; Davis, Stroud & Green, 1988)

It is necessary to exercise caution when attempting to classify any maternal interaction styles as unique characteristics of mothers of handicapped children. One must demon-

strate that these characteristics hold regardless of the child's mental, motor, or linguistic competence (Marfo, 1984). By using multiple comparison groups, for example using CA, MA, and language ability match, a more precise and conceptually clearer group comparison is provided, than would result from using a more global MA match design (Stoneman, 1989). Multiple comparison groups can add interpretative power to a research design (Davis & Oliver, 1980; Maurer & Sherrod, 1987; Tannock, 1988b; Mahoney & Robenalt, 1986; Cardoso-Martins & Mervis, 1985; Mahoney et al. 1990).

In general, between group research designs comparing the mother-child interaction process in pathologic and nonpathologic populations have been useful as preliminary research (Crawley & Spiker, 1983). However, such comparative studies can be misleading if comparison strategies are not clearly conceptualized and well executed (Stoneman, 1989). Moreover, by focusing on nomothetic comparisons, much of the past research has failed to examine the variance that does exist in mother-child dyads.

Correlational studies.

A correlational investigation lends itself to more appropriately examining the whole individual difference continuum, by examining individual differences in mother-child interaction patterns and child competence within a sample of handicapped children. As a result, the question of whether mother-

handicapped child dyads, as a group, differ from other mother nonhandicapped child dyads would be eliminated. However, such research lags significantly behind comparative studies which examine group differences (Marfo, 1990). Only a handful of investigations exist in the literature that examines individual differences directly in terms of mother-child interaction patterns and child competence within a sample of handicapped children (Crawley & Spiker, 1983; Mahoney et al., 1985; Mahoney 1988a, 1988b).

Descriptive studies.

Even fewer descriptive studies exist that investigate individual differences in mother-handicapped child interaction patterns. Mahoney (1983), the only descriptive study known to this researcher, employed a longitudinal research design to examine individual differences in the interaction patterns of two mother-handicapped child dyads.

Both the correlational and descriptive designs recognize the potentially important individual differences that exist in mother-handicapped child dyads. Similarly, as Marfo (1990) observes, the few studies that have examined individual differences directly have reported evidence to the effect that mothers of handicapped children exhibit a wide range of differences not only in interactional style in general, but also in the use of directives.

Findings from Comparative Studies

As a major focus of this investigation is the multidimensional aspects of directiveness, the various studies will be reviewed in terms of their operationalization of the directiveness construct.

Directiveness in relation to response control.

Most empirical research on directiveness has examined commands and imperative utterances as an index of control. Table 1 summarizes the findings and methodological aspects of studies relating directiveness to response control.

The finding that mothers of mentally handicapped children tend to be more controlling and directive in interactions with their child is consistent across the studies using a CA match (Kogan et al., 1969; Marshall et al., 1973; Buium et al., 1974; Breiner & Forehand, 1982; Herman & Shantz, 1983; Stoneman et al., 1983).

In the Marshall et al. (1973) study, mothers, like their children, were compared on the four verbal operants--mands, tacts, intraverbals, and echoics. While the two groups of mothers did not differ on the frequency of tacts, intraverbals, and echoics, mothers of mentally retarded children showed a greater frequency of mands (demanding, commanding, requesting, asking). The mentally retarded children produced significantly more echoic behaviors and less tacts, intraverbals and mands. These findings were consistent with the

Table 1

Directiveness in Relation to Response Control

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Eheart (1982)	8 retarded: 39-49 months (1 seizure, 3 C.P., 4 unknown) 8 nonretarded: 24-31 months	Cognitive level on basis of type and duration of play patterns.	Free play; Lab (children's school)	Maternal and child behaviors	Behavior count. Imperative utterance	Mothers of MR children more directive. MR children less responsive.
Marshall, Hegrenes & Goldstein (1973)	20 retarded 20 nonretarded Both groups age 3-5 years	CA	Free play; Lab	Both maternal and child behaviors	Behavior count. Verbal operants (mands)	Mothers of MR children more controlling—higher mand rate. MR children more echoic; normal children more mands, tacts, intraverbals.
Stoneman, Brody & Abbott (1983)	8 DS 8 nonhandicapped Both groups age 4-7 years	CA, gender, race and parental education	Free play; Home	Maternal, paternal and child behaviors	Behavior count. Manager role; verbal/nonverbal commands or requests	DS children less responsible. Mothers of DS children more controlling. Parents of DS children more responsive to their children.
Cunningham, Reuler, Blackwell & Deck (1981)	18 retarded: 28-96 months 18 nonretarded: 18-54 months	MA	Free play and structured tasks; Lab	Both maternal and child behaviors	Behavior count. Commands and command-questions	Mothers of MR children were more controlling. MR children less responsive and less interactive.
Gutman & Rondal (1979)	21 DS: 38-144 months 21 nonhandicapped: 20-32 months	Level of language development	Free play; Home	Both maternal and child behaviors	Behavior count. Verbal operants (mands)	Mothers of DS children emitted fewer mands, less controlling.
Bulm, Rynders & Turnure (1974)	6 DS 5 nonretarded Both groups 24 months	CA, SES, maternal IQ	Structured tasks; Lab	Maternal behavior	Behavior count. Imperative sentences	DS children exposed to different linguistic input. Mothers of DS children higher frequency of imperative sentences.

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Garnud (1989)	26 DD a) 23-3 years; IQ range: 54-79 b) 4.5-5 years; IQ range: 47-77 26 nondelayed a) 23-3 years; IQ range: 98-136 b) 4.5-5 years; IQ range: 101-134	CA, child IQ, Sex	Free play; Home (selected toys)	Maternal behavior	Behavior count. Commands, verbal direct and nondirect requests	Mothers of DD children use more directives.
Brainer & Forehand (1982)	1, 8 DD clinic referred 2, 8 normal clinic referred 3, 8 normal nonclinic referred Group 1 - mean age 53.4 mth Group 2 - mean age 54.3 mth Group 3 - mean age 55 months	CA, SES and Sex	Unstructured, normal daily routines; Home	Both maternal and child behaviors	Behavior count. Total commands. Child deviant behavior and compliance	Mothers of DD children gave more commands, rewards and contingent attention. DD children less compliant to total commands.
Tercel, Jackson & Garner (1978)	42 DD (age 2-15 years) a. low MA; IQ = 46 b. mid MA; IQ = 63 c. high MA; IQ = 71 40 normal (3 levels: CA = 2.6, 4.10, 6.11)	MA	Unstructured, free play and structured tasks; Lab	Both maternal and child behaviors	Behavior count. Commands and command questions	Mothers of DD children were more directive. Mothers of low MA DD children more directive than mothers of high MA DD children. Low MA DD children more inadequate response to maternal behavior.
Harzlik & Stevenson (1986)	20 DD a. 10 MR; (4 DS, 6 unknown) CA = 21.8 mth; MA = 12.4 mth b. 10 MR & CP CA = 21 mth; MA = 11.8 mth 20 nondelayed a. 10 MA match b. 10 CA match	MA, CA	Free play with 20 selected toys; Home	Both maternal and child behaviors	Behavior count. Commands, command questions	Mothers of disabled children used more commands. Disabled children lower level of behavior and less interactive than normal CA match children. No difference in these measures when disabled children compared to normal MA match children.
Cardoso-Martins & Mervin (1988)	5 DS 3 groups normal: a. prelinguistic match (n = 5) b. MA match (n = 5) c. CA match (n = 5)	CA, MA, level of language development	Free play with selected toys; Home	Maternal behavior	Behavior count. Imperative utterances	Mothers of DS children high incidence of imperatives.

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Rondal (1977)	21 DS a. MLU = 1.0 - 1.5 (n = 7) b. MLU = 1.7 - 2.5 (n = 7) c. MLU = 2.5 - 3.0 (n = 7) 21 normal (same 3 groups)	Level of language development	Unstructured free play; Home	Maternal behavior	Behavior count, Imperative sentences	No difference in quality of linguistic environment for DS and normal children. No difference for proportions of imperative sentences.
Marfo & Kyzela (1968)	27 MR: 3 groups a. nonintervention group; CA = 15.7 months b. short intervention group; CA = 15.7 months c. long intervention group; CA = 16.1 months (DS, fetal alcohol syndrome, CP, BD, hydrocephaly, neurology, impairment and unknown) 18 nonhandicapped a. CA match; CA = 17.34 mth. b. MA match; CA = 11.04 mth.	CA, MA	Free play; Home	Both maternal and child behaviors	Behavior count, Instructions - verbal directives in anticipation of response	Mothers of MH children gave more instructions. Developmentally older children more responsive to mother's verbalizations.
Davis & Oliver (1960)	8 MR: CA = 3.5 years (2 DS; 1 BD; 5 unknown) 8 nonretarded: CA = 12 months	General level of ability and linguistic ability, demographic variables	Free play; Lab	Maternal behavior	Behavior count, Commands	Mothers of MR children more vocally stimulating and less directive.
Maurer & Sherrod (1967)	6 DS: CA = 12 months 4 nonretarded; CA = 9 months Both groups followed for 2 years	CA, MA and verbal age	Free play; Home	Maternal, paternal child	Behavior count, Commands and suggestions	Using a CA match, parents of DS children more intrusive and directive. No differences appeared when children matched on MA and verbal age.
Herman & Shantz (1963)	12 EMR; IQ = 59 19 nonretarded; IQ = 103 Both groups age 10 years	CA	Free play, cooperative task and teaching task; Lab (child's school)	Both maternal and child behaviors	Behavior count, Commands	Mothers of EMR children more controlling. For EMR group, the higher maternal directiveness, the lower the child's social problem-solving skills.

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Mahoney & Rieber (1966)	20 DS a. CA = 25 months (n = 10) b. CA = 36 months (n = 10) 20 nonretarded a. CA = 14.8 months (n = 10) b. CA = 16.5 months (n = 10)	Developmental age, expressive language age, infant sex, maternal age and education	Free play with selected toys; Home	Both maternal and child behaviors	Behavior count. Mands - a turn which requires a response and to which it would be rude not to respond in normal adult discourse	Mothers of DS children more dominant and their children less active communication partners. DS children had fewer mands, response-mands and more unlinked turns.
Tennock (1986a)	11 DS (age 15 - 57 months) 11 nonretarded (age 10 - 22 months)	Communicative ability, MA and demographic variables	Free play with selected toys; Lab	Both maternal and child behaviors	Behavior count. Response control: commands, questions and other behavior to elicit a response from child	Mothers of DS issues 50% more obliged turns in 13 minutes, but were not less responsive. No difference in response control for the two groups of children.
Kogan, Wimbinger & Bobitt (1969)	6 MPR: age 3 - 7 years 10 nonretarded: age 4 - 5 years	-	Free play with selected toys; Lab	Both maternal and child behaviors	Rating Scale. Commands	Mothers of MR children more directive. MR children less actively engaged in interaction with their mothers.
Mahoney, Fox & Wood (1990)	18 DS a. turn balanced: CA = 29.8 months Mean development age: 17.4 months b. turn imbalanced: CA = 30.6 months Mean development age: 17.7 months 18 nonretarded CA = 15.3 months Mean development age: 17.6 months	Developmental age, expressive language age, sex, maternal age and education	Free play with selected toys; Home	Both maternal and child behaviors	Behavior count. Mands - a turn which requires a response and to which it would be rude not to respond in normal adult discourse	Mothers of DS children greater mand rate. No significant difference in mand rate for DS children and nonretarded children.

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Deeks, Stroud & Green (1998)	a. 10 MR (CA = 38.2) b. 10 physical or intellectual problems (CA = 15.2) c. 10 nonretarded (CA = 38.4)	Language ability, CA, SES, family size, First order, sex, maternal age	Free play and instruction; Home and Lab	Both maternal and child behaviors	Behavior count. Commands	Mothers of MR children used more commands during free play. No differences between groups in directiveness during instruction.

DD = Developmentally Delayed

DS = Down Syndrome

MR = Mentally Retarded

results of an earlier study (Kogan et al., 1969) in which mothers of three- to seven-year old retarded children were found to give more orders and to ask more leading questions than mothers of four- and five-year old nonretarded comparison children.

The Buium et al. (1974) investigation of the early maternal linguistic environment of normal and Down syndrome (DS) language learning children reported that the DS children received a different linguistic input than the normal children. The DS children were exposed to a higher frequency of imperative sentences.

Using frequency of commands as an index of control, Breiner and Forehand (1982) found mothers of four- to five-year-old retarded children to be more controlling than mothers of nonretarded children. The mentally retarded children were significantly less compliant to maternal commands. Similarly, Stoneman et al. (1983) found mothers of retarded children to be significantly more verbally and nonverbally commanding than mothers of nonretarded children. The mentally retarded children were reported to be less responsive. Comparable findings were observed by Herman & Shantz (1983) in that mothers of 10-year-old educable mentally retarded children issued significantly more commands than mothers of nonretarded children.

The evidence from the CA match studies indicate that mothers of mentally handicapped children, while providing a

different linguistic environment to their children produce more mands and imperative sentences than mothers of nonhandicapped children. In contrast, the mentally handicapped children tended to be less responsive, less actively engaged in interaction and more echoic.

Six of the studies reported in Table 1 matched handicapped and nonhandicapped children on the basis of level of cognitive functioning (Cunningham et al., 1981; Eheart, 1982; Hanzlick & Stevenson, 1986; Garrard, 1989; Marfo & Kysela, 1988; Terdal et al., 1976).

Generally, these studies reported findings similar to the CA matched studies (Marshall et al., 1973; Stoneman et al., 1983; Herman & Shantz, 1983; Kogan et al., 1969; Breiner & Forehand, 1982; Buium et al., 1974). Mothers of mentally handicapped children issued significantly more commands and command-questions, while their children were less interactive and less responsive. However, Marfo and Kysela (1988) observed developmentally older children to be more responsive to mother's verbalizations. Similarly, Terdal et al. (1976) reported that developmentally younger children issued more inadequate responses to maternal behavior. In contrast, Hanzlik and Stevenson (1986) indicated that when developmentally disabled children were compared to normal mental age (MA) matched children, no differences were noted in child's level of behavior.

The remaining studies in Table 1 incorporated the child's

level of language development into their matching criteria (Cardoso-Martins & Mervis, 1985; Davis & Oliver, 1980; Davis et al., 1988; Gutman & Rondal, 1979; Mahoney & Robenalt, 1986; Mahoney et al., 1990; Maurer & Sherrod, 1987; Tannock, 1988a), and have reported discrepant findings. Cardoso-Martins and Mervis (1985), Davis et al. (1988), Mahoney and Robenalt (1986), and Mahoney et al. (1990), all indicated that mothers of mentally handicapped children exhibited a higher incidence of imperative utterances, commands, and mands than mothers of nonhandicapped children during free play. In Tannock's (1988a) study, mothers of children with Down syndrome issued 50% more oblige turns than did mothers of nonretarded children. However, no differences were found when maternal oblige turns were calculated as a proportion of the mother's total turns. No differences were noted in response control between the two groups of children. Both groups of children contributed very few oblige turns in comparison with their mothers.

Maurer and Sherrod (1987) reported that when using a CA match, parents of Down syndrome children were more directive, however, these differences disappeared when the children were matched on mental age and verbal age. The child's MA and verbal age appear to have a greater impact on the parents' directive behavior than does CA. Gutman and Rondal (1979) who matched subjects according to mean length of utterance (MLU) reported no group differences in maternal use of mands, and

Rondal (1977), observed that there were no differences in the quality of linguistic environment (proportions of imperative sentences) for Down syndrome and nonretarded children. Davis and Oliver (1980), who matched on linguistic ability as determined by the mothers, found that mothers of retarded children tended to be less directive and more vocally stimulating than mothers of nonretarded children.

Free play situations were used in the majority of comparative studies that examined directiveness in relation to response control. However, Herman and Shantz (1983), Cunningham et al. (1981), Terdal et al. (1976) and Davis et al. (1988) included a situation where the mother was asked to instruct the child. Cunningham et al. (1981), Herman and Shantz (1983), and Terdal et al. (1976) found that mothers of children with mental retardation were more directive than control mothers when teaching, whereas Davis et al. (1988) found no such difference. Specifically, mothers of mentally retarded children were more directive during free-play but during the teaching task, they changed their directive behavior very little in comparison to the control mothers. The control mothers altered their directive behavior to levels previously adopted in free-play by mothers of mentally retarded children. Thus, these findings tend to indicate some inconsistencies in examining response control across various contexts (free play versus teaching task). However, the majority of these studies suggest mothers of mentally handi-

capped children exhibit more response control during a teaching task than mothers of nonhandicapped children.

Directiveness in relation to topic control.

Some of the differences noted in interaction patterns between mother-handicapped and mother-nonhandicapped child dyads have emerged from studies using topic control as an index of directiveness (Eheart, 1982; Jones, 1980; Cardoso-Martins & Mervis, 1985; Tannock, 1988a; Cunningham et al., 1981). Table 2 provides a summary of design and methodological characteristics of the investigations operationalizing directiveness in terms of topic control.

Jones (1980) examined mothers' style of interaction using mother directed versus child directed play activity as an index of topic control, and reported that Down Syndrome children were involved in more mother-directed activities, whereas nonretarded children had a higher frequency of child-directed play. Similar patterns of play interactions were reported in the Eheart (1982) study. For mother-nonretarded child dyads, significantly more interaction took place around child selected toys, whereas interaction between mother-mentally retarded child dyads centered around mother selected toys.

It is significant to note that out of the five studies reporting data on directiveness in relation to topic control, only one (Cunningham et al., 1981) used both a free play and

Table 2

Directiveness in Relation to Topic Control

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Ehrent (1982)	8 retarded; 30-49 months (1 seizure; 3 CP; 4 unknown) 8 nonretarded; 24-31 months	Cognitive level on basis of type and duration of play patterns	Free play; Lab (children's school)	Both maternal and child behaviors	Behavior count. Interactions revolved around child selected vs mother selected toys	Interactions revolved more around mother-selected toys for MR children.
Jones (1980)	6 DS; 8-24 months 6 nonretarded; 3-13 months	Developmental age, sex, SES, family position	Free play; Home (selected toys) repeated measures	Both maternal and child behaviors	Behavior count. Mother-directed vs child-directed play activity	Mothers of DS children more directive. Nonretarded children involved in more child-directed play. DS children involved in more mother-directed activities.
Cardoso-Martins & Mervis (1985)	5 DS 3 groups nonretarded: a. prelinguistic match (n = 8) b. MA match (n = 5) c. CA match (n = 5)	CA, MA, level of language development	Free play with selected toys; Home	Both maternal and child behaviors	Behavior count. Orientation of mother/child interaction. Mother vs child-directed interaction	Orientation of mother/child interaction was mother-directed for DS children and their mothers.
Tannock (1988a)	11 DS (15-57 months) 11 nonretarded (10-22 months)	Communicative ability, MA and demographic variables	Free play with selected toys; Lab	Both maternal and child behaviors	Behavior count. Mother's tendency to redirect the child's attention to mother-selected topics	Mothers of DS children greater topic control. No clear difference between two groups of children in topic control.
Cunningham, Reuler, Backwell & Deck (1981)	18 retarded; 28-96 months 13 nonretarded; 18-54 months	MA	Free play and structured tasks; Lab	Both maternal and child behaviors	Behavior count. Mother vs child initiated verbal and nonverbal interactions	Mothers of retarded children initiated more frequent interaction. Normal children initiated more frequent interaction than MR children. Higher MA children initiated more interactions than lower MA children.

DO = Developmentally Delayed DS = Down Syndrome MR = Mentally Retarded

structured task situation to examine mother-child interaction patterns and still reported findings similar to those studies simply using a free play context (Eheart, 1982; Jones, 1980; Cardoso-Martins & Mervis, 1985; Tannock, 1988a). This seems to suggest that regardless of observational context (unstructured versus structured task) mothers of mentally handicapped children exercise greater topic control.

Tannock (1988a) and Cardoso-Martins & Mervis (1985) while using multi-matching criteria (mental age and communicative ability), found mothers of Down syndrome children to exert greater topic control than mothers of nonhandicapped children. Similar findings were reported from studies using a mental age match (Eheart, 1982; Jones, 1980; Cunningham et al., 1981).

Generally, these findings tend to suggest that mothers of mentally handicapped children are more directive in terms of topic control, in that they tended to direct their child's attention to mother-selected topics and toys. This pattern of interaction was observed in both free play and structured task settings. Mentally handicapped children were reported to be less responsive and less interactive than nonhandicapped children. However, a more recent investigation sheds new light on the latter statement. Tannock (1988a) compared 11 Down syndrome and 11 nonretarded children matched on communicative ability, mental age and demographic variables and reported no clear differences between the two groups of children in terms of topic control.

Directiveness in relation to turntaking control.

The investigations that examine directiveness in relation to turntaking control are summarized in Table 3. Each of these studies, using a behavior count system, examined the extent to which there was a turn balance or imbalance between the mother and child dyad.

Each of the studies presented in this table employed multi-matching criteria (developmental age and language age), as well as observed mother-child dyads in a free play context. In both of Tannock's (1988a, 1988b) investigations significant group differences were found, in terms of turntaking control, between mother-handicapped and mother-nonhandicapped child dyads. Mothers of Down syndrome children were found to engage in a faster paced interaction; they contributed significantly more utterances and turns per minute than mothers of the nonhandicapped children. In contrast, the two groups of children did not differ in terms of their overall number of utterances or turns. Both groups of children contributed turns at a slower rate than their mothers.

Tannock's findings regarding the child's behavior are inconsistent with the results from the Mahoney and Robenalt (1986) study. Their sample of Down syndrome children engaged in significantly fewer turns than their normal counterparts. However, the mothers of Down syndrome children were equally responsive to their children's communication, but were also the more dominant communication partners. In a more recent

Table 3
Directiveness in Relation to Turn-Taking Control

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Tannock (1988b)	11 DS (15 - 57 months) 11 nonretarded (10 - 22 months)	Communicative ability, MA and demographic variables	Free play with selected toys; Lab	Both maternal and child behaviors	Behavior count. Extent mothers dominate interaction by contributing long and frequent turns	Mothers of DS greater turn-taking control. Two groups of children did not differ in terms of overall number of turns.
Mahoney & Robenalt (1986)	20 DS a. CA = 24 months (n = 10) b. CA = 36 months (n = 10) 20 nonretarded a. CA = 14.8 months (n = 10) b. CA = 16.5 months (n = 10)	Developmental age, expressive language age, infant sex, maternal age and education	Free play with selected toys; Home	Both maternal and child behaviors	Behavior count. Turn: any behavior produced by one person during course of interaction	Mothers of DS children had more turns; DS children fewer turns.
Mahoney, Fors & Wood (1990)	18 DS a. turn balanced (n = 9) CA = 23.6 months b. turn imbalanced (n = 9) CA = 30.8 months 18 nonretarded: CA = 15.3 months	Developmental age, expressive language age, sex, maternal age and education	Free play with selected toys; Home	Both maternal and child behaviors	Behavior count. Turn: any behavioral unit produced by one person during the course of interaction	Mothers of turn imbalanced DS children had significantly more turns than their children. Mothers of turn imbalanced DS children had higher ratio of mother to child turns than old turn balanced and NR group.
Tannock (1986a)	11 DS (15 - 57 months) 11 nonretarded (10 - 22 months)	Communicative ability, MA and demographic variables	Free play with selected toys; Lab	Both maternal and child behaviors	Behavior count. Extent mothers dominate interaction by contributing long and frequent turns	Mothers of DS children greater turn-taking control. Two groups of children did not differ in terms of overall number of turns.

DS = Developmentally Delayed
 DS = Down Syndrome
 MR = Mentally Retarded

study, Mahoney et al. (1990) reported that significant group differences in interactive balance indicated that children with Down syndrome initiated interaction less often than did nonretarded children.

In general, the comparative studies tend to depict mothers of Down syndrome children as exerting greater turn-taking control. The interactions of mothers and their Down syndrome children are characterized by a higher ratio of mother to child turns.

Directiveness in relation to restrictions, terminations and interferences.

Four studies are reported in Table 4 that use restrictions, terminations and interferences as an index of control (Davis & Oliver, 1980; Herman & Shantz, 1983; Kogan et al., 1969; Stoneman et al., 1983).

Herman & Shantz (1983) is the only study reported in this table to assess the dyadic behavior of mother and child in three situations: free play; cooperative task; and teaching task. In each of the three observational contexts, mothers of mentally handicapped children tended to interfere and restrict their child's activity more frequently than mothers of non-handicapped children. It is important to note that the more achievement oriented tasks elicited more directiveness. These findings were consistent with the results of an earlier study (Kogan et al., 1969) in which mothers of three- to seven-year-

Table 4

Directiveness in Relation to Restrictions, Terminations and Interferences

Study	Sample (Children)	Matching Criteria	Observational Context	Focus	Behaviors Measured	Relevant Findings
Davis & Oliver (1980)	8 MR: CA 3.5 years (2 DS, 1 ID, 5 unknown) 8 nonretarded: CA = 12 months	General level of ability and linguistic ability, demographic variables	Free play; Lab	Maternal behavior	Behavior count, Prohibitions	Mothers of MR children less directive.
Herman & Shantz (1983)	12 EMR: IQ = 59 19 nonretarded; IQ = 103 Both groups age 10 years	CA	Free play; cooperative task and teaching task; Lab (child's school)	Both maternal and child behaviors	Behavior count, Interfering: Mother's attempt to stop children activity, Restricting: reducing intensity of child's activity	Mothers of EMR children more directive. EMR children fewer different strategies for problem-solving, but gave wide range of strategies. Achievement oriented task elicit more directiveness.
Kogan, Wimbarger & Bobbit (1989)	6 MR: age 3 - 7 years 10 nonretarded: age 4 - 5 years	-	Free play with selected toys; Lab	Both maternal and child behaviors	Rating scale, Prohibiting and restraining	Mothers of MR children more directive, engaged MR children less in interaction.
Stoneman, Brady & Abbott (1982)	8 DS 8 nonretarded Both groups age 4 - 7 years	CA, gender, race and parental education	Free play; Home	Maternal, paternal and child behaviors	Behavior count, Verbal/nonverbal commands or requests <u>not</u> to perform a certain behavior	Mothers of DS more directive. DS children less responsive to both parents. Parents of DS children more responsive.

DD = Developmentally Delayed

DS = Down Syndrome

MR = Mentally Retarded

old retarded children were found to engage in more prohibiting and restraining behaviors than mothers of four- and five-year old normal comparison children in a free play situation.

Stoneman et al. (1983) examined maternal, paternal and child behaviors and concluded that although mothers of Down syndrome children were more directive during free play interaction, they were significantly more responsive to their children than mothers of nonhandicapped children.

Davis & Oliver (1980) produced findings contradictory to the previously mentioned studies. In using prohibitions as an index of control, mothers of mentally retarded children were reported to be less directive during free play interactions than mothers of nonretarded children. It was also observed that there were no significant differences between the mother-nonretarded and mother-retarded child dyads with respect to the extent to which mothers interrupted the child's vocalization. The methodological strength of this investigation is in the matching criteria--children were matched according to general level of ability and linguistic ability, rather than chronological age as in the Herman and Shantz (1983) and the Stoneman et al. (1983) studies.

As stated previously, comparative studies of mother-child interaction have been useful as preliminary research, in order to determine ways in which the social experience of some handicapped children differ from those of nonhandicapped peers (Crawley & Spiker, 1983). However, emerging from this research

is a picture of mothers of mentally handicapped children who exhibit a highly directive interactional style. The legacy that between-group designs have left is that of the homogeneity myth. There is a strong depiction that mothers of mentally handicapped children are a homogenous group of individuals who share the common characteristic of directive behavior. In effect, the presence of a handicapping condition in the child is viewed as the main source of variation in mothers' use of directive behaviors in interactions with their children (Marfo, 1990). As Marfo argues, the homogeneity myth has persisted in the literature due to significantly more interest in group differences as opposed to individual differences. For the most part, many of the comparative studies, have tended to ignore the wide range of differences that exist within the mother-handicapped child dyads.

Few investigations have employed a between-group design and in addition have examined individual differences (Buckhalt et al., 1978; Terdal et al., 1976; Peterson & Sherrod, 1982; Mahoney & Robenalt, 1986). Buckhalt et al. (1978) matched Down syndrome children and nonretarded children on CA, and reported that mother's vocalizations positively correlated to CA in the nonretarded group and to MA in the Down syndrome group, and thus indicated that mothers in both groups talked more to older and more competent infants. Terdal et al. (1976) found mothers of developmentally younger children to be more directive than mothers of developmentally older children.

Also, the lower functioning children tended to respond inadequately to maternal behavior. Peterson and Sherrod (1982) indicated that mothers of higher linguistically competent Down syndrome children issued more commands than mothers of low MLU Down syndrome. In contrast, Mahoney and Robenalt (1986) reported that there was no significant difference between maternal mands for developmentally younger and older Down syndrome children.

Moreover, investigations employing a between group design offer no empirical basis for interpreting the significance of group differences (Crawley & Spiker, 1983). Thus, it is of greater importance to examine individual differences directly. Baumeister (1984) suggested that to gain an understanding of a mental handicap, it is necessary to study individuals who are mentally handicapped and thereby study the processes that operate within those families. As Marfo (1990) observes, the few investigations that have examined individual differences directly have reported that mothers of handicapped children vary considerably in their use of directive behaviors (Crawley & Spiker, 1983; Mahoney, 1983, 1988a; Mahoney et al., 1985).

Findings from Studies Examining Individual Differences

Because very few investigations have examined individual differences in the interactional styles of mother-handicapped child dyads, each study will be reviewed individually in terms of their findings regarding directiveness.

Crawley and Spiker (1983) examined directiveness more elaborately than any of the other studies reviewed in this chapter. The objective of their study was to examine individual differences in mother-child interactions and to determine whether individual differences in patterns of mother-child interactions are related to child competence in two-year-olds with Down syndrome. Six maternal behaviors were rated on multipoint scales: directiveness, elaborativeness, sensitivity, stimulation value, mood and mother appeal. Directiveness was operationalized in terms of response control--use of indirect requests and suggestions, consistent use of commands, gestures, and physical guidance to demand child compliance. Four maternal qualities were regarded as separable components of maternal sensitivity and directiveness and thus were rated as dichotomous judgments: pacing, developmental appropriateness, readability, and intrusiveness. Ten child qualities were rated using five-point scales: play maturity; social initiative; social responsivity; interest; object initiative; positive affect; negative affect; locomotion; animation; and child appeal.

The only significant negative correlation regarding directiveness and other maternal behaviors was reported between directiveness and elaborativeness. Directiveness did not correlate with any of the other maternal behaviors. Because directiveness did not significantly correlate with other variables like sensitivity and stimulation value,

Crawley and Spiker (1983) concluded that directiveness was not a highly negative feature of mother-child interaction in their sample.

In addition, these researchers examined the extent to which mothers varying in sensitivity (high, moderate, and low) also varied as a function of directiveness. In the high sensitivity group there were equal numbers of directive and nondirective parents. All the mothers in the moderate sensitivity group were directive, whereas, in the low sensitivity group, four directive and two nondirective mothers were identified. Crawley and Spiker (1983) concluded from these results that mothers may be both directive and highly sensitive.

Further results from this study indicate that mothers of Down syndrome children showed a wide variation along such dimensions as directiveness, sensitivity and elaborativeness. Children who showed little interest in the play situation and rarely initiated actions on objects had mothers who were more directive. No relationship was found between maternal directiveness and child competence in this study. The only child interactional variables that correlated significantly with maternal directiveness were interest and initiative. There was a tendency for children of high sensitive-high directive mothers to have higher levels of interest than other subgroups of children. Moreover, the findings demonstrate that an optimal combination of sensitivity, elaborativeness and

directiveness may provide the environment most conducive to development in Down syndrome children.

Mahoney et al. (1985) investigated the relationship of different styles of maternal interaction to the rate of development achieved by 60 one-, two- and three-year-old organically impaired, mentally retarded children. Eighteen global maternal behaviors and four child behaviors were rated on a five-point Likert Scale. A factor analysis of the maternal behavior items revealed three major parameters of behaviors:

1. **Child oriented/maternal pleasure**, made up of behaviors depicting maternal sensitivity to child's state, responsiveness, playfulness, and pleasure.
2. **Quantity of stimulation**, consisting of behaviors depicting amount of physical and social stimulation, expressiveness, and degree of inventiveness.
3. **Control**, made up of directiveness and achievement orientation (positive factor loading), sensitivity to child's interests and permissiveness (negative factor loading).

The researchers reported that maternal responsiveness, playfulness, and pleasure (factor one) correlated positively with children's mental development. In contrast, factors two and three (quantity of stimulation and control) correlated negatively with children's developmental status. Directiveness in this study was operationalized in terms of topic control. The negative relationship of factor three suggests

that mother-dominated patterns of interaction are associated with lower levels of child functioning. Similarly, greater directiveness and insensitivity on the part of the mother were associated with lowered cognitive competence in the child. In comparison, children who had a higher level of cognitive competence had mothers who were neither highly controlling nor very directive. They allowed their children to lead the activity, and they participated by responding enthusiastically and appropriately to their children's interests.

In a further investigation of the same data, Mahoney (1988a) examined the relationship of different styles of maternal interaction to their children's level of communicative competence. Mother-child communication was coded to characterize maternal communicative functions, the relationship of mother and child communication to the topic of conversation, and the manner that mothers and children reciprocate each others' communication. Six maternal style factors were identified: attentiveness, responsiveness, persistent requesting, child-orientation, quality of requests, and quality of information. In this study, directiveness was operationalized in terms of response control, topic control, and turntaking control. There was a wide range of directiveness and communicative responsiveness among the mothers in this sample. The results from this study indicated group differences in maternal communication seemed to parallel age differences in children's communication. Mothers who used

more action requests and less information requests had children with lower expressive skills. Children were much more likely to communicate verbally when their mothers' communication was highly responsive to their verbal and nonverbal communication and when mothers' conversational topic was more child-oriented than mother-oriented.

Essentially, the mothers could be characterized according to one of three different styles of communicating with their children. Approximately one-third of the mothers were communicatively responsive to their children's attempts to communicate. Another third of the sample were mothers who communicated with their children using a very instructional style. These mothers tended to use language to direct their children's activity and to provide new information. They tended to focus on topics of conversation that were mother-oriented as opposed to child-oriented. The remainder of the mothers were characterized by their inability to engage in effective communication with their children.

The final study to be reviewed is Mahoney's (1983) longitudinal investigation of the quality of language with which two mothers addressed their Down's syndrome children during the second year of life. This study was designed to address the issue of homogeneity and to determine whether there are developmental changes in the communication between mothers and their children during the second year of life.

The findings reported in terms of turn taking control

indicated that both mothers produced more utterances than their children. Also Mother B dominated the communication exchange with her child during each of the six sessions far more than Mother A. For both mothers there was a significant developmental increase in the proportion of the information requests and significant decreases in behavior requests and responding to the child's utterances.

In relation to topic control, individual differences existed between the two mothers. A greater proportion of the utterances of Mother A were classified as responding to the child's topic, whereas a greater proportion of the utterances of Mother B were classified as unrelated to the topic of conversation. However, for both mothers there were developmental increases in the frequency of sustained communication episodes with their children.

These results certainly do not support the assumption that mothers are a homogeneous group, particularly in the manner in which they speak to their developmentally delayed children. Moreover, these findings indicate that maternal language changes as their children grow older and that the quality of maternal language is not necessarily a stable characteristic, but rather may be one that changes as parents continue to adjust to their child.

Each of the studies reviewed in this final section reveal that there is considerable variability in the manner in which mothers interact with their mentally handicapped children, and

these findings challenge the homogeneity myth. These intra-group differences demonstrate that beyond the child's handicapping condition, mothers adjust their directive behaviors on the basis of the child's age, developmental competence, degree of involvement and activity.

Summary

Researchers are in general agreement that the mother-handicapped child interactional system is a very complex process that demands attention in order to identify features of interaction that contribute to child growth. Most of the research in this area has focused on comparing the interaction patterns of mother-handicapped and mother-nonhandicapped child dyads. The literature includes very few investigations examining individual differences in order to identify variables--other than the child's handicapping condition--that may be associated with maternal directiveness. Maternal directiveness needs to be examined more broadly in the context of a wider range of maternal and child behaviors in order to contribute further to our understanding of individual differences. By studying directiveness in isolation from other important features of the interaction process, there is often a tendency to equate directiveness with insensitivity to the child's behavior. Recent research has shown that maternal directiveness and maternal responsiveness and sensitivity are not necessarily incompatible characteristics.

The present study is designed to add to the small number of studies focusing on individual differences. While this study examines individual differences, it also pays close attention to the multi-dimensional nature of directiveness, as the foregoing review of the related literature underscores the need to reconceptualize maternal directiveness as a multi-dimensional phenomenon.

CHAPTER III

Methodology

This chapter describes the study sample and the instruments that were utilized and gives a description of the procedures that were used for the study.

The Sample

The subjects in this study consisted of 25 mothers and their developmentally delayed children who were recipients of early intervention services through the Direct Home Services Program (DHSP). The DHSP is a home-based early intervention program for families of developmentally delayed infants and preschool-age children operated under the aegis of the Division of Mental Retardation, Department of Social Services, Province of Newfoundland and Labrador. Professional home teachers called Child Management Specialists (CMS) make weekly home visits (ranging in time from 1 to 1.5 hours). The purpose of the home visits is to teach parents appropriate and effective methods of stimulating and enhancing the development of their children (Marfo et al., 1988).

The principal investigator, Dr. Kofi Marfo, was granted permission from the coordinator of DHSP to approach families in the program regarding their participation in this study. Dr. Marfo then requested the assistance of Child Management Specialists (CMS) in various sites on the Avalon region of the

province to meet with families to explain the study, and obtain their permission to participate. Families were under no obligation to participate and, in addition, they were assured that their decision regarding their participation would not affect the services received. Through this process 25 families were recruited throughout four program sites in the Avalon region. Table 5 outlines the number of CMSs working in each program site and the number of children recruited from each site.

Table 5

Geographic Distribution of CMS Specialists and Child Participants

Program Site	Number of CMS	Number of Children
Harbour Grace	2	14
Whitbourne	1	5
St. John's	1	3
Bell Island	1	3
Total	5	25

All the children recruited for this study are natural

children, including one dyad with the natural grandmother as the primary caregiver. Children in foster care were excluded from the present investigation.

The final study sample consisted of 15 boys (60%) and 10 girls (40%), all classified under the broad label of "developmentally delayed". Table 6 provides information pertaining to the type and frequency of conditions associated with delay among the children in the study.

Table 6

Breakdown of Children By Handicapping Condition

Label	Frequency	Percent of Occurrence
Down Syndrome	5	20.0
Spina Bifida	2	8.0
Hydrocephalus	1	4.0
Cerebral Palsy/DD	4	16.0
DD With Visual Impairment	1	4.0
Speech Delay/DD	2	8.0
DD	8	32.0
Spina Bifida and Hydrocephalus	1	4.0
Speech Delay and Ricketts Syndrome	1	4.0
Total	25	100.0

DD = Developmentally Delayed

At the time of data collection the mean chronological age of the children was 45.5 months ($SD = 12.5$; Range 25.9 - 70.0 months). The children's mean cognitive Deviation Quotient (DQ), as determined by the Batelle Developmental Inventory, was 71.8 ($SD = 6.4$; Range 65 - 84) and the means for their receptive and expressive communication abilities were, respectively, 68.9 ($SD = 6.4$; Range 65 - 89).

The parents in the sample included 18 married mothers (72%), one single mother (4%), and one divorced or separated mother (4%). Information on marital status was not disclosed by five parents (20%). Additional parental characteristics are presented in Table 7.

The Design

The design of this research is correlational, the purposes of which are to determine if a relationship existed among the four dimensions of directiveness and to further relate the four dimensions of directiveness to the child's interactional behavior and developmental characteristics.

The Instruments

Batelle developmental inventory (BDI).

The Batelle Developmental Inventory (Newborg, Stock, Wnek & Guidubaldi, 1984) is a developmental measure useful for obtaining information about important areas of development in young children from birth to eight years of age. It is an

Table 7

Family Demographic Characteristics

	<u>Parental Ages (in years)</u>		
	Mean	SD	Range
Mothers	29.0	4.6	22-38
Fathers	31.4	5.3	22-42
	Mothers (n = 20)		Fathers (n = 20)
<u>Education</u>			
No Education	0		4.0
Grade School (1-6)	4.0		8.0
Junior High	28.0		24.0
High School	20.0		20.0
Vocational Training	20.0		20.0
Undergraduate	4.0		4.0
Graduate of Professional School	4.0		0

Note: 20% missing

untimed, individually administered assessment battery. The BDI consists of 341 items grouped into five domains: Per-

sonal-Social, Adaptive, Motor, Communication and Cognitive. Items with each domain are clustered into subdomains or specific skill areas. Additionally, there is a Screening Test composed of 96 of the 341 test items. The full BDI takes approximately 60 minutes to administer.

Because only the Communication and Cognitive scales were administered, a description of these two domains will follow.

Communication Domain: This domain consists of 59 items assessing both receptive and expressive communication skills. The receptive skills involve the ability to discriminate, recognize and understand sounds, words, nonverbal signs and gestures. The expressive skills involve the ability to produce and use sounds, words, and gestures in order to relate information to others.

Cognitive Domain: This scale consists of 56 items assessing conceptual skills. Abilities assessed include perceptual discrimination, memory, reasoning and academic skills and ability to grasp concepts and draw relationships among objects.

The information required for each item is collected by a combination of three methods: (a) interview with parents, (b) structured test format, or (c) observations of the child in natural settings. In addition, items can be modified for use with handicapped children (Sattler, 1988). All raw scores of the BDI are converted into Deviation Quotients ($M = 100$, $SD = 15$).

Although the BDI appears to be standardized adequately, more information is still needed for its reliability and validity.

Multi-pass: A scheme for coding parent-child interaction.

The Multi-Pass coding system (Appendix A) was developed principally by Dr. Kofi Marfo, with input from this author. This system combines two broad classes of parent-child interaction coding systems--behavior count systems and rating systems--both of which are based on systematic observation. Both of these systems vary in the size of the units of behavior coded. Molar units (coded with rating scales) are broad classes of behaviors, such as warmth and sensitivity, that provide the least information about specific behavioral exchanges and the highest level of summarization of what was seen (Rosenberg & Robinson, 1988). In contrast, the molecular units (behavior count) use predetermined, narrowly defined categories to record the occurrence of behaviors during a period of observation. Thus, by combining these two coding systems in the Multi-Pass System, it is possible to obtain counts of behaviors that lend themselves easily to segmenting and tallying, along with qualitative measures of attributes which defy quantification (Marfo, 1989).

The behavior count section of Multi-Pass employs an event-based coding system to target four dimensions of parental behavior: (a) turntaking control; (b) response

control; (c) topic control; and (d) inhibitive/intrusive control. In addition, the behavior count section for the most part, employs interactive coding--(ie., parent and child behaviors are not coded in isolation) with the exception of the five parental instructional behaviors and parental intrusions. The behavior count section involves a three "pass" system--a pass being defined as a complete viewing of an entire episode of interaction. During each pass a small number of behavior categories is coded; only those behaviors defined in the corresponding component of the instrument are coded. The interaction themes covered in the three passes are: Pass One--Turntaking and response control; Pass Two--Topic control, inhibitions, and intrusions. Pass Three--Directive types and instructional behavior. Thus, each interaction episode is viewed three times during coding. For recording data, Multi-Pass employs a paper and pencil coding technique on accompanying coding forms (each 11" x 17"). The coder makes a tally in the appropriate box, every time a behavior of interest is observed.

The rating scale component of Multi-Pass is used after Pass Three coding is completed. The rating scale consists of both parental and child behaviors/interactional attributes deemed too qualitative to code by the behavior count system. The parental behaviors/interactional attributes consist of warmth, sensitivity, encouraging/guiding and wait time, whereas the child coding categories include play maturity,

enthusiasm/interest and affect.

Procedures

Administration of instruments.

The Batelle Developmental Inventory was administered in each of the subjects' homes by a research assistant, with a Master's degree in Speech Therapy, who had been trained specifically to administer the instrument. Only the language and cognitive scales were administered.

Videotaping of interactions.

The purpose of the videotaping was to obtain a sample of interaction between the mother and the child in free-play and during structured activities. The taping sessions were recorded by the Child Management Specialist (CMS) who works routinely with the family.

The videotaping procedures designed specifically for this study, are provided in Appendix B. All the interaction samples were obtained in the natural environment of the dyad's own home, at a time when the child was alert.

Mothers were instructed to play with their children as if no observer were present. They were provided with a standard set of toys (stacking rings and rod, xylophone, ball, picture book, stack blocks, pull-toy telephone car, brush-comb-mirror set, and a wooden toy truck with movable objects) considered appropriate for children of the mental age range included in

the sample. Each dyad had the complete liberty to use all or some of the toys in any way they wished.

Each taping session was not to exceed twenty minutes. Each session included both structured and unstructured activities. The sequence of activities consisted of: (a) Stacking rings on a rod (structured); (b) Free play (unstructured); and (c) Putting away the toys (structured). In the first task-stacking rings mother's task was to get the child to stack as many of the rings as possible in any manner that she wishes, within a time limit of three minutes. In the free play segment mother and child were to engage in free play around the standard toys provided, for a period of fifteen minutes. The final activity was a structured task, in that the mothers were instructed to get the child to put the toys away in the toy box, within a time limit of two minutes. Again the mothers were free to use any method they wished to go about this task. Videotaping was temporarily discontinued if the child became too irritable, tired, or uninterested to continue, or if the child strayed from the interaction area, or if outside interruptions occurred, such as the telephone ringing.

Coding videotaped interactions.

The videotapes were coded using the Multi-Pass coding system which was specifically designed to study maternal directiveness and at the same time examine other aspects of

maternal interactions with handicapped children. All 25 tapes were viewed three times and behaviors coded for each corresponding pass. The behavior rating scale was completed at the end of pass three coding.

Observer training and reliabilities.

Pilot videotaped interactions of developmentally delayed children interacting with their mothers were used in coder training. The author and an undergraduate psychology student received extensive training over a two-month period. During training, videotapes of free-play sessions were observed and discussed, and then practice codings were done independently from videotapes not previously seen, using the Multi-Pass Coding System. None of the tapes from the sample were used in observer training. Interobserver reliabilities (the number of agreements divided by the number of disagreements + agreements) were calculated after each Pass. Training continued until the interobserver reliability for each behavior fell within the range of .85 to .95. Disagreements were resolved through discussion and viewing the tapes or tape segments involving the disagreement a second time. For the present investigation, the interobserver reliabilities ranged from .85 to 1.00 for each of the behaviors coded. The interrater agreements for the rating scale codes were assessed using Pearson's r and ranged from .71 to .93 for children's behavior ratings and .91 to .98 on maternal behaviors. Definitions and

reliabilities for each of the behaviors are listed in Tables 8 to 11.

Table 8

Definitions and Reliabilities For Behaviors Measured In Pass One

Pass One: Indexing Turn Taking and Response Control

Turn Type

- Mand:** A turn which requires a response to which it would be rude not to respond in normal adult discourse.
- Response:** A turn which is a response to the other person.
- Response-Mand:** A turn which is both a response to a previous turn and simultaneously requires a response from the other person.
- Unlinked:** A turn that cannot be classified under any of the three categories.

Turn Modality

- Verbal:** Spoken turn, involving intelligible words or sounds which substitute for words.
- Nonverbal:** As in, e.g., pointing to a toy as if to say "Get the toy" or pointing to a picture as if to say "What's that?"

Interobserver Reliabilities for Pass One

Parental verbal mand	.95
Parental non-verbal mand	.98
Parental verbal response	.91
Parental non-verbal response	.94
Parental verbal response-mand	.98
Parental non-verbal response-mand	1.00
Parental verbal unlinked	.89
Parental non-verbal unlinked	.85
Child verbal mand	.96
Child non-verbal mand	.97
Child verbal response	.93
Child non-verbal response	.88
Child verbal response-mand	1.00
Child non-verbal response-mand	1.00
Child verbal unlinked	.92
Child non-verbal unlinked	.93

Using the eight behaviors from Pass One, maternal turn-taking control was calculated as the proportion of all turns that were maternal turns, whereas maternal response control was calculated as the frequency per minute of all verbal mands, nonverbal mands, verbal response-mands, and nonverbal response-mands (Table 8).

Using Pass Two behaviors, maternal topic control was calculated as the frequency of maternal topic initiations divided by the sum of maternal and child topic initiations. Inhibitive control was computed as the frequency per minute of all verbal and nonverbal inhibitions. Intrusiveness was derived as the frequency of intrusive behaviors per minute of interaction (Table 9).

Table 9

Definitions and Reliabilities For Behaviors Measured in Pass Two**Pass Two: Indexing Topic Control, Inhibitions and Intrusions****Topic Control**

- Topic Initiation: To start any identifiable verbal or nonverbal event or activity, such as play around a toy, a song, or a conversation about an object or a subject.
- Following A Topic: To respond with behavior or action which shares the partner's focus or "stays on topic".

Inhibitions and Intrusions**Parental Behavior**

- Verbal Inhibition: Any verbal instruction directed at the child with the goal of stopping the child from engaging in an activity or behavior that may not be deemed dangerous or undesirable.
- Non-verbal Inhibition: Any non-verbal behavior, including body language, that is an explicit attempt to stop the child from engaging in an activity that may not be deemed dangerous or undesirable.
- Intrusions: Any behavior, verbal or non-verbal, that tends to disrupt the child's ongoing behavior or activity. Instructive behaviors tends to ignore the child's interest, leading to the imposition of parental agenda.

Child Behavior

- Complies: Child complies by refraining from the sanctioned activity or behavior.
- Noncompliance: Child continues to pursue the sanctioned activity or behavior, even after being commanded (verbally or nonverbally) to stop.

Interobserver Reliabilities for Pass Two

Parent initiates topic	.94
Parent follows topic	.95
Child initiates topic	.97
Child follows topic	.93
Parent verbal inhibition	.98
Parent non-verbal inhibition	1.00
Parent intrusions	.99
Child complies to verbal inhibition	.98
Child complies to non-verbal inhibition	1.00
Child noncompliance to verbal inhibition	1.00
Child noncompliance to non-verbal inhibition	1.00

Table 10

Definitions and Reliabilities For Behaviors Measured In Pass Three**Pass Three: Indexing Verbal Directive Types and Instructional Behavior****Types of Directives**

Standard Imperative: A literal, direct command, which consists of a subjectless verb phrase and describes the action to be performed.

Embedded Imperative: A non-literal but referentially explicit command. An action directive that is a polite way saying command.

Parental Instructional Behavior

Labelling: Parents labels an object or says the name of a person or character in a story with the intent to teach a new piece of information or reinforce a previously learned one.

Expansion: Parent responds to the child's vocalization by clarifying, expanding, or elaborating the vocalization without changing the meaning.

Giving Information: Parent makes verbal statements that are meant to inform the child about objects, events and activities.

Requesting Information: Parent asks questions that require the child to demonstrate knowledge about objects, operations, events and activities.

Modelling: Parent provides a demonstration of the performance of a task/activity or the use of an object, with the intent of getting the child to do likewise.

Reinforcement: Parent provides positive reinforcement (praise, touching, clapping) for child's performance of a task/activity or verbal response.

Interobserver Reliabilities for Pass Three

Parent standard imperative	.94
Parent embedded imperative	.96
Child complies to standard imperative	.92
Child complies to embedded imperative	.95
Parent labelling	.94
Parent expansion	.97
Parent giving information	.96
Parent requesting information	.94
Parent modelling	.93
Parent reinforcement	.98

Table 11**Definitions and Reliabilities For Behaviors Measured In Behavior Rating Scale****The Behavior Rating Scale****Child Behaviors/Attributes**

Play Maturity:	Level of play exhibited during the interaction, ranging from simple banging and mouthing of toys to functional use of toys.
Enthusiasm/Interest:	The extent of enjoyment, interest, or enthusiasm exhibited by the child during interaction.
Affect:	The extent to which the child expresses positive affect towards the parent.

Parent Behaviors/Attributes

Warmth:	The extent to which parent displays positive affect to the child through such behaviors as hugging, patting, verbal endearments, and other action depicting fondness and positive affect.
Sensitivity:	The extent to which parent shows awareness of and reads the child's verbal and non-verbal cues/signals.
Encouraging/Guiding:	The extent to which parent guides, encourages, and challenges child to discover solutions and accomplish tasks on his/her own.
Wait Time:	The extent to which parent waits for the child to respond to action/information guidance.

Interrater Reliabilities for Behavior Rating Scale

Play maturity	.89
Enthusiasm	.93
Affect	.71
Warmth	.98
Sensitivity	.93
Encouraging/guiding	.95
Wait time	.91

Ethical Considerations

In compliance with the requirements of the Ethics Review Committee of the Faculty of Education, Memorial University of Newfoundland, the participants were provided with a letter of introduction to the study. The letter provided the following information.

1. The researcher was identified by name and title.
2. A brief, accurate description of the purposes of the study and procedure.
3. An estimate of the amount of time required on behalf of the participants.
4. A statement to parents that return of the data would constitute consent on behalf of the participant to use the data for research purposes.
5. A statement assuring complete anonymity.
6. A parental consent form to obtain permission for their child's participation.

CHAPTER IV

Results

As stated in the Introduction, the objectives of this study were to examine the relationships: (a) among the four dimensions of directive behavior; (b) between child behavior and child developmental characteristics; (c) between selected parental behaviors (manding, responding, and unlinked behaviors) and child interactional behavior and developmental competence; (d) between maternal directive behavior and child competence; (e) between maternal directive behavior and other maternal behavior; and (f) maternal instructional behavior and child developmental characteristics. The results of the study are presented in sections corresponding to each of the above objectives.

Relationships Among the Four Dimensions of Directive Behavior

One of the research questions that this study was designed to address is, what, if any, relationships exist among the four dimensions of directiveness--response control, topic control, turntaking control, and inhibitive control? In essence, do the four subtypes of directive interactional behavior represent independent versus overlapping dimensions of directiveness? Pearson product moment correlations were performed to determine the relationships among the four subtypes of directive interactional behavior. The significant

intercorrelations reported in Table 12 indicate that a relationship exists among the four types of directive behavior. Thus, they are not totally independent subtypes of directive behavior. With the exception of inhibition which does not correlate with turntaking control, these classes of behavior are interrelated and therefore, it seems inappropriate to treat them as entirely independent measures of maternal behavior. It is important to note, however, that the amount of shared variance between any two classes of directive behavior was, with only one exception (response and topic control), less than 20%. Response control and topic control shared 26% common variance. Thus while mothers who engaged in one type of directiveness tended to engage in other types, each of the four directive behaviors appeared to have unique attributes.

Table 12

Intercorrelations Among the Four Types of Maternal Directive Behaviors and Estimates of Shared Variance Between Pairs

	Turntaking	Response	Topic	Inhibition
Intercorrelations				
Turntaking	-	.42*	.44*	<u>.03</u>
Response		-	.51**	.43*
Topic			-	.40*
Shared Variance				
Turntaking	-	17.6%	19.4%	.0%
Response		-	26.0%	18.5%
Topic			-	16.0%

Underlined correlation coefficients are negative

* $p < .05$

** $p < .01$

Relationship Between Child Behavior and Child Developmental Indices

Another purpose of this study was to ascertain whether a relationship exists between child interactional behavior categories and child developmental indices. Intercorrelations between child behavior categories and child developmental

indices are reported in Table 13. The child behavior categories consisted of the aggregated behavior count categories (manding, responding and unlinked).

Table 13

Relationships Between Child Behavior Categories and Child Developmental Measures

	Manding	Responding	Unlinked
CA	.40*	.39*	<u>.50**</u>
Receptive Communication	<u>.24</u>	<u>.11</u>	.24
Expressive Communication	.27	.45*	<u>.39*</u>
Total Communication	.19	.32 ^a	<u>.32^a</u>
Cognitive	.51*	.12	<u>.21</u>

Underlined correlation coefficients are negative

* $p < .05$

** $p < .01$

^a $p = .08$ ($n = 20$)

The results indicate that older children tended to participate in more manding and responding. This reached statistical significance ($r = .40$, $p < .05$). In addition, older children participated in less unlinked behavior and this too reached statistical significance at the $p < .01$ level ($r = -$

.50). A relationship was found to exist between the child's level of expressive communication and the behavior of the child. The more expressive child participated in less unlinked behavior and had a higher rate of responding. Although it did not reach statistical significance, total communication scores were found to be positively correlated with responding ($r = .32$, $p = .08$) and negatively correlated with unlinked behaviors ($r = -.32$, $p = .08$).

In addition, the child's level of cognitive competence correlated significantly with the child's manding behavior but not with responding and unlinked behaviors. However, a negative correlation existed between the child's cognitive level and unlinked behavior.

These results indicate that the child's developmental characteristics are associated with the child's behavior. Also they further suggest that greater synchronicity exists with older children and their mothers.

To further investigate the relationship among child behavior categories, correlations were determined using the behaviors from Pass One (behavior counts) and play maturity (behavior rating scales). As shown in Table 14 significant correlations were found among child behavior categories, except play maturity. Play maturity, an index of cognitive behavior (Eheart, 1982), did correlate negatively with unlinked behavior and reached statistical significance at the $p < .05$ level ($r = -.36$). Thus, the child who has a lower level

of play maturity participated in more unlinked behavior and as a result there exists less synchronicity between mother and the less mature child. A strong correlation exists between child's manding, responding, and unlinked behaviors. The child who mands more, tends to respond more, and engages in less unlinked behavior and this results in greater synchronicity between mother and child.

Table 14

Intercorrelations Among Child Behavior Categories

	Manding	Responding	Unlinked	Play Maturity
Manding	--	.75***	<u>.57**</u>	.08
Responding		--	<u>.61**</u>	.03
Unlinked			--	<u>.36*</u>
Play Maturity				--

Underlined correlation coefficients are negative

*p<.05 **p<.01 ***p<.001

Relationship Between Selected Parental Behavior and Child Development and Behavior

The intercorrelations of selected parental behavior and

child's development and behavior are reported in Table 15. The data clearly show that mothers direct more manding behaviors to children who are developmentally younger ($r = -.38, p < .05$) and exhibit lower play maturity ($r = -.47, p < .01$). In addition, mothers' unlinked behavior is greater in situations where children manded less ($r = -.37, p < .05$). Thus, if the child is less active, then mothers participate in more unlinked behavior. In situations where the child was active (manding), mothers tended to be more responsive ($r = .67, p < .001$). No significant relationships were found between parental behavior and child's age or communicative competence.

Relationship Between Maternal Directive Behavior and Child Competence and Interactional Behavior

Table 16 reports correlations between maternal directive behaviors and child developmental measures and behavioral ratings. The variables play maturity, enthusiasm and affect are based on the behavior rating scales, whereas responsiveness is based on behavior counts. The data suggests that maternal directive behaviors were more related to the child's on-line behavior rather than to the child's stable developmental characteristics. Although most correlation indices are negative, the only stable developmental characteristic that achieved significance was cognitive competence. In other words, mothers of children with a lower level of cognitive ability tended to engage in more response control ($r = -.38,$

$p < .05$).

Table 15

Relationships Between Selected Parental Behavior and Children's Development and Behavior

	<u>Parental Behavior</u>		
	Manding	Responding	Unlinked
Child's CA	.05	<u>.21</u>	<u>.17</u>
Child's Communicative Competence	<u>.24</u>	.23	<u>.12</u>
Child's Cognitive Competence	<u>.38*</u>	.33	<u>.04</u>
Child's Manding	.04	.67***	<u>.37*</u>
Child's Responding	.28	.37*	<u>.35*</u>
Child's Unlinked Behavior	.28	.06	.53**
Child's Play Maturity	<u>.47**</u>	<u>.07</u>	<u>.15</u>

Underlined correlation coefficients are negative

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

Table 16

Relationships Between Maternal Directive Behaviors and Child Developmental Measures and Behavioral Ratings

	Turntaking	Response	Topic	Inhibition
CA	<u>.25</u>	.05	<u>.04</u>	<u>.16</u>
Communication	<u>.26</u>	<u>.24</u>	.12	<u>.22</u>
Cognitive	<u>.16</u>	<u>.38*</u>	<u>.32^a</u>	<u>.17</u>
Play Maturity	<u>.33^b</u>	<u>.47**</u>	<u>.40*</u>	<u>.54**</u>
Enthusiasm	<u>.12</u>	<u>.26</u>	<u>.31^c</u>	<u>.54**</u>
Affect	.52**	.23	.13	<u>.03</u>
Responsiveness ¹	<u>.52**</u>	.28	<u>.05</u>	<u>.03</u>

Underlined correlation coefficients are negative

*p<.05 **p<.01

^ap = .08 (n = 20) ^bp = .05 (n = 25) ^cp = .06 (n = 25)

¹Based on actual frequency count

The variable that most highly correlated with maternal directiveness was the level of play maturity. The interactions of children who showed a lower level of play maturity tended to be characterized by greater response control ($r = .47$, $p < .01$), greater topic control ($r = -.40$, $p < .05$), and greater inhibitive control ($r = -.54$, $p < .01$). Although it did

not reach statistical significance, play maturity was also negatively correlated with turntaking control ($r = -.33$, $p = .05$). In addition, children who were responsive attracted more maternal turntaking control ($r = -.52$, $p < .01$), whereas children who showed less enthusiasm evoked more inhibitive control ($r = -.54$, $p < .01$). Also, a significant positive correlation was found between the child's level of affect and turntaking control ($r = .52$, $p < .01$). Generally, mothers tended to engage in more directive behavior if the child was developmentally younger, had a lower level of play maturity and displayed less enthusiasm and involvement in the interactions.

Relationships Between Maternal Directive Behaviors and Other Maternal Behaviors

The intercorrelations between maternal directive behaviors and other maternal behaviors are reported in Table 17. The maternal responsiveness and intrusiveness variables are based on behavior counts, whereas the other maternal behaviors are global ratings.

Significant positive correlations were found between three of the measures of directive behavior and maternal warmth. Mothers who were rated relatively high on warmth tended to exhibit more turntaking control ($r = .50$, $p < .01$), response control ($r = .48$, $p < .01$), and topic control ($r = .47$, $p < .01$). Additionally, mothers showing greater turntaking

control also tended to show greater sensitivity ($r = .38$, $p < .05$). These results reinforce the interpretation that directiveness does not preclude maternal sensitivity or warmth as mothers can be warm and sensitive and exhibit directive behaviors.

Table 17

Relationships Between Maternal Directive Behaviors and Other Maternal Behaviors

	Turntaking	Response	Topic	Inhibition
Warmth	.50**	.48**	.47**	.06
Sensitivity	.38*	.22	.25	.14
Encouragement	.18	.29	.12	.32 ^a
Wait time	.01	.29	.03	.30 ^b
Responsiveness ¹	.18	.10	.11	.04
Intrusiveness ¹	.31 ^c	.10	.32 ^a	.06

Underlined correlation coefficients are negative

¹These two variables are based on behavior counts. The others are based on global ratings.

^a $p = .05$ ($n = 25$)

^b $p = .07$ ($n = 25$)

^c $p = .06$ ($n = 25$)

* $p < .05$ ** $p < .01$

Although it did not reach statistical significance, intrusiveness was negatively correlated with turntaking control ($r = -.31$, $p = .06$) and topic control ($r = -.32$, $p = .05$). Thus, it may be that being directive does not necessarily imply being intrusive.

Relationship Between Maternal Instructional Behaviors and Child Developmental Characteristics

Table 18 reports the intercorrelations between maternal instructional behavior and child developmental indices. Significant correlations were found between maternal instructional behavior and child developmental indices.

Mothers of children with a higher level of total communicative ability tended to engage in more labelling ($r = .43$, $p < .05$), expanding ($r = .39$, $p < .05$), giving information ($r = .52$, $p < .05$), requesting information ($r = .40$, $p < .05$), and modelling ($r = .73$, $p < .01$). Mothers of chronologically younger children tended to engage in more instructional behaviors; however, only giving information ($r = -.36$, $p < .05$) and modelling ($r = -.44$, $p < .05$) reached statistical significance. Across the board, the child's level of cognitive competence correlated negatively, but did not reach statistical significance, with maternal instructional behaviors. No significant relationships were found between the child's level of expressive communication and maternal instructional behaviors.

Table 18

Relationships Between Maternal Instructional Behaviors and Child Developmental Characteristics

			Give	Request		
	Label	Expand	Information	Information	Model	Reinforce
CA	<u>.26</u>	<u>.26</u>	<u>.36*</u>	<u>.09</u>	<u>.44*</u>	<u>.22</u>
Rec. Communication	.51*	.64**	.54**	.02	.45**	<u>.28</u>
Exp. Communication	.01	.06	.00	<u>.25</u>	<u>.07</u>	<u>.13</u>
Total Communication	.43*	.39*	.52*	.48*	.73**	<u>.05</u>
Cognitive	<u>.05</u>	<u>.02</u>	<u>.10</u>	<u>.11</u>	<u>.05</u>	<u>.16</u>

Underlined correlation coefficients are negative

*p<.05

**p<.01

Generally, the data suggests that mothers tended to match their instructional behavior with the child's developmental characteristics.

Summary of Main Findings

The main findings of this study can be summarized as follows:

1. The four classes of directive behavior--response control, topic control, turntaking control and inhibition--are

interrelated, and therefore do not appear to be completely independent subtypes of directive behavior.

2. The child's age, communicative ability and cognitive ability were associated with the child's behaviors (manding, responding and unlinked). Greater synchronicity exists with older children and their mothers.

3. Relationships were found between selected parental behavior (manding, responding, and unlinked) and child development behavior. Mothers participated in more unlinked behavior if the child was less active. In contrast, mothers tended to be more responsive if the child was actively involved in the interaction.

4. Relationships were found between maternal directive behaviors and child's interactional behaviors and stable developmental characteristics. The child's level of play maturity was highly correlated with maternal directiveness. Mothers tended to engage in more directive behavior if the child was developmentally younger, had a lower level of play maturity and displayed less enthusiasm and involvement in the interactions.

5. Maternal directive behaviors were positively correlated with other maternal behaviors that are acknowledged to be developmentally enhancing, as some mothers can be warm and sensitive and exhibit directive behaviors.

6. Maternal instructional behaviors appear to be associated with the child's developmental characteristics, as

mothers tended to match their instructional behaviors to the child's age, communicative and cognitive abilities.

CHAPTER V

Discussions and Conclusions

This chapter presents a discussion of the results reported in the previous chapter. It also includes conclusions and recommendations.

The data from this study support several major conclusions about mother-child interaction patterns within a sample of young developmentally delayed children. First, there are notable individual differences in interaction patterns of mothers and their developmentally delayed children. Second, maternal directiveness appears to be related to both the child's interactional behavior (on-line behavior) and cognitive competence. Third, intercorrelations among maternal behaviors indicate that directiveness and warmth and sensitivity are not incompatible characteristics of maternal behavior.

The findings from the present study confirm that there are considerable variations among the interaction patterns of mothers and their developmentally delayed children. The chronologically older children were more active in interaction with their mothers in that they participated in more manding, responding, and less unlinked behaviors. The more expressive child participated in more responding and less unlinked behaviors. As well, the developmentally older child had a higher mand rate. In contrast, the child with a lower level

of play maturity exhibited more unlinked behavior and as a result was less involved in the interaction process.

Maternal behavior appeared to vary as a function of the child's developmental characteristics and interactional behavior. For example, mothers manded more when their children were developmentally younger and demonstrated a lower level of play maturity. This finding supports Terdal et al.'s (1976) observation that mothers of less cognitively competent developmentally delayed children issued more commands and command-questions. Mothers, in the present investigation, were more responsive and participated in less unlinked behavior when their children manded more. This is consistent with findings from Mahoney and Robenalt's (1986) study, where mothers of Down syndrome children were observed to be responsive and to mand less when their children were more actively involved in the interaction.

These individual patterns of interaction were not only evident in the free-play session but also were apparent in the teaching task. Mothers tended to match their instructional behaviors to the child's developmental characteristics. For example, younger children had mothers who tended to use more modelling and giving of information, whereas children with higher communicative competence had mothers who engaged in more labelling, expanding, giving information, requesting information, and modelling. These characteristics of maternal speech seemed to result from mothers adjusting to the communi-

cative competence of their young children. This conclusion is strongly supported by Mahoney (1988a), who found clear evidence of associations between maternal communication style and communicative behavior of children with intellectual impairment. Davis et al. (1988) further suggest that the children's language ability, not their diagnosis (mentally retarded versus nonretarded), is the major predictor of maternal language behavior. Moreover, when mothers are making adaptations in their language, like those that are considered for nonretarded children as language facilitation strategies, it is difficult to comprehend how such maternal behaviors can impede their child's development (Davis et al., 1988).

These findings indicate that there are substantial individual differences in the manner in which mothers and their developmentally delayed children interact. Previous research has tended to characterize mothers of developmentally delayed children as having uniform styles of interaction, and for the most part has ignored the wide range of differences among this group. The belief that mothers of developmentally delayed children represent a homogeneous group is an extraordinary assumption since parents of normal children vary considerably in their ability to interact with their children (Nelson, 1973), and thus, it is possible that mothers of developmentally delayed children can alter their interactional styles to suit the unique needs of their children.

The data presented in this study suggest that child

developmental competence and interactional behaviors are sources of variation in the interactional styles of mothers of developmentally delayed children. Both children's cognitive competence and interactional behavior (on-line behavior) were significantly related to maternal directive behaviors. Mothers tended to be more directive both with children who were less cognitively competent (in terms of both the Batelle Developmental Inventory scores and play maturity during interaction) and with children who showed less responsiveness and enthusiasm during interaction. This finding is not surprising, as Bellinger (1979) and Schaffer and Crook (1979, 1980) have indicated in the developmental literature that adults give more directions, commands, instructions and requests to children who are at an early developmental stage. However, these results differed from Crawley and Spiker's (1983) study. In that study, the maternal directiveness rating was unrelated to child developmental competence as measured in terms of the Bayley Scales of Infant Development or maturity of play during interaction. Similarly, Mahoney et al. (1990) observed that maternal directive behavior was not contingent on children's behavior. Consistent with the present study, however, Mahoney et al. (1985) suggested that mother-dominated patterns of interaction were associated with lower levels of child functioning (in terms of Bayley Mental Development Index).

A possible explanation for the high incidence of maternal

directive behavior reported for mothers of mentally handicapped children is the child-driven theory (Mahoney et al., 1990). According to this theory, mothers of mentally handicapped children are thought to have high rates of directive behavior because their children are less actively involved in the interaction. The finding that cognitively less competent children were less responsive and less enthusiastic in interaction with their mothers, make these results consistent with the child-driven theory. Thus, maternal directiveness appears to be a natural adaptive strategy designed to enhance children's interactive engagement (Maurer & Sherrod, 1987; Tannock, 1988a, 1988b). This is also consistent with Bell's (Bell & Harper, 1977) control theory, where high maternal directiveness (lower-limit control behaviors) seeks to stimulate child behavior that is below an acceptable standard. Again, maternal directiveness from this perspective, appears to be a form of adaptive-strategic parenting behavior.

The findings reported for the relationship between maternal directive behaviors and other maternal behaviors provides further support for the adaptive-strategic behavior position. The interpretation that mothers can be both warm and sensitive and exhibit directive behaviors illustrates that these behaviors are not incompatible characteristics of maternal interactional style. This finding supports earlier research with normally developing children (Baumrind, 1972). Baumrind (1972) concluded that parental control and warmth are

orthogonal dimensions that yield distinct interaction patterns.

Other recent studies indicate that maternal directiveness does not necessarily preclude maternal sensitivity and warmth (Crawley & Spiker, 1983; Mahoney & Robenalt, 1986; Davis et al., 1988; Tannock, 1988a, 1988b). Crawley and Spiker (1983) concluded from their results that directiveness and sensitivity are not necessarily mutually exclusive maternal interactional styles. Although Mahoney and Robenalt (1986) reported that mothers of Down syndrome children were overwhelmingly more directive, they were as responsive to their children's communication as mothers of the nonhandicapped children. Similarly, Tannock (1988a, 1988b) found mothers of mentally handicapped children to employ significantly more topic controls and turntaking controls; however, these mothers were as verbally responsive to their children's turns as mothers of nonhandicapped children. Davis et al. (1988) observed that mothers of mentally retarded children were more directive during free-play, but found no evidence that would suggest that the mothers were insensitive or unresponsive. Moreover, as Schaffer and Crook (1979) suggest, control does not necessarily imply lack of sensitivity with the child, because if control is to be successful, constant and sensitive monitoring of the child's behavior and state is required.

The consistent pattern of negative correlations between

directive behaviors, suggest that intrusiveness is less compatible with directiveness. This finding contradicts the generally accepted inference that equates directiveness with intrusiveness. The theoretical soundness of the equation of directiveness with intrusiveness has been further questioned by Crawley and Spiker (1983) and Marfo (1990). In fact, Crawley and Spiker (1983) also concluded from their results that directive mothers are not necessarily intrusive.

The correlations between maternal directive behaviors and warmth and sensitivity produced evidence that some mothers combined directiveness with warmth and sensitivity. The latter two maternal behaviors are generally considered to have an enhancing effect on the development of competence, whereas, intrusiveness has the opposite effect. Thus, these findings produced evidence that directiveness does not necessarily occur at the expense of other maternal behaviors that are traditionally acknowledged to be developmentally enhancing.

The present findings are intriguing because they imply that maternal directiveness may serve as an adaptive strategy to enable developmentally delayed children to participate more fully in interaction with their mothers. They also suggest that mothers of children who are developmentally delayed can be sensitive, warm and directive. Nevertheless, it is necessary to acknowledge that the expected results were not always consistent and strong. In addition, several methodological issues need to be considered in interpreting the

present results. First, generalizability of the present findings is constrained by the observation of a relatively small number of mother-developmentally delayed child dyads in one free-play and instructional context. Second, all mother-child dyads were involved in an early intervention program (DHSP), and this also limits the generalizability of these findings. These results may not apply to dyads not participating in early intervention programs or to those dyads with different early experiences. Third, while the present sample reflects a wide SES range, none of the families were clearly disadvantaged. Different results might have been obtained with a larger, more diverse sample. Replication of these data with a larger, more diverse group of mothers and children is prerequisite to any attempt to generalize these findings to all mothers and young developmentally delayed children.

In summary, these data indicate that there are individual differences in mother and child free-play and instructional behaviors within a sample of developmentally delayed children. They suggest that mothers of developmentally delayed children use a wide variety of interactional styles. This finding challenges the view from previous research that mothers of handicapped children represent a homogeneous group. Furthermore, these data indicate that by classifying directiveness into the four subtypes discussed here, a framework is provided for interpreting the results of individual investigations. For example, in the present investigation, mothers exhibited

more response control when their children were less cognitively competent and tended to engage in more turntaking control when their children were less responsive. These findings also suggest that maternal directive behavior can be integrated with other maternal behaviors (sensitivity and warmth) that are acknowledged to be developmentally enhancing. These data further imply that maternal directive behavior is related to the child's interactional behavior (on-line behavior) and developmental characteristics.

Recommendations

Based on the results of this study the following recommendations are made:

1. It is recommended that due to certain characteristics of our sample--relatively small sample size and all mother-child dyads were involved in an early intervention program--that limit generalizability of our findings, similar research be conducted using a larger, diverse sample of mother-developmentally delayed child dyads with different early experiences to determine whether maternal directive behavior relates to the child's interactional behavior and developmental competence.

2. It is recommended that there be further study to search for the manner in which directiveness interacts with other parental interactional behaviors to influence child development. The relationship that exists among directive-

ness, intrusiveness, sensitivity, and child competence needs to be assessed directly.

3. It is recommended that more correlational and causal research is needed to increase our understanding of the relative developmental significance of the four subtypes of directiveness (response control, topic control, turntaking control, and inhibitive control) discussed in this report.

4. It is recommended that developmental studies are needed to investigate the relation between the four components of maternal directiveness and children's subsequent development.

5. It is recommended that future studies are required to investigate the relations between the various patterns of early interaction and the developmentally delayed child's subsequent development of linguistic skills.

6. It is recommended that more extensive research is needed similar to Maurer and Sherrod's (1987) longitudinal study of different types of directives in relation to different behavioral contexts. This would provide a better understanding of the diverse purposes that directiveness serves for different mothers under various contexts.

7. It is recommended that future investigations address the issue as to how much directiveness is developmentally appropriate or inappropriate since our knowledge of maternal directiveness and its potential effects on the development of competence in developmentally delayed children is still

limited.

8. It is recommended that more research be conducted that would focus directly upon individual differences between mothers and their developmentally delayed children. The sources of variations within these dyads would lead to a better understanding of the developmental significance of individual differences in mother-child interactions involving young developmentally delayed children.

9. It is recommended that future research examine maternal directiveness as a multi-dimensional phenomenon, as much of the past research has usually been limited to only one component of maternal directive behavior.

10. It is recommended that intervention programs intended to enhance parent-child relationships be designed and delivered in ways in which are grounded in these emerging understandings of this complex relationship.

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MULTI-PASS: A SCHEME FOR CODING PARENT-CHILD INTERACTION

GENERAL INTRODUCTION

Combining behavioral count coding and behavioral rating:

There are two broad classes of parent-child interaction coding systems, both of which are based on systematic observation: behavior count systems and rating systems (Towle, Farran, & Comfort, 1988). Behavior count systems involve the ongoing recording of the frequency of any given number of specific behavior codes as the coder observes an interaction episode in situ or observes a pre-recorded video of an episode. Rating systems, on the other hand, involve the assignment of global ratings to any given number of pre-defined behavior categories after a complete interaction episode has been observed. Behavior count systems are used much more frequently in the parent-handicapped child interaction literature; however, rating scales have been used in several studies in recent years (e.g., Crawley & Spiker, 1983; Mahoney, Finger, & Powell, 1985).

MULTI-PASS blends the two types of coding systems in one instrument. Blending the two methods of coding was deemed necessary for the following reason. Although it is generally true that any behavior that can be coded with a behavior count system can also be coded with a rating scale, the reverse is not necessarily true. Certain observable attributes of interacting persons, by virtue of their subjective or qualitative nature, defy easy segmenting and tallying and are best coded with a rating scale. For example, it is relatively easier to rate parental warmth as a global behavioral attribute than to tally occurrences of warmth, unless the attribute was first broken down into a number of molecular behavior units -- e.g., smiles, hugs, pats, strokes -- and aggregated later into the molar code, warmth. Thus, the combined approach makes it possible to obtain counts of behaviors that lend themselves easily to segmenting and tallying, along with qualitative measures of attributes which defy quantification.

Specific considerations underlying the design of MULTI-PASS

MULTI-PASS was designed specifically to make it possible to study the notion of maternal directiveness in a more focused manner, while examining other aspects of interactions involving handicapped children. It is based on a conceptual framework which suggests that while directiveness can be, and has generally been, defined globally as a uniform construct, extant research shows it manifests itself in a variety of distinctly different behaviors (Marfo, 1988). The search for the impact of maternal directiveness on the development of competence in handicapped children has engaged the attention of researchers in recent years (Crawley & Spiker, 1983; Herman & Shantz, 1983; Mahoney, 1988; Mahoney, Powell, & Finger, 1985). However, to obtain a better understanding of the nature of this impact, we need to understand (1) the relative significance of the different forms of directive behavior, and (2) the relation of directiveness to other interactive behaviors of both mother and child (Marfo, 1988).

Consequently, the behavior count section of MULTI-PASS employs an event-based¹ coding system to target four dimensions of parental directive behavior: (1) turntaking control; (2) response control; (3) topic control; and (4) inhibitive/intrusive control. In addition, this section of the instrument also allows for a close analysis of verbal directives in terms of degree of explicitness, and the coding of six parental instructional behaviors.

With the exception of the six parental instructional behaviors and parental intrusions, the behavior count section employs interactive coding. That is, most behaviors are coded in terms of initiations and responses rather than as independent parent and child behaviors.

Recording:

MULTI-PASS employs a paper-and-pencil recording technique. On accompanying coding forms (each 11" by 17"), the coder makes a tally in the appropriate box every time a behavior of interest is observed.

Increasing reliability by reducing complexity: The concept of a "pass":

The behavior count section is divided into three components, each consisting of a small number of behavior categories to be coded during one "pass" through the video record. A pass is defined as a complete viewing of an entire episode of interaction. Thus, a pass lasts as long as the length of time taken to record the episode. During each pass, only those behavior categories defined in the corresponding component of the instrument are coded. The interaction themes covered in the three passes are:

Pass One:	Turntaking and response control.
Pass Two:	Topic control, inhibitions, and intrusions.
Pass Three:	Directive types and instructional behavior.

Breaking down the coding process into three passes in this manner means that three times as much time as taken to obtain the interaction episode is required to code it. The trade-off is increased reliability, even in the face of comprehensive coverage of a wide range of interaction themes and specific behavior categories.

PASS ONE: Indexing turntaking and response control:

The classification of behavior in Pass One is based on the work of Kaye and Charney (1980) and Mahoney and Robenalt (1986). Using a three-way grid, Pass One is designed to code four distinct turn types (mand, response, response-mand, and unlike) in four different modalities (verbal, nonverbal, meaningless vocalization, and action) in relation to the two members of the dyad (parent and child). Beyond analyzing the individual molecular behaviors, the two themes

¹ In event-based coding, recording is triggered on the basis of the occurrence of a codable behaviour of interest (an event), rather than on the basis of a defined time interval (see Bakeman & Gottman, 1986).

extracted from the data that the grid yields are turntaking control and response control.

Turntaking control measures the overall degree of balance in participation between parent and child, and is computed by expressing the frequency of all turn types under all modalities for the parent as a ratio of the child's total frequency. Response control, on the other hand, specifically measures the extent to which parental behavior is directed at getting the child to act, respond, or perform, and is computed as the sum of the frequencies of parental mands and response-mands.

PASS TWO: Indexing topic control, inhibitions, and intrusions:

Pass Two has two sections. Section A is designed as an interactive coding scheme to ascertain (1) the extent to which topics of interaction are initiated by either the parent or the child, and (2) the extent to which the other member follows the other's topic initiation. Topic initiation is defined as starting any identifiable verbal or nonverbal event or activity -- such as play around a toy, a game, a song, or a conversation about an object or a subject. To follow a speaker/actor is to engage in behavior or action which shares the speaker's focus or stays on topic. The emphasis is strictly on the initiation of new events/activities and on whether partners respond by staying on topic. Continuation of a previously initiated behavior (following an interruption) will not be coded.

Section B targets parental inhibitions and intrusions. An inhibition is any verbal or nonverbal behavior directed at the child with the goal of stopping the child from engaging in an activity or behavior that cannot be deemed to be dangerous or undesirable. An intrusion, on the other hand, is any behavior that disrupts the child's ongoing behavior, ignores the child's own interest, and results in imposition of parental agenda.

In coding inhibitions, both parental behavior and the child's reaction are of interest. Consequently, parental inhibitions are coded with an interactive coding scheme examining four types of child reaction (compliance, persistence, aggressive reaction, and crying or emotional withdrawal) to both verbal and nonverbal inhibitions. Parental verbal and nonverbal intrusions are coded independently of child behavior.

PASS THREE: Indexing verbal directive types and parental instructional behavior:

Section A of Pass Three employs an interactive coding scheme to examine children's compliance to action-directives issued by the parent. Two classes of action-directives are coded: standard imperatives and embedded or implied action directives. This section is designed to gather data for addressing two developmental issues pertaining to parental use of directives: (1) whether parents employ less explicit action directives as a function of increased child competence or as a function of child behavior; and (2) whether certain classes of parental action-directives elicit more compliance than others.

Section B is designed to obtain tallies of six parental instructional behaviors: labelling, expansion, giving information, requesting information, modelling, and reinforcing.

The rating scale:

The rating scale consists of three child and four parental behaviors or interactional attributes deemed too qualitative to code by the behavior count method. It is designed to be used right after Pass Three coding has been completed, when the coder would have already viewed the tapes three times. The items on the rating scale are designed after similar instruments by Mahoney (Mahoney & Robenalt, 1986) and Crawley and Spiker (1983). The three items on the child scale are play maturity, enthusiasm/interest, and affect. The parental scale comprises warmth, sensitivity, encouraging/guiding vs spoonfeeding, and wait time.

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PASS ONE: INDEXING TURN TAKING AND RESPONSE CONTROL

DEFINITIONS

Pass One attempts to capture three dimensions of turntaking, namely: (1) turn type; (2) turn modality; and (3) the "speaker" or "actor". Four types of turns, two turn modalities, and two speakers are involved in the coding system. The following definition of a turn is adopted from the work of Kaye and Charney (1980, 1981) and Mahoney and Robenalt (1986).

Any behavior exhibited by one person during the course of interaction. It could be either a single utterance with accompanying gestures, two or more utterances strung together without a pause of at least one second between them, or it could be nonverbal acts alone.

TURN TYPE

Mand: A turn which requires a response and to which it would be rude not to respond in normal adult discourse.

Response: A turn which is a response to the other person.

Response-Mand: A turn which is both a response to a previous turn and simultaneously requires a response from the other person.

Unlinked: A turn that cannot be classified under any of the three categories above.

TURN MODALITY

Verbal: Spoken turn, involving intelligible words or sounds which substitute for words (e.g., "vroom-vroom", when pushing a car) or non-meaningful vocalizations (such as grunting).

Nonverbal: All turns involving no verbalizations/vocalizations, or turns in which nonverbal action is the dominant, more obvious behavior unit. Examples include pointing to a toy as if to say "Get the toy" or pointing to a picture as if to say "What's that?" Actions, such as playing with a toy, are included in this category.

SPEAKER/ACTOR: Parent/caregiver vs Child.

****WHEN VERBAL/VOCAL TURNS ARE ACCOMPANIED BY ACTIONS OR NONVERBAL COMMUNICATION OR VICE VERSA:** Record under modality in which turn began. If this is difficult to determine, record under the more dominant modality. If this, in turn, is difficult to determine, record under either modality.

PASS ONE:
TYPING AND RESPONSE CONTROL.

ID # COOPER DATE

TYPE OF TURN	P A R E N T		C H I L D	
	V E R B A L	N O N V E R B A L	V E R B A L	N O N V E R B A L
HAND				
RESPONSE				
RESPONSE-HAND				
UNLINKED				

PASS TWO: INDEXING TOPIC CONTROL, INHIBITIONS, AND INTRUSIONS

DEFINITIONS

A: TOPIC CONTROL

Topic initiation: To initiate a topic is to start any identifiable verbal or nonverbal event or activity, such as play around a toy, a game, a song, or a conversation about an object or a subject.

Each coded topic initiation shall be considered to be a meaningful unit of behavior demarcated from other meaningful units by the completeness of the message, the initiator's anticipation of a response, or by the actual elicitation of a response.

Following a topic: To follow a topic is to respond with behavior or action which shares the partner's focus or "stays on topic."

Note that only the initiation of new acts will be coded as initiation, and only responses which share the speaker's focus will be coded as following a topic. If a "response" (i.e. behavior occurring immediately after a topic initiation by a speaker) initiates a new topic, rather than following the previous speaker's topic, it should be coded as topic initiation. If the "response" is a reinitiation of a just-coded topic by the same speaker, it is considered to be a continuation, and should be ignored.

B: INHIBITIONS AND INTRUSIONS

Parental Behavior:

Verbal inhibition: Any verbal instruction directed at the child, with the goal of stopping the child from engaging in an activity or behavior that may not be deemed dangerous or undesirable. The instruction may take the form of a literal, referentially explicit command (e.g., "Don't touch the box") to a less literal, referentially implicit command (e.g., "You are going to the box again!").

Nonverbal inhibition: Any nonverbal behavior, including body language, aimed at stopping the child from engaging in an activity or behavior that may not be deemed dangerous or undesirable. Examples include stern looks, stamping on the floor, physically removing the child, or yanking an object away from the child.

Inadvertent intrusion: Any behavior, verbal or nonverbal, that tends to cut rather abruptly into an activity initiated by the child. Intrusive behaviors tend to ignore the child's interest, leading to the imposition of parental agenda almost as soon as the child initiates the activity.

If parent allows the child enough time to pursue the activity before switching, that would not be considered an intrusion.

Some necessary interventions, such as elaborations or expansions, may be done intrusively if they are ill-timed and lead, consequently, to curtailment of initiative and interest in the child.

Child Behavior:

Compliance: Child complies by refraining from the sanctioned activity or behavior. The child may show some amount of frustration or even aggression, but as long as he/she refrains from the sanctioned activity, compliance has occurred.

Noncompliance: Child continues to pursue the sanctioned activity or behavior, even after being commanded (verbally or nonverbally) to stop.

PAGE TWO
TOPIC CONTROL, INHIBITIONS, AND INADVERTENT INTRUSIONS
A: Topic Control

ID #

COOR

DATE

TOPIC: (Toy, game, activity, event)	PARENT INITIATES	CHILD FOLLOWS	CHILD INITIATES	PARENT FOLLOWS

B: Inhibitions and Inadvertent Intrusions

	PARENT INITIATES	CHILD'S RESPONSE	
		COMPLIANCE	NONCOMPLIANCE
VERBAL INHIBITION			
NONVERBAL INHIBITION			
INADVERTENT INTRUSION			

PASS THREE: INDEXING VERBAL DIRECTIVE TYPES AND INSTRUCTIONAL Behavior

DEFINITIONS

A: VERBAL DIRECTIVE TYPES

Parental Behavior

Standard imperative: A literal, referentially explicit command, which consists of a subjectless verb phrase and describes the action to be performed.

e.g., "Pick up your blocks."

Other forms of imperative: An imperative of non-standard construction, such as embedded and implied action directives.

Embedded imperative: A non-literal but referentially explicit command. An action directive with an embedded clause which would have been an imperative if it stood alone.

e.g.:

"Why don't you pick up your blocks?"

"I wish you would pick up your blocks").

Implied action directive: A non-literal, referentially inexplicit command. An action directive which is non-imperative in its form and which does not name the desired action.

e.g.:

"Where do your blocks go?"

"Your blocks are on the floor."

"Your room is a mess."

Child Behavior

Compliance: The child carries out the instruction issued.

B: PARENTAL INSTRUCTIONAL Behavior

Labelling: Parent labels an object or says the name of a person or character in a story. The intent to teach a new piece of information or reinforce a previously learned one is the defining criterion. Thus, mentioning the name of an object or character in passing or in a running conversation should not be coded as "labelling."

e.g.: "That is a dog"; "This is a book, book"; "Look at the bird."

Nonexamples: "Now here is your dinner"; "Look, I have brought you a toy."

Expansion: Parent responds to the child's vocalization by clarifying, expanding, or elaborating the vocalization without changing the meaning.

e.g.: Child: "pat- a, pat-a .." Mother: "pat-a-cake, pat-a-cake..."

Child: "truck" Mother: "Yes, it's a truck; it goes vroom, vroom!"

Giving information: Parent makes verbal statements that are meant to inform the child about objects, events, and activities. Such statements are generally intended to expand the child's knowledge base, and often (but not always) follow the labelling of an object, event, or activity.

e.g., Here is a cat (Labelling); A cat has four legs (Giving Information)
Or "A book has pages in it." (Giving Information)

Nonexamples: "Here's your book." "Look, I have brought you a toy"

Requesting information: Parent asks questions that require the child to demonstrate knowledge about objects, operations, events, and activities. The code includes requests for explanations, as well as requests for the child to label objects.

e.g., "Look at the cat! What does a cat say?"; "What do you do with a comb?"; Look at this; can you tell me what the baby is doing?"

Rhetorical questions, such as "Stop it, What are you doing?" are not included.

Modelling: Parent provides a demonstration of the performance of a task/activity or the use of an object, with the intent of getting the child to do likewise.

Reinforcement: Parent praises, acknowledges, or rewards the child's behavior through verbal or nonverbal means.

PAGE THREE,
DIRECTIVE TYPES AND INSTRUCTIONAL BEHAVIOR

ID #

CODER

DATE

A: Directive Types

	PARENT USES DIRECTIVE	CHILD COMPLIES
STANDARD IMPERATIVE		
DISREGARDED OR IMPLIED ACTION DIRECTIVE		

B: Parental Instructional Behavior

	FREQUENCY OF OCCURRENCE
LABELS	
EXPANDS	
GIVES INFORMATION	
REQUESTS INFORMATION	
MODELS	
REINFORCES	

Child

Play maturity: Level of play exhibited during the interaction, ranging from simple banging and mouthing of toys to functional use of toys (e.g., as in pretend play).

1. No evidence of functional play or interaction with toys/objects beyond simple banging or mouthing
2. Some, but almost negligible functional use: throughout interaction functional use is observed no more than once.
3. Moderate functional play: child displays functional play with up to half of all toys/objects encountered.
4. High functional play: child displays functional play with over half of the toys/objects encountered.
5. Very high functional play: child displays functional play with almost every toy/object encountered.

Enthusiasm/Interest: The extent of enjoyment, interest, or enthusiasm exhibited by the child during the interaction.

1. Highly unenthusiastic. Child shows no evidence of interest in or enjoyment of the interaction.
2. Minimally enthusiastic: Child displays some, but little, interest in or enjoyment in the interaction.
3. Moderately enthusiastic: Child shows as much enjoyment and enthusiasm as would be expected for age level.
4. Highly enthusiastic: Child shows more than average level of enjoyment and enthusiasm.
5. Extremely enthusiastic: Child displays high levels of excitement throughout the interaction.

Affect: The extent to which the child expresses positive affect towards the parent. It may range from expressions of negative affect, through neutral affective expression, to consistent expression of some form of positive affect (smiles, laughter, hugs, etc.).

1. Shows significant negative affect throughout interaction.
2. Shows some, but minimal levels of, positive affect.
3. Moderate positive affect.

4. Shows more than average expression of positive affect.
5. Shows very strong positive affect throughout interaction.

Parent

Warmth: The extent to which parent displays positive affect to the child through such behaviors as hugging, patting, caressing, kissing, verbal endearments, and other actions depicting fondness and positive affect.

1. Very low: Positive affect is lacking; parent appears cold and reserved, rarely expressing affection through touch or voice.
2. Low: Parent occasionally expresses warmth through brief touches, and vocal tone suggests low intensity of positive affect.
3. Moderate: Parent displays low-intensity positive affect throughout the interaction, using touch and vocal tones.
4. High: Parent expresses affection frequently through touch and vocal tone, and verbalizes terms of endearment.
5. Very high: Parent openly expresses love for the child continually and effusively through touch, vocal tone, and verbal endearments.

Sensitivity: The extent to which parent shows awareness of and reads the child's verbal and nonverbal cues/signals (whether parent responds to such cues/signals should not be the sole basis for judging sensitivity).

1. High insensitivity: Parent seems to ignore child's cues and signals all the time. Parent hardly ever comments on or watches child's behavior/action or interest.
2. Low sensitivity: Parent occasionally picks up on child's signal. For example, parent may suddenly notice child's attention to some aspect of the environment but does not follow up on or monitor child's behavior.
3. Moderately sensitive: Parent seems to be aware of the child's interests and signals and consistently monitors child's behavior. However, parent ignores more subtle and hard-to-detect communication cues from the child.
4. High sensitivity: Parent seems to read child's cues well and consistently monitors the child's behavior and interests; however, parent is inconsistent in detecting more subtle and hard-to-detect communications from the child.
5. Very high sensitivity: Parent seems to read child's cues well, including relatively more subtle and hard-to-detect cues, and consistently monitors the child's behavior.

Encouraging and guiding vs 'spoonfeeding': The extent to which parent guides, encourages, and challenges child to discover solutions and accomplish tasks on his/her own, as compared to constantly showing or instructing him/her how to do it.

1. Excessive 'spoonfeeding': Parent seems to be providing solutions or showing child how to do it all the time. Parent hardly ever encourage or challenge the child to try things for him/herself.
2. Low encouragement: Parent does a fair bit of spoonfeeding but also provides minimal amounts of encouragement and challenge.
3. Moderate encouragement: Parent may engage in minimal amounts of spoonfeeding, but on the whole provides reasonable amount of challenge and encouragement.
4. High encouragement: Parent hardly ever spoonfeeds; instead parent very often encourages and challenges child to discover things or come up with solutions, while providing guidance.
5. Very high encouragement: Parent never spoonfeeds. Parent almost always allows or challenges the child to do things by him/herself, while providing guidance.

Wait time: The rate of parental requesting behavior relative to opportunities for the child to respond. The extent to which parent waits for the child to respond to action/information requests.

1. Absence of wait time: Parent requests for action or information but almost always fails to provide enough wait time for the child to respond.
2. Minimal incidence of wait time: With the exception of a few instances, parent's action and information requests are characterized by no wait time.
3. Moderate incidence of wait time: Parent allows wait time about half of the time.
4. High incidence of wait time: Parent allows wait time more than half of the time.
5. Very high incidence of wait time: Parent allows wait time almost every time an action or information request is made.

Behavior RATING SCALE

<u>Child</u>	<u>VERY LOW</u>			<u>VERY HIGH</u>	
Play maturity	1	2	3	4	5
Enthusiasm/Interest	1	2	3	4	5
Affect	1	2	3	4	5
 <u>Parent</u>					
Warmth	1	2	3	4	5
Sensitivity	1	2	3	4	5
Encouraging/Guiding	1	2	3	4	5
Wait time	1	2	3	4	5

APPENDIX B
Videotaping Procedures

PARENT-CHILD INTERACTION STUDY

Department of Educational Psychology
Memorial University of Newfoundland

Principal Investigator: Dr. Kofi Marfo
Funding Agency: Spencer Foundation, Chicago

VIDEOTAPING GUIDE

VIDEOTAPING PROCEDURES

The purpose of the videotaping is to obtain a sample of interaction between the primary caregiver and the child in free-play and during structured activities. The recording should be perfect, since the video will be analyzed later for patterns of interaction between parent and child. Only the parent, the target child, and the individual doing the recording should be present during videotaping. The entire taping session should not exceed 20 minutes.

Setting

All interaction samples will be obtained in the natural environment of the dyad's own home, at a convenient time when the child is alert. Interactions should be arranged to take place in an area in the living room, unless some other location in the house is deemed more appropriate.

Because the goal is to obtain a sample of interaction that is as close to the dyad's natural routine interactions as possible, it is entirely up to the parent to determine whether she/he would sit on a chair or sit/lie on the floor.

The camera should be positioned on a tripod approximately 8 to 10 feet from the dyad and should be aimed at the dyad and whatever activities or objects they are engaged with. Avoid directing camera towards a window. As much as possible only the small area where the interaction is occurring should be filmed. It will be necessary, therefore, to request the parent to keep the child within that small area (you might want to show parents what the limits of this area will be, after setting up the camera on the tripod).

There is a lot of room for judgement on the part of the cameraperson. Sequence of interaction as well as the broader context of any given activity by parent and child are two very important dimensions in this study. Consequently, it is important that most of the interaction area be captured

throughout filming. It is important also that the dyad be followed closely so that the camera can be adjusted readily to capture transitions or movements from one activity/area to another.

However, when mother, child, or both are engaged in an activity that requires a close-range shooting to highlight detail, it is appropriate--indeed, desirable--to zoom-in on that particular activity. The power zoom control (with T and W on it) will allow you to do this. Holding down the T end lets you zoom in, while holding down the W end lets you zoom out (wide angle).

Materials

A box for storing the toys:

- | | |
|--------------------------------------|--|
| 1. Stacking rings and rod | 5. Stack blocks |
| 2. Xylophone | 6. Pull-toy telephone car |
| 3. Ball | 7. Brush-Comb-Mirror set |
| 4. Picture book (Baby Mickey's toys) | 8. Wooded toy truck with movable objects (The Donut Truck) |

Structured Tasks

1. Stacking rings (Time Limit: 3 minutes)
Mother's task is to get the child to stack as many of the rings as possible. Mother is free to go about task in any manner she wishes. This task should be completed just prior to free play.
2. Getting child to put toys away (Time Limit: 2 minutes)
Mother's task, after the 15 minutes of free play, is to get the child to put the toys away in the toy box. Again, mother is free to go about this task in any way she wishes or feels comfortable with.

Free Play Using Standard Toys (Time Limit: 15 minutes)

Mother and child will engage in free play around the standard toys provided. Mother will try to keep the interaction within the small section of the living/play room chosen for this purpose. There will be no prescription as to how mother and child should play. The dyad is at complete liberty to use all or some of the toys in any way they wish.

Sequence of Activities

1. Stacking rings on a rod (structured)
2. Free play
3. Putting the toys away (structured)

INSTRUCTIONS

1. Spend some time chatting with mother and interacting with the child to create a relaxed atmosphere. Discuss the instructions outlined below and the sequence of activities with the mother.

Instructions

We are interested in observing _____ (Name of child) in a play session with you. Please try and pretend as if I am not here, and play with _____ as you would normally do. You can use all or some of the toys provided in any way you and _____ wish. Feel free, if you wish, to sit or lie on the floor. If you prefer to sit on a chair or couch, feel free to do so.

Before the play session, however, we would like you to spend some three minutes trying to get _____ to stack as many of these rings (show them) as he/she can on the stacking pole. I will signal to let you know when to begin or stop an activity.

2. Present stacking rod and rings to other (rings should not be stacked at time of handing them over to mother). Instruct mother to start task, and begin recording as

soon as you have given the instruction. At the end of 3 minutes stop recording, and place the box of toys (including the stacking rings and rod) beside mother. Signal mother to start, and begin recording.

3. After 15 minutes of recording free play, signal mother to stop and get the child to put the toys away (in the toy box).

DEALING WITH DISRUPTIONS

Disruptions are likely to occur, especially during the 15 minute free play session. If child strays from the interaction area or runs, say, to the kitchen for food or drink, stop recording and resume it when he/she comes back. If mother has to break the session for some reason, a similar procedure should be followed. In all cases, however, please keep track of the time to ensure that you obtain a total of 15 minutes of interaction.

If the child gets too irritable, tired, or uninterested to continue, you may discontinue videotaping and arrange a new appointment.

Some Important Tips On Using the Equipment

1. Charge the battery for about 2 hours the night before every videotaping visit.
2. Always carry the Video AC Adaptor with you so that if you run out of battery power you can, with the permission of the family, connect the camcorder to a direct power source.
3. Set your camcorder to the automatic (AUTO) focus mode. This way you won't have to worry about focusing if there is a fair bit of moving around on the part of the parent-child dyad.
4. Before you start recording, ensure that the VCR/Camera Selector Door is closed (i.e., slide in place for camera recording). Nothing will happen if you press the RED

record button when the door is in the position of VCR Play/Rec.

5. To start recording, just press the red button. To stop recording, press the same button again.
6. Check how well sound is coming through, by using an ear phone. You may have to tell mothers to speak louder.
7. Whenever there is a break in recording--for example, as a result of the child wandering away from the interaction area--take advantage of the break to check if you have actually been recording. Press the RVW button as you look through the viewfinder. The last few seconds of recording will be played back. The review will always stop at the end of the last recording, so you don't have to do anything to start recording again; just press the RED record button and recording will continue.
8. Remember to use the zoom power control button to zoom-in (by pressing on T) on activities with fine details that can only be captured at close range.
9. At the end of each session--while camera is still in record mode--please press and hold on to the FADE button for about 10 seconds, to signal the end of one session and the beginning of another. (A session is defined as an entire 20-minute vignette with a mother-child dyad).

Record Keeping Tips

1. It is very important that every dyad is correctly identified. This is particularly important because a different group of people will be coding the interactions. Sticker labels are provided for this purpose on each cassette. Remember to enter the family ID # and the date and time of filming.
2. Only 4 sessions may be recorded on each cassette.
3. On the observation sheet provided, please report any observations regarding context, mood of child and/or parent, etc. that you think should be taken into con-

sideration when interpreting the data for a particular dyad.

PARENT-CHILD INTERACTION STUDY

Department of Educational Psychology
Memorial University of Newfoundland

VIDEOTAPING OBSERVATION SHEET

CMS: _____ CMS ID STEM: _____

FAMILY ID #: _____ DATE: _____ TIME: _____

OBSERVATIONS:



