COMPARISON OF FATHERS' AND MOTHERS' SPEECH TO THEIR PRESCHOOL CHILDREN

By

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ABSTRACT

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This study examined fathers' and mothers' speech to their preschoolers to determine whether fathers' contributions to their children's language learning was different from mothers'. Some researchers have suggested that mothers, compared to fathers, are warmer and more sensitive; they provide greater linguistic support for their children by adjusting their speech to the children's abilities as well as by asking questions that their children can answer with a minimum of effort. By way of contrast, fathers have been thought to be less sensitive to their children's language abilities; they have been viewed as making greater demands upon their children by asking difficult questions thereby raising their children's performance. It is also thought that the type of questions that parents ask of their children may be of particular importance in the development of representational thinking. Sigel has hypothesized that parents use distancing strategies (special verbal behaviors) to advance their children's development of representational thought. His three levels of distancing strategies were used in this study to assess the cognitive demands of parents'

questions.

Sixteen families participated in the study. The children were divided into two groups: 4 boys and 4 girls with a mean age of 2 1/2 years; and 4 boys and 4 girls with a mean age of 3 1/2 years. Each parent-child dyad was audio- and video-taped in their home for a maximum of 30 minutes while playing with play-doh and looking at a picture book.

The results provided no evidence to suggest that mothers were warmer and more sensitive to their children than were fathers. Nor was there evidence to suggest that the questions asked by fathers placed greater cognitive demands upon the children than did the questions asked by mothers. It was found, however, that the sex of the child influenced the warmth and sensitivity responses; mothers and fathers of daughters exhibited greater warmth and sensitivity than did the mothers and fathers of sons. The results of this study also indicated that mothers and fathers were equally demanding of their children; the frequency of their use of all levels of distancing strategies was comparable. Furthermore, it was found that the task in which the dyad was engaged influenced the frequency with which various levels of distancing strategies were used.

THIS DISSERTATION IS DEDICATED TO

MY HUSBAND

PATRICK DWYER BARNES

AND

TO THE MEMORY OF MY MOTHER

MARY KOPCHAK LEDDY

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CHAPTER 1

INTRODUCTION

Statement of the Problem

Until recently developmental psychologists paid little attention to fathers' contributions to the development of their children. Fathers were ignored largely because it was thought that they played a less influential role than mothers in child development; childcare and child development were considered the domain of mothers (Lamb, 1975; Lynn, 1974; and Nash, 1976). Thus, hundreds of research studies have focused on mother-child interactions and relationships. In recent years, however, interest in father-child interactions and relationships has become increasingly evident (see Fitzgerald and McGreal, 1981; and Parke, 1981). Investigations of paternal contributions in specific areas of child development are not as infrequent as once was the case. But in the area of language acquisition there is a dearth of studies on fathers' speech to their young children. A great deal is known about how mothers talk to and interact with their young children; much less is known about fathers' speech. Until recently, it could be said that "parent" and "adult" were nearly synonomous with "mother" and "woman" in the language literature.

Paternal speech and verbal interaction with young children is an area that needs to be further explored in order to determine father's influence on children's language learning. The question explored in this study is: Do fathers make a specific contribution to children's language development that is different from or comparable to mothers' contributions? In other words, are fathers and mothers verbal interactions with their children different or comparable? In order to provide the background on which this study is based, the following areas of parental speech were examined: the frequency of verbalizations, frequency of use of imperatives and negative commands, and use of a diverse vocabulary as well as various kinds of interrogatives.

Review of the Literature

Frequency of verbalizations

One of the first studies on fathers' speech to their young children raised the question of how much fathers actually talked to their infants. Rebelsky and Hanks (1971) studied 10 fathers' vocalizations to their infants (7 boys and 3 girls) for three months. Beginning at 2 weeks and extending through 12 weeks of age a 24-hour recording was made of each infant at two-week intervals. It was found that fathers talked to their infants an average of 37.7 seconds per day. Not only did fathers spend little time vocalizing to their infants but all of the fathers of female infants decreased their vocalizations during the time period studied. Although this study has not been replicated, later observational home studies conducted by Field (1978) and Pedersen (1980) indicate that fathers talk to their children considerably more than a few seconds per day; moreover, the amount of paternal vocalizations appears to depend upon the age of the child.

Studies that compared the frequency of parental speech to their children in dyadic situations report that mothers talk more than fathers to their infants: at 2 weeks to 3 months (Rebelsky and Hanks,1971), at 6 months (Landerholm and Scriven, 1981) and at 8 months (Lamb, Frodi, Hwang, Frodi and Steinberg, 1982).

Although the speech of mothers and fathers was not

compared in the Rebelsky and Hanks study, they did compare the frequency of fathers' speech in their sample with the frequency of mothers' speech obtained in studies by other researchers. The fathers in Rebelsky and Hanks' study indeed vocalized less than mothers in other samples. Contrary to Rebelsky and Hanks' findings, Parke and Sawin (1980) found no differences between the amount of maternal and paternal speech to their newborns through 3 months of age. The method of data collection employed by Parke and Sawin was quite different from that used by Rebelsky and Hanks. Parke and Sawin observed parent-infant interactions that were centered around specific tasks determined by the researchers, whereas Rebelsky and Hanks attached microphones to the baby's clothing. Recording equipment was then activated by the sound of human voices. In support of Rebelsky and Hanks, Parke and Sawin found that fathers vocalized more to their sons than to their daughters.

In the Landerholm and Scriven study (1981) mother's social-verbal behaviors with their 6 month olds occurred more frequently than father's social-verbal behaviors. Social-verbal behaviors were defined by nine variables, four of which were nonverbal. Consequently, it is not clear that the finding is significant because of the frequency of verbal behaviors. It could well be that nonverbal variables, particularly two--smiled more at child

and smiled more in general--accounted for the differences between parents.

Lamb, Frodi, Hwang, Frodi, & Steinberg, (1982) observed 51 Swedish couples with their 8-month-olds. A vocalization was recorded each time a parent spoke to or made vocal sounds directed to the child. Mothers' vocalization behaviors occurred significantly more frequently than did fathers'.

By way of contrast, Belsky (1980) observed forty 15-month olds and their parents in a home study of parental influence on infant exploratory competence and found that mothers and fathers did not differ in their amount of vocalizations. Other studies of mother-child and father-child dyads found that fathers vocalized as much as mothers when the children were 19-months old (Golinkoff and Ames, 1979), 24-months-old (Stoneman and Brody, 1981; Dalton-Hummel, 1982; and Wilkinson, Hiebert, and Rembold, 1981), 30-months-old (Wilkinson, et al, 1981), and 36-months-old (Malone and Guy, 1982). These findings support the notion that fathers engage in as much verbal interaction with their children as mothers but only when the children are able to talk.

In a naturalistic study on paternal involvement with their first borns, Rendina and Dickerscheid (1976) observed 40 fathers (in the presence of their wives) interacting with their children. Each child was assigned to one of two developmental levels: Level 1 included children, ranging

from 5- to 6- months of age, who neither walked nor talked, while Level 2 included children, ranging from 11- to 15-months of age, who walked alone and spoke understandable words. Fathers of Level 2 children spoke significantly more to their children than did fathers of Level 1 children. Although no mother-father comparisons were made, this study lends support to the idea that fathers begin to vocalize substantially more to their young children when the children are capable of speaking comprehensible words; until that time father's verbalizations are limited.

Golinkoff and Ames (1979) observed 6 boys and 6 girls, aged 19 months, with their parents in a lab playroom. Each child was observed in three 10-minute play situations: (1) mother-father-child engaged in free play; (2) mother-child engaged in structured play; and (3) father-child engaged in structured play. The purpose of the study was to compare free play vs structured play. In the structured situation parents were instructed to teach their child how to play with a complex toy. Only one difference emerged between the mother-child and father-child dyads; parents of sons took more conversational turns than parents of daughters. (A conversational turn is defined as all utterances of one speaker until the other person speaks.)

Using the same measures as Golinkoff and Ames (1979), Stoneman and Brody (1981) observed eighteen 24-month-olds (equally divided by sex) engaged in free play with their

parents. The purpose of their study was to compare parent-child dyads with the family-triad, rather than tasks as had Golinkoff and Ames. It was found that mothers addressed more utterances to their daughters than to their sons. (An utterance is defined as a word or string of words identified by a pause or by grammatical completeness. Quantity of speech is the total number of utterances.) While Stoneman and Brody found that fathers in their sample did not talk more to their sons than daughters, they did speak more utterances and took more conversational turns with their sons than did mothers. This difference may have been influenced by the children's ages, 24 months as opposed to 19 months in Golinkoff and Ames, or by differences in tasks and situations.

Malone and Guy (1982) observed ten 3-year-old boys in their homes conversing separately with each parent. The number of utterances made by each parent was comparable, but mothers' mean length of utterances (MLU) was greater than fathers' MLUs. This suggests that mothers speech to sons is more complex than fathers' speech. In this study MLU was defined as the total number of intelligible words divided by the total number of utterances. However, the majority of researchers, including those cited elsewhere in this review, define MLU as the average length of utterances in morphemes rather than in words. But whether or not intelligible words or morphemes are used to determine MLUs may not be an important issue. Nelson, Carskaddon and

Bonvillian (1973) found that scores for MLUs in words were comparable to scores for MLUs measured in morphemes.

Using the same measures as Golinkoff and Ames (1979), Wilkinson, Hiebert, and Rembold (1981) observed nine girls and nine boys in their homes playing with their mothers and fathers. Each dyad was observed when the child was 24-months-old and again at 30 months. No differences were found between maternal and paternal speech on any measure at either time of observation. Dalton-Hummel (1982) assessed the verbal interaction of 16 sets of parents with their 2-year-old daughters (n=9) and 2-year-old sons (n=7) during a free play situation. The independent variable was the time fathers spent with their young children. Low-time-investment (LTI) fathers were with their children less than 45% of the child's waking hours; high-time-investment (HTI) fathers were with their children more than 50% of their child's waking hours. No differences were found between mothers' and fathers' speech nor were differences found between LTI and HTI fathers.

Summary: The reviewed studies suggest that differences between the frequency of mothers' and fathers' speech directed to their young children is related to the child's age and verbal ability. Fathers talk less than mothers to their infants. As children grow older and their verbal abilities increase, the frequency of fathers' and mothers' speech to their young children becomes almost equal.

Sex Differences: Of the 13 studies reviewed sex differences were observed in five. The differences included: (1) parents of 19-month-old sons took more conversational turns during structured play activity than did parents of daughters; (2) mothers spoke more utterances to their 24-month-old daughters during free play activity than to their sons, while fathers' number of utterances were comparable to both sons and daughters; (3) mothers' MLUs were longer than fathers' in a sample that included only boys aged 36 months; and (4) fathers in two studies vocalized more to their sons than to their daughters.

Triadic Situation: Two researchers, Clarke-Stewart (1978) and Pedersen (1980), chose not to compare mother-child dyads with father-child dyads because of the issue of ecological validity. That is, they speculated that during daily living fathers spend a greater amount of time interacting with their child in a triadic situation (mother-father-child) rather than in a father-child dyad. This, indeed, was true of Pedersen's sample; his sampled fathers spent an average of 30 minutes a day with their children. Clarke-Stewart reviewed other researchers home observation reports and estimated that fathers' presence with their children never exceeded 3 hours per day and that the amount of father-child interaction was considerably less. In other words, father presence was not equated as

father-child interaction.

Pedersen, Anderson, & Cain (1980) observed 41 families and their 5-month-olds (23 boys and 18 girls) on two occasions and found that mothers verbalized to their children more than fathers in the triadic situation. Clarke-Stewart (1978) conducted a longitudinal study of 7 boys and 7 girls and their families. Two observations (mother-father-child and mother-child) were made when the children were 15-, 20-, and 30- months of age. She found that mothers verbalized more than fathers. Golinkoff and Ames (1979), Stoneman and Brody (1981), and Wilkinson, Hiebert, and Rembold (1981) also found that mothers talked more than fathers in the triadic situation.

Use of Imperatives

An imperative is defined as a request for an object or action in the form of a command or an order. "You" is the implied or stated subject. Gleason (1975) cited data from two unpublished observational studies that noted that fathers produced more imperatives than mothers. In the first study six preschool boys were observed playing with each parent individually in a laboratory setting. In the second study, three families (with a child of each sex, ranging from 2- to 5- years of age) were observed during meal time. Not only did the fathers produce more imperatives in both situations but more imperatives were directed to their sons than to their daughters. Additional support for this finding was given by McLaughlin, Schutz

and White (1980) in a study of 12 five-year-olds (24 parent-child dyads). Fathers produced the most imperatives and directed them mainly to sons. Fathers in Malone and Guy's (1982) sample also produced more imperatives than did mothers.

In a 1982 study by Bellinger and Gleason, fathers uttered more imperatives than mothers to their 2 1/2- to 5-year-old children but no child sex differences were found. McLaughlin's (1983) home observations of 18- , 30- and 42-month olds (8 children in each age group divided evenly by sex) engaged in parent-child dyad free play indicated that fathers verbalized more imperatives than mothers to their 30- and 42- month olds but an approximate number of imperatives was directed by parents to their 18- months olds; no child sex differences were found.

Rondal (1980) observed 5 French-speaking Belgian boys in their homes and found that parental production of imperatives was comparable. The boys ranged from 18- to 36- months of age. Studies by Golinkoff and Ames (1979) with 18-month-olds, and Dalton-Hummel (1982) with 24-month-olds found no evidence to support parental differences in the frequency of use of imperatives.

Summary: Of the 10 studies reviewed, 6 supported the notion that fathers produce more imperatives than mothers; three of these studies gave evidence that fathers direct more imperative statements to theirs sons than to their

daughters. One study had sons only in the sample. Four studies lent no support to the idea that there are differences in the frequency of use of imperatives between mothers and fathers. Discrepancies between the findings in these ten studies may be related to child age, task, or the operational definition of imperative.

Child Age. The four studies (Dalton-Hummel, 1982; Golinkoff and Ames, 1979; Rondal, 1980; and Wilkinson, Hiebert, and Rembold, 1981) that found no difference between mothers' and fathers' use of imperatives all had child subjects who were 24 months of age or younger. None of the investigators who found parental differences had subjects that young. It was interesting to note that McLaughlin's (1983) data on 3 age periods (18 months, 30 months and 42 months) showed that the greatest number of imperatives was directed to 18-month-olds and that there were no differences between parents' use of imperatives to that age group. Differences were found between parents when the children were older. Even though imperative use declined over time, fathers' imperative use decreased less than mothers' use. Differences between parental imperative use was related to child age. Another investigator presented a similar pattern in his data. Rondal (1980), who reported no differences between parents, found, as did McLaughlin, that more imperatives were uttered to the younger children than to the older ones, that imperative

usage decreased over time for both parents, and that the decrease was greater for mothers than for fathers. It is not surprising that Rondal reported no statistical differences since his sample size was small (5) and each child was of a different age.

Task. The task situations in the studies by Bellinger and Gleason (1982) and McLaughlin, Schutz, & White (1980) were designed to promote the production of imperative statements. The purpose of Bellinger and Gleason's study was to find out what kind of directive statements (that is, imperative vs indirect forms) parents make to their children, thus, they used a toy (a take-apart car) known to elicit controlling speech. McLaughlin, Schutz and White's (1980) task instructions to the parents as well as the nature of the activity were designed to encourage parental control statements. It should be mentioned, however, that McLaughlin (1983) and Malone and Guy (1982) observed parent-child dyads during free play in which no special instructions or activities that were known to encourage imperative statements were given to the participants. In both studies fathers used a significantly larger percentage of imperatives when compared to mothers.

Definition. Wilkinson, Hiebert, and Rembold (1981) did not identify and count the imperatives; instead, they had a directive measure that was defined as a request for action or object in the form of an imperative, a statement or an interrogative. It may be that a separate analysis of

imperatives would have yielded a different result.

Use of Negative Commands

Paternal use of negative commands or prohibitions was noted in three studies. A laboratory study by Langlois and Downs (1981) was designed to examine parents' differential treatment of 3- to 5-year-old boys' and girls' sex-typed behaviors. Parent-child dyads were observed while playing with sex-typed toys, e.g., an army set and a dollhouse set. It was found that fathers more frequently discouraged their sons' play with inappropriate sex-typed toys than they did with their daughters. Also, older children, more so than younger ones, were discouraged from playing with inappropriate sex-typed toys.

Two studies conducted by Snow, Jacklin, and Maccoby (1983), one with 68 father-child dyads (12-month-olds equally divided by sex) and the other with 39 father-child dyads (23 boys and 16 girls, age 12 months) were designed to determine whether or not fathers would exhibit different behaviors toward their daughters and sons. Each dyad was secretly observed through a one-way viewing mirror while sitting in a waiting room. Several items such as ashtrays with cigarette butts and a pitcher filled with water were intentionally placed in the waiting room by the researchers. It was hoped that these items would tempt children to touch them and that the fathers would discourage their child's handling of the objects. Various

toys, including sex-typed toys, were available, also. It was found that fathers used more physical and verbal prohibitions with their sons than with their daughters. However, the boys touched the forbidden items more frequently than the girls; thus, the boys were more provocative than the girls.

Gleason and her colleagues (1975 and 1978) observed that fathers made threats to their sons and jokingly called them names that had pejorative overtones. No incidents of similar behavior were observed in mothers.

Summary: These studies found that fathers vocalized more prohibitions to their sons than to their daughters. The studies reviewed in the previous section (Use of Imperatives) did not include a prohibitive speech measure. It is interesting to note that in McLaughlin's study (1983) parental imperatives were rarely prohibitive; imperatives were used to direct the children on what-to-do rather than what-not-to-do.

Use of Diverse Vocabulary

Gleason and Rondal reported that fathers when talking to their young children use a more diverse lexicon than mothers. These reports are based upon anecdotes and type-token ratios (TTR). Anecdotal data, cited by Gleason and her colleagues (1975, 1978, and 1983), described conversations in which fathers used words (e.g., "intimidate" and "aggravate") that are incomprehensible to

2- or 3-year-olds. Rondal (1980) reported descriptive data indicating that fathers' TTRs were greater than mothers'. A type-token ratio (TTR) is the ratio of the number of different words (types) spoken in the sample to the number of same words (tokens) spoken in the sample.

In contrast, Wilkinson, Hiebert, and Rembold (1981) found no differences between parental TTRs. McLaughlin, Schutz, and White (1980) also found that TTR alone was not a significant variable. In a sample of 20 sets of parents with their daughters, Lipscomb and Coon (1980) found no difference between parent's TTRs. However, they did find that the child's age as well as the child's speech ability effected the parent's vocabulary use. That is, both mothers and fathers used a more complex vocabulary with their older daughters (32- to 43-months of age) than with their younger ones (10- to 29- months of age). Rondal (1980) also found that parental speech increased in lexical diversity as the child's language ability increased.

Summary: To date the idea that fathers use a more diverse vocabulary than do mothers when talking with their young children is supported by anecdotal material only. No statistical measures on TTR have yielded significant differences between mothers' and fathers' use of TTRs. The complexity of parental speech appears to be related to child age and child language ability.

Use of Interrogatives

Descriptive data from two exploratory studies

(Gleason, 1975; and Gleason and Weintraub, 1978) suggested that fathers ask more questions of their children than mothers, and particularly wh/questions (i.e., who, what, when, where, why, and how). Giattino and Hogan (1975) found support for these suggestions based upon their study of the verbalizations of one father with his three-year-old daughter. They found that the father most frequently used interrogative sentences and that more than half of his interrogatives were wh/questions. Fash and Madison (1981) also reported that fathers asked more questions than mothers. However, their findings were not statistically significant.

During free play with their 18-, 30-, and 42- month old children, mothers asked the most yes/no questions whereas fathers asked the most wh/questions (McLaughlin, White, McDevitt, and Raskin, 1983). In compared parental speech to sons during 3 activities (play time, story time, and meal time), Rondal (1980) found that fathers asked more clarifying or wh/questions than mothers during each activity. In a structured game activity fathers preferred prompt or test questions (i.e., speaker of a question has a specific response in mind), whereas mothers favored indirect questions (McLaughlin, Schutz, and White, 1980).

In contrast to these reports, Malone and Guy (1982) found that mothers, rather than fathers, asked significantly more questions as well as a larger percentage

of wh/questions. No parental differences in question use were reported by Golinkoff and Ames (1979) or Wilkinson, Hiebert, Rembold (1981). Golinkoff and Ames reported that parents preferred yes/no questions and that both parents used "what" questions more frequently during free play than during structured play.

Summary. Of the nine studies reviewed that compared mothers' and fathers' speech, three supported the notion that fathers asked more questions than mothers, one supported the idea that mothers asked more questions than fathers, and two offered no support for either position. The three studies that supported the idea that fathers used questions more frequently than mothers were found in descriptive studies in which no statistical analyses were made. Evidence was offered in five studies that fathers preferred wh/questions; however, in one study yes/no questions were preferred, while in yet another study test or prompt questions were favored by fathers. Statistical significance was found in those studies that reported differences in the type of question used by mothers and fathers.

One of the studies that found no differences between parents used a question measure that did not distinguish between types of questions; a less general operational definition of question may have yielded additional and different information.

Theoretical Issues

The question addressed by the literature review concerned the kind of language learning environment that mothers and fathers provide for their young children. The reviewed studies included the following variables: task, situation, age of child, sex of child, language ability of child, birth position of child, sex of parent and involvement of parent. A combination of these variables appears to influence the type of speech mothers and fathers use when interacting with their children. The review provides evidence for similarities as well as differences in mothers' and fathers' speech. Although there appear to be no differences in the parental use of some speech measures, parental differences are certainly suggested in the areas of imperative and interrogative use. Both of these areas need further exploration.

The type of questions that parents use with their young children is an issue of particular interest as it may be a variable of major importance in a child's development of mental representation. According to Piagetian theory, children in the preoperational stage of cognitive development are making a critical shift in their thought processes-- from sensorimotor to representational thinking. Piaget described this shift as an acquisition of a semiotic function that enables a child to think in symbols or signs (words). Once this shift is made a child

is then able to engage in mental representation with words and not just imagery (Gallagher and Reid, 1981; Ginsburg and Opper, 1979; Piaget and Inhelder, 1969; Sigel and Cocking, 1977; and Sigel, 1981).

Piaget (1971) believed that children's social experiences or interactions with others were necessary conditions for cognitive development. However, he did not define social experiences nor did he explicate on the relationship between specific social interactions and cognitive development. Sigel and his colleagues (1960; 1970; 1972; 1977; and 1982) suggested that social experiences relevant to the development of representational thinking occur in the form of distancing behaviors or strategies. Sigel's distancing theory suggests that there are specific verbal behaviors (distancing strategies) that parents use to enhance their child's development of representational thought. These verbal distancing strategies help the child "to mentally reproduce the past, anticipate the future, and assess alternatives in the present, transcending immediate spatial and temporal perceptions" (Flaugher and Sigel, p. 1, 1982). Three levels of mental operational demands have been identified by Sigel, McGillicuddy-DeLisi, Flaugher, and Rock(1983): Level 1-- low distancing strategies, which focus upon the present, are parental statements or inquiries that encourage a child to label, to describe or to demonstrate a

current situation; Level 2-- medium distancing strategies, which focus upon the past, are utterances that encourage a child to reproduce a situation, describe similarities and/or differences based upon information from previous experiences; and Level 3-- high distancing strategies, which focus on the future, are parental utterances that challenge a child to evaluate, to infer, to propose alternatives, and to resolve conflicts. These are but a few examples of the mental operational demands that can be made upon children through the use of parental distancing strategies. Of course, statements as well as inquiries can demand mental operations but my current concern is with interrogatives.

The empirical evidence for Sigel's distancing hypothesis comes mainly from experimental studies in nursery school settings. Children in experimental groups, whose teachers were trained in the use of distancing strategies, performed significantly better on transformation object tasks than did the control group children (Sigel, 1977 and 1981; Sigel and Cocking, 1977). In a laboratory study in which parents were instructed to teach their 4-year-olds origami (paper folding), it was found that parents who rated high on distancing strategies had children who performed significantly better on representational tasks than those children whose parents rated low on distancing behaviors (McGillicuddy-DeLisi,

Sigel, and Johnson, 1979).

Not only are parental questions to their children of interest in understanding the development of mental representation but several researchers have posited that parents make differential contributions to childrens' cognitive development. For example, it is assumed that because fathers use a greater number of wh/questions than mothers, they make greater cognitive demands on their children and, intellectually, challenge them in ways that are different from mothers (Gleason and Greif, 1983; Gleason and Weintraub, 1978; McLaughlin, White, McDevitt, and Raskin, 1983; and Rondal, 1980).

Fash and Madison (1981) counted parental utterances that referred to past and future events. Although differences in referral to future events was not significant, fathers referred significantly more often to past events than did mothers. The authors suggested that this difference may be indicative of fathers' requirement for a higher level of language comprehension or cognitive processing from their children. Fathers are viewed as demanding that children exert themselves in order to be understood, whereas mothers are described as warm, sensitive, and "tuned in" to their child's language abilities (Gleason and Grief, 1983; and Madison and Guy, 1982). None of the reviewed studies included a warmth or sensitivity measure to assess these speculations.

The purpose of the current study was to compare fathers' and mothers' speech to their preschool sons and daughters in order to determine whether maternal and paternal verbal interaction is comparable or significantly different. Particular emphasis was placed on the type of questions and the kinds of distancing strategies parents use. Children were observed in their homes interacting individually with each parent while looking through a picture book and while playing with play-doh. Looking at a picture book is a valid medium for encouraging verbalization in both mothers and fathers (Bigner, 1977). The picture book condition, which may encourage parental verbalizations, may also discourage active involvement of the child; consequently, a play situation that encourages active involvement of the child was included.

Hypotheses

1. Fathers will ask more questions of their children than will mothers in both activities.

2. Fathers will use more distancing strategies than mothers during both activities.

3. Fathers will ask more questions and will use higher level distancing strategies when interacting with their sons than with their daughters.

4. Mothers will exhibit more warmth and greater sensitivity toward their children during both activities than will fathers.

5. Mothers will more actively engage their children in both activities than will fathers.

6. Children will produce longer mean length of utterances (MLU) when interacting with their fathers than when interacting with their mothers.

7. Older children will receive more distancing strategies in both activities than the younger children.

8. Older children will be more actively engaged in the activities than the younger children.

9. Children producing longer mean length of utterances (MLU) will receive more distancing strategies and will be more actively engaged in the activities than those children who produce shorter mean length of utterances.

CHAPTER 2

METHOD

Subjects

The subjects were sixteen preschoolers and their mothers and fathers. The children were divided into two groups by age and sex. One group of 8 children (4 girls and 4 boys) ranged between 24- and 36- months of age with a mean age of 2 1/2 years; the other group of 8 children (4 boys and 4 girls) ranged between 36- and 53- months of age with a mean age of 3 1/2 years.

All of the children were firstborns from middle-class, English-speaking, white, intact families who resided in the Lansing, Michigan metropolitan area. Subjects were recruited through local day care centers. After obtaining permission from appropriate day care center personnel (boards of directors and agency directors), recruitment letters were distributed to the centers' families. The recruitment letter described the study and requested that those who wished to participate return the attached addressed, stamped postcard indicating convenient times to be contacted by telephone. (See Appendix A for a copy of the letter.)

After the parents returned the postcard expressing interest in the study, I called them to answer any questions they might have about the study and to schedule two home visits. Both home visits were scheduled within seven days of each other at times that were convenient for

family members. The typical home visit occurred on weekdays between 8:00 am and 7:30 pm. Each child was observed interacting with each parent individually; each dyad was audiotaped and videotaped for a maximum of 15 minutes per task.

Procedure

At the beginning of each home visit the purpose of the study, the issue of confidentiality and procedures to assure anonymity were reviewed. In order to assure anonymity, code numbers were assigned to all participants; data were identified only by the subject code. The master list of subject names and codes was stored in a locked, limited access file.

Informed consent was obtained in writing from each parent. (See Appendix B for a consent form sample.) No experimental procedure was initiated until the consent form had been read, explained, discussed, and signed. Each child also was given an opportunity to consent to participation. If any child appeared reluctant to participate, the observation was not conducted. If any child expressed reluctance during the videotaping, the taping was either stopped temporarily or the session was ended. In three separate instances videotaping was stopped temporarily because the children were distracted by the equipment.

Tasks. There were two task situations: one was a

picture book task and the other was a play-doh task. The order of parent participation was determined by random selection, while the order of task (picture book or play-doh) was counterbalanced across mothers and fathers. In every instance parents were instructed individually and interacted with their child in the absence of the other parent.

When the picture book task was presented, the parent-child dyad was given one of two 8 x 11 1/2 inch plastic covered picture albums. One album contained colorful pictures removed from The Little Lamb; the other contained colorful pictures taken from The Little Rabbit. Both books were part of the Picturebook Series published by Random House. The order of the books was counterbalanced. Each dyad was read the following instructions:

> "This is a book that contains some pictures. There are no words in the book. I would like you to look at the pictures together and talk about the pictures as you would when looking at any picture books you may have around the house. Do you understand the task? Alright, you may begin when I give you the book."

When the play-doh situation was presented, the parent-child dyad was directed to an 11 x 15 inch acrylic board placed on a flat surface (e.g. child's table, game table or cardtable), which was provided by the family. Placed in the middle of the board was a mound of play-doh. (A can of play-doh was purchased for each child.) The dyad was directed to sit on adjacent sides of the table, that is,

neither side by side nor across from one another. Each dyad received the following instructions:

> "Please sit next to each other at the table. On the board is a piece of play-doh. I would like you to play together with the play-doh and together make something from the play-doh. Play together as you typically do. Do you understand the task? Ok. You may begin."

If the dyad completed their playing prior to the set time the audio and video equipment were turned off; they were under no obligation to continue the activity for 15 minutes. When playing continued for longer than the set time, the equipment was turned off after 15 minutes of interaction. However, the dyad was welcome to continue with their play. Between tasks the researcher suggested that the parent and child take a short break while the next activity was readied.

At the end of the home visit the dyads were thanked for their participation and the children were given a Little Golden Book (Baby Farm Animals) at the first visit and their can of play-doh at the final visit.

Statistical Analysis

A 2 (age of child) x 2 (sex of child) x (sex of parents) x 2 (type of task) analysis of variance, repeated measures design program from BMDP Statistical Software (1981 edition) was used to analyze the data. Grouping variables were child sex and child age; repeated measures were sex of parent and type of task. Data on the following

dependent variables were analyzed:

1. time length of task,

2. mean length of utterance-- child and parent,

3. mean length of conversational turn-- child and parent,

4. utterances per minute-- child and parent,

5. type of sentence and subtypes: (a) declaratives-direct statements, repetitions, and yes/no; (b) interrogatives-yes/no, wh/questions, repetitions, tag questions, indirect questions, occasional questions, and test questions; (c) imperatives; and (d) exclamations,

6. type of distancing strategy: (a) low; (b) medium; and (c) high,

7. parental warmth,

8. parental sensitivity, and

9. child engagement responses: (a) active; (b) passive; (c) nonengaged; and (d) no-time-to-respond.

Descriptive analysis included frequency counts and percentages of the following: (1) which member of the dyad made the first utterance in each task; (2) what was the content of the parent's first utterance in each task; and (3) who terminated each task.

Measures

Transcription. The 64 audio-tapes were divided among three trained assistants (one male and one female) who

transcribed the tapes while following guidelines developed by the researcher. (See Appendix C for a copy of the transcription guidelines). Then the typed transcripts were divided among three other trained assistants (female) who edited the transcripts while following specific editing guidelines developed by the researcher. (See Appendix C for a copy of the editing guidelines.) Discrepancies between the original transcripts and the edited transcripts were resolved by the researcher who listened to the tapes in question to determine which transcript was accurate.

The researcher did not furnish transcribers with any information about the sex of parent or child, or child's age. In some instances, however, children were called by name, and in rare instances references were made to a child's age on the audiotapes.

Reliability. In order to establish reliability, 14 audiotapes (approximately 22%) were randomly selected and transcribed by the researcher. Then the researcher's and assistant's transcripts were compared; the speaker's exact utterance was the unit of analysis for reliability. An utterance was defined as a word or string of words identified by a pause or by grammatical completeness (Golinkoff and Ames, 1979). Reliability for exact utterance was .92 (kappa). A less conservative unit of analysis, which was a comparison of the number of exact words per utterance, was also used to determine

reliability. Reliability for the number of exact words per utterance was .97 (kappa).

Conversational measures and reliability.

Four trained assistants (females), who were blind to age and sex of the child and sex of parent as well as to the research hypotheses, independently coded the typed transcripts for each dyad member using the following conversational measures: length of time involved in task, total number of parental utterances, total number of child utterances, child mean length of utterance, parent mean length of utterance, parent mean length of conversational turn, child mean length of conversational turn, parent utterances per minute, and child utterances per minute. Approximately 22% (or 14) of the audio-tapes were randomly selected for each measure and were scored independently by another assistant in order to establish reliability. The reliability statistic is presented following the discussion of each measure.

The conversational measures included:

Time length of task. The length of each audio-recording was measured in seconds. Reliability was 1.00 (kappa).

Total number of utterances. The number of parental utterances and child utterances were counted. Reliability for number of parent and child utterances was 1.00 (kappa).

Mean length of utterance (MLU). MLUs were determined

by counting the morphemes (the smallest units of meaningful speech) in each utterance, and then dividing this sum by the total number of utterances. Instructions for MLU determination were based upon Brown's rules (1973). (See Appendix D for a copy of the MLU scoring form.) Reliability for both parent and child MLUs was .99 (kappa).

Mean length of conversational turn (MLT). A conversational turn consisted of all utterances of one speaker until the other speaker spoke (Cherry and Lewis, 1976), and the number of times a speaker had the floor was the total number of turns. When all of the utterances and turns were counted the MLT was determined by dividing the total number of utterances by the total number of turns (Golinkoff and Ames, 1979). (See Appendix D for a copy of the MLT scoring form.) Reliability for both parent and child MLTs was .99 (kappa).

Utterances per minute. The total number of utterances was divided by the number of seconds of dyad interaction, then the quotient was multiplied by 60. (See Appendix D for a copy of the scoring form). Reliability for both parent and child utterances per minute was .99 (kappa).

Type of Sentence

All parental utterances were coded for type of sentence. Four major sentence types (declaratives, interrogatives, exclamations, and imperatives) and subtypes within the declarative, imperative, and interrogative

sentences were identified and counted. (See Appendix E for copy of the type of sentence score sheet.) All transcripts were scored by the researcher. In order to establish reliability, a trained female assistant coded 14 randomly selected transcripts and the scores on each measure were compared. The reliability statistic is reported following a discussion of each sentence type and subtype.

Declaratives

Declaratives were defined as statements that end with a period (.) such as "The lamb is white." Reliability for declarative statements was .98 (kappa).

Subtypes of declaratives included the following:

1. Direct statements were direct utterances such as "That's a pretty color." Reliability for direct statements was .93 (kappa).

2. Repetitions included (a) repeats of a child's previous utterance (e.g., C: A baby sheep. P: A baby sheep.), (b) a combination of repeat and confirm (e.g., C: A baby sheep. P: Yes, a baby sheep.), and (c) a combination of repeat, expand and confirm (e.g., C: A baby sheep. P: It is a little black baby sheep, yes.). Reliability for declarative repetitions was .84 (kappa).

3. Yes or no statements were counted. Reliability was .81 (kappa).

Interrogatives

Interrogatives were defined as direct questions, such as, "What is the bunny eating?" Reliability for interrogatives was .98 (kappa).

Interrogative subtypes included:

1. Yes/no questions were direct questions that were answered with either a yes or no, e.g., "Do you want a drink of water?" Reliability for yes/no questions was .92 (kappa).

2. Wh/questions were questions such as, "who", "what", "when", "where", "how" that elicited information (e.g., "What do you want to make with the play-doh?") Reliability was .77 (kappa).

3. Repetitive questions were (a) the child's previous question is repeated or the child's previous utterance is repeated as a question (e.g., C: A doggie. P: A doggie?), (b) a combination of repeat and expand (e.g., C: A doggie. P: A white doggie?), (c) a combination of repeat with a wh/question (e.g., C: Little girl. P: What little girl?), and (d) a combination of repeat and expand with wh/question (e.g., C: Little girl. P: Where is the pretty little girl?). Reliability for interrogative repetitions was .71 (kappa).

4. Tag questions where an interrogative is attached at the end of a declarative statement, for example, "That's a cute bunny, isn't it?" No distinction was made

between formal and informal tags. (The above question is an example of a formal tag; words, such as "yes", "yea", "huh", tacked to the end of a declarative statement and uttered with a rising intonation indicating a question is an example of an informal tag.) Reliability was .88 (kappa).

5. An indirect question where a declarative contained an embedded partial interrogative phrase such as "I wonder where the little lamb is." or "I don't know what you mean." Reliability was .50 (kappa).

6. An occasional question in which a "wh" word ("who", "what", "when", "when", "where", "why", "how") is positioned where the missing word would be, such as, "The lamb is eating what?" Reliability was .67 (kappa).

7. A test question when the speaker had a specific answer in mind, that is, the speaker is testing the child. Reliability for test questions was .50 (kappa).

Imperatives

Imperatives were defined as explicit directives, which usually began with the word "you" (e.g., "You get your feet off the wall."), or "you" is implied (e.g., "Turn the page.")

Imperatives were divided into three categories: (1) negative imperatives or prohibitives (e.g., "Stop that right now!"), (2) positive imperatives (e.g.,"You can do it!"), and (3) neutral imperatives (e.g., "You hold the

book."). These three categories were combined for analysis because the negative imperatives or prohibitives occurred infrequently and the distinction between neutral and positive imperatives was too subtle to determine. Reliability for imperatives was .80 (kappa).

Exclamations

An exclamation was defined as a sharp sudden outcry, which was usually punctuated with an exclamation point, such as "Wow!" or "That's great!". Reliability was .50 (kappa).

Distancing Strategies

All parental interrogatives from the typed transcripts were coded for low, medium, and high distancing strategies by the researcher. (See Appendix F for a copy of scoring sheet.) In order to assess scoring reliability, a trained female assistant coded 14 randomly chosen transcripts (about 22% of the sample) and scores were compared. The reliability statistic for each distancing strategy is presented below.

Parental distancing strategies were demands for a child to engage in a particular mental operation. Three levels of distancing strategies and their corresponding mental operational demands have been identified and defined in Flaugher and Sigel's Parent-Child Interaction Observation Schedule (PCI) (1982). These levels include:

1. Level 1-- low distancing strategies focus upon

immediate events. Typical strategies include the mental operational demands for a child to attend, label, and confirm or reject information. Questions that demonstrate low distancing strategies include: "Lookit, see the pretty picture in the book?" (observe); "What color is that egg?" (label); "Are those green apples?" (produce information); "What did the turtle look like?" (describe); and "Show me how to make a roly oval?" (demonstrate). Reliability for low distancing strategies was .90 (kappa).

2. Level 2-- medium distancing strategies emphasize psychological separation (distance) from the immediate, ongoing present that encourages children to mentally project themselves into the past. It is thought that these strategies activate the child's reconstructive schemas. Common mental operational demands found in this level include the use of sequence, reproduction, comparison, and classification. Typical questions that demonstrate medium distancing strategies were: "What happened to the bunny after the little girl fell asleep?" (sequencing); "What did you do when you found the worms?" (reproduction); "Does Uncle Bill's rabbit look like this one?" (comparison); "What do you call green beans, lima beans, and corn?" (symmetricalclassification);"Are there more applesin the basket or on the steps?" (asymmetrical classification); and "How many lambs are in the field?" (enumeration) Reliability for medium distancing strategies was .77 (kappa).

3. Level 3-- high distancing strategies encourage the child to mentally project into the future, as well as to activate anticipatory schemas. Mental operational demands at this level include evaluation of consequences, evaluation of one's own competence, evaluation of what is necessary and sufficient for something to happen, evaluation of affect, inference of affect/feelings, inference of cause/effect, inference of or prediction of effects, generalization, transformation, and plan determination. Typical distancing strategy questions to elicit high mental operational demands include: "Why was the sheep naughty?" (evaluate consequences); "Can you make a tiger from play-doh?" (evaluate own competence); "How would you feel if someone didn't share the play-doh with you?" (evaluate affect); "Did the lamb feel sorry for pulling down the table?" (infer affect/feelings); "Will the play-doh ball bounce when you drop it?" (infer cause/effect); "Did the rabbit find his friend?" (infer effects); "What other animals wear leashes?" (generalize); "What happens to a caterpillar when it grows up?" (transform); "What do you want to do?" (plan); and "What do baby bunnies need to grow big and strong?" (necessary and sufficient evaluation). Reliability for high distancing strategies was .66 (kappa).

Parental Warmth and Sensitivity

All of the videotapes were divided between two trained female assistants who independently assessed parental

warmth and parental sensitivity using the Rating of Parental Warmth form and Rating of Parental Sensitivity form from Flaugher and Sigel's Parent-Child Interaction Observation Schedule (PCI) (Sigel, et al, 1982). (See Appendix G for a copy of the scoring sheet). Fourteen videotapes were randomly selected and coded by each assistant, and then compared to establish reliability.

Parental warmth was assessed on a 3- point Likert scale (low-- some warmth exhibited but not a lot of the time; medium-- warmth exhibited more often and more intensely; and high-- much warmth exhibited often.) The warmth rating was an evaluation of parental actions (such as tone of voice, facial expressions, head and body movements) that expressed enthusiasm, playfulness, enjoyment of the child, enjoyment of doing something with the child, compassion, or understanding. Reliability for parental warmth was .79 (kappa).

Parent sensitivity was assessed on a 3- point Likert scale (low-- sensitivity exhibited but not often or not over all areas; medium-- sensitivity exhibited more often and over more areas; and high-- much sensitivity exhibited most of the time and over most areas.) The sensitivity measure was a global rating of the parents' sensitivity to their childs' cognitive level, emotional state, and physical state. The rating was essentially a measure of how well the parent was "tuned in" to the child. Attention

was paid to the construction and complexity of parental utterances, as well as to their manner of delivery. The measure also included an evaluation of parent's awareness of child's attention span, ability, and comfort. Reliability for parental sensitivity was .88 (kappa).

Child Engagement

A trained female assistant assessed and scored child engagement responses from the videotapes. Fourteen videotapes were randomly chosen and scored by the researcher; comparison of these scores was then made with the assistant's scores to establish reliability.

An adaptation of Rating of Child's Engagement in Activity from Flaugher and Sigel's PCI (1982) was used in the assessment. (See Appendix H for a copy of the score sheet.) Each child's response to a parental utterance was coded as one of four engagement responses: actively engaged, passively engaged, nonengaged, or no-time-to-respond. The definition of each engagement response and its reliability statistic follows:

1. An actively engaged child was defined as one who gave an active and relevant motoric or verbal response to a parental utterance. Reliability was .97 (kappa).

2. A passively engaged child was defined as one who was attending or listening but exhibited no visible physical or verbal response other than eye fixation and orientation of the task. Reliability was .92 (kappa).

3. A nonengaged child was defined as one who was either involved in another activity, gave an irrelevant response, or was not attentive or responsive to questions and statements. Reliability for nonengagement was .78 (kappa).

4. No-time-to-respond was defined as a situation in which the parent denied a child an opportunity to respond because of the parent's successive statements or questions or both. Reliability was .61 (kappa).

CHAPTER 2

RESULTS

Tables of the statistical results of the task (2) x parent (2) x sex of child (2) x age of child (2) analysis of variance with repeated-measures are presented in Appendix I. The presentation of these results is organized by specific hypotheses, and the results are reported in the following order: (1) discussion of those findings related to the hypotheses that pertained to father-child interactions, (2) discussion of the findings related to the hypotheses that dealt with mother-child interactions, (3) discussion of the findings of those hypotheses that focused on child age and sex, and (3) discussion of additional measures of parent-child interactions that were not specified in the hypotheses.

Father-child interactions

The hypotheses pertaining to father-child interactions posed the issues of whether or not (1) fathers would ask more questions of their children than mothers, (2) fathers would ask more questions of their sons than daughters, (3) fathers would use a greater number of distancing strategies with their children than mothers, and (4) fathers would use higher level distancing strategies when interacting with their sons than daughters.

Interrogatives.

There were no significant main effects in the use of questions. Fathers did not ask significantly more questions of their children than did mothers (F (1,12) = .30, ns, Table I-1). The percent of sentence types used by parents is shown in Table 1. Table 1 shows that the percent of questions used by parents was approximately the same. Not only is the frequency of interrogative use comparable for fathers and mothers, but parental use of other sentence types (declaratives and imperatives) is also similar. Only the frequency of exclamatory statements is statistically significant; mothers uttered more exclamations than fathers (F (1,12) = 5.82, $p < .03$, Table I-1).

Table 1

Percent of Sentence Types Used by Fathers and Mothers During Both Tasks Combined

	Interrogatives	Declaratives	Imperatives	Exclamations
Fathers	48.40	42.29	8.06	1.25
Mothers	49.50	41.02	7.31	2.17*

*$p < .03$.

Table 2 shows that fathers did not ask more questions than mothers during either the play-doh task or the picture book task. Again, parents used approximately the same percent of interrogatives, as well as declaratives, during both tasks. A main effect for task was found in the use of exclamations: more exclamations were uttered during the play-doh activity than during the picture book task ($F(1,12) = 6.96$, $p < .02$, Table I-1).

Table 2

Percent of Sentence Types Used by Fathers and Mothers During the Play-doh and Picture Book Activities

	Interrogatives		Declaratives		Imperatives		Exclamations	
	P-Doh	Book	P-doh	Book	P-doh	Book	P-doh	Book
Fathers								
	47.52	48.28	39.61	44.97	11.33	4.79	1.54*	.96
Mothers								
	48.49	50.52	41.24	40.89	7.20	7.42	3.17*	1.96

*$p < .02$.

The hypothesis that fathers would ask more questions of their sons than of their daughters received support. The parent x sex of child interaction was significant ($F(1,12) = 11.77$, $p < .005$, Table I-1). However, as shown in Figure 1, there was a same-sex interaction; that is,

fathers asked more questions of their sons while mothers asked more questions of their daughters.

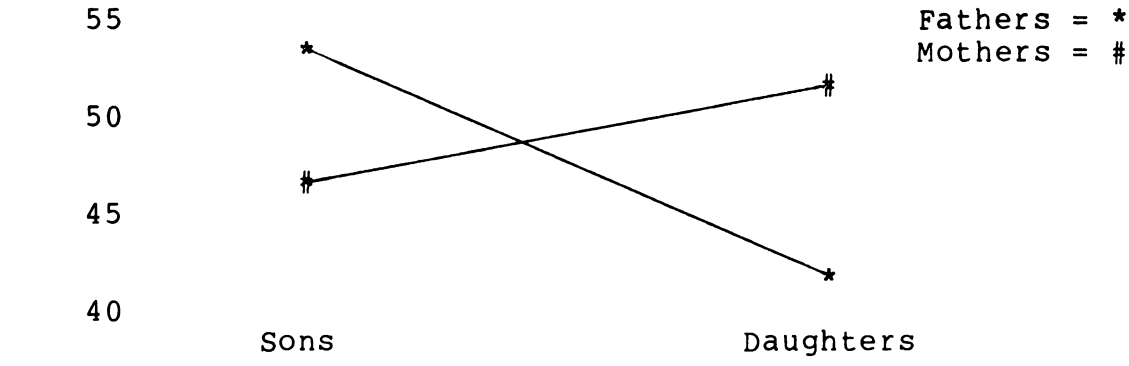

Figure 1. Percent of questions asked by fathers and mothers of their sons and daughters.

The analysis also yielded a significant task x age of child x sex of child interaction. As shown in Figure 2 mothers and fathers asked more questions of younger girls and older boys while looking at the picture book, but asked more questions of younger boys during the play-doh task, $F(1,12) = 11.51$, $p < .005$, Table I-1.

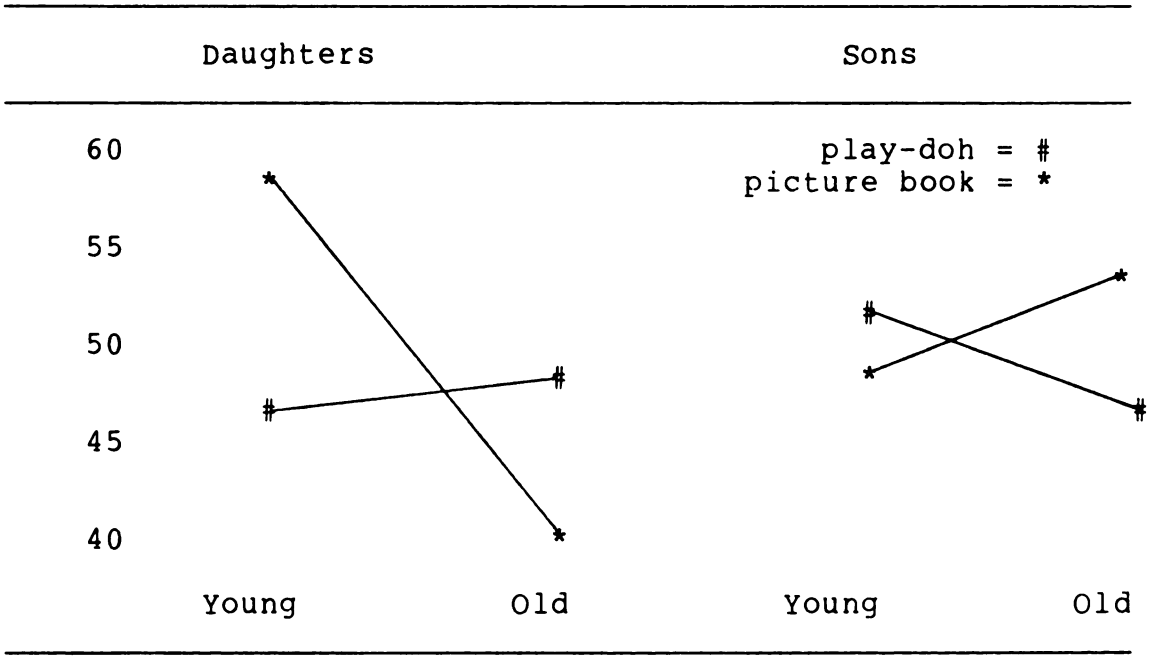

Figure 2. Percent of questions asked of younger and older daughters and younger and older sons during the play-doh and picture book tasks.

Declaratives, imperatives and exclamations. An analysis of the declarative, imperative and exclamatory statements was made to find out if differences in frequency of use occurred between mothers' and fathers'. Main effects for parent (mother) and task (play-doh) were found for the use of exclamations, while significant interaction effects were found in use of declarative and imperative sentences. The main effects for exclamation use should be viewed with caution because of the low reliability in the scoring of exclamations. Significant interaction effects were found for the percent of declarative statements uttered: parent x sex of child

(fathers and daughters), F (1,12) = 8.79, $p < .01$, Table I-1; and task x age of child x sex of child (picture book and older daughters), F (1,12) = 18.93, $p < .001$, Table I-1.

A task x parent x age of child x sex of child interaction in the use of imperative statements was found, also. Fathers of older boys used more imperatives during the play-doh activity, whereas fathers of younger boys used more imperatives during the picture book task. Mothers also used more imperatives during the picture book task but with older boys (F (1,12) = 6.53, $p < .03$, Table I-1).

Interrogative sub-types

Interrogative sub-types were identified and analyzed in order to determine whether or not there were differences in the kind of questions parents asked. Sub-types of interrogatives were: (1) yes/no questions, (2) wh/questions, (3) repetition of child's utterances as questions, (4) tag questions, (5) indirect questions, (6) occasional questions, and (7) test questions.

All of the interrogative sub-types, with the exception of occasional questions, yielded significant main and/or interaction effects.

Yes/no questions. Significant main effects were found for task and child age: mothers and fathers asked more yes/no questions of younger children (F (1,12) = 10.12, $p < .008$, Table I-2), and more yes/no questions were asked during the play-doh activity (F (1,12) = 10.91, $p < .006$,

Table I-2).

Wh/questions. A main effect for child age was found: parents asked more wh/questions of older children than younger ones (F (1,12) = 9.14, $p < .01$, Table I-2).

Repetitions. Parental repetitions of children's questions and statements as questions yielded a task (play-doh) main effect (F (1,12) = 5.22, $p < .04$, Table I-2).

Tag questions. A main effect for sex of child was significant: parents asked girls almost twice as many tag questions than boys (F (1,12) = 9.12, $p < .01$, Table I-2). A task x parent x child age interaction was significant, F (1,12) = 7.75, $p < .02$, Table I-2. During the picture book task mothers asked older children more tag questions, whereas fathers asked younger children more tag questions. During the play-doh task mothers asked both younger and older children more tag questions than did fathers.

Indirect questions. A task x parent x sex of child interaction was significant: mothers asked boys more indirect questions than girls during the picture book activity, F (1,12) = 4.97, $p < .05$, Table I-2.

Test questions. Task x child age (book and young), task x sex of child (book and boys), and task x parent (book and mothers) interactions were found. During the picture book task more test questions were asked of younger children (F (1,12) = 5.11, $p < .04$), and of boys (F (1,12) = 8.30, $p < .01$), and by mothers (F (1,12) = 4.77, $p < .05$), Table I-2. These results must be viewed with caution

because of the low reliability in the scoring of test questions.

Declarative sub-types

An analysis of declarative sentence subtypes, which included (1) direct statements, (2) repetitions, and (3) yes/no statements, revealed no significant main effects. Interaction effects were found in one sub-type only.

Yes/no statements. A task x parent interaction was found: fathers uttered more yes/no statements during the picture book task, whereas, mothers uttered them during the play-doh activity, F (1,12) = 5.44, $p < .04$, Table I-3. Also of statistical significance was a parent x age of child x sex of child interaction: more yes/no statements were uttered by fathers to younger boys and by mothers to older girls, F (1.12) = 6.53, $p < .04$, Table I-3.

Distancing strategies.

It was hypothesized that fathers would use more distancing strategies than mothers during both activities, and, also, that these distancing behaviors would be of a higher level when fathers interacted with their sons. Support for these hypotheses was not found.

As shown in Table 3 fathers did not use more distancing behaviors than mothers (low distancing level, F (1,12) = .00, ns; medium distancing level, F (1,12) = 1.64, ns; and high distancing level, F, (1,14) =1.41, ns, Table I-4).

The percent of distancing strategies used by parents, as well as the kind of distancing strategy used, was comparable.

Table 3

Percent of Low, Medium, and High Level Distancing Strategies Used by Fathers and Mothers

	Low	Medium	High
Fathers	80.81	6.74	12.45
Mothers	79.52	8.61	11.87
Both parents	80.16	7.68	12.16

As shown in Table 4 fathers did not use higher level distancing behaviors when interacting with their sons than with their daughters (F (1,12) = .00, ns, Table I-4). Paternal and maternal use of distancing strategies while interacting with sons and daughters was approximately equal.

Table 4

Percent of Levels of Distancing Strategies Used by Fathers and Mothers with their Daughters and Sons

	Low	Medium	High
Fathers			
Daughters	80.81	7.30	11.89
Sons	80.81	6.19	13.00
Mothers			
Daughters	81.16	7.46	11.38
Sons	77.86	9.78	12.36

Table 5 shows the percent of low, medium, and high level distancing behaviors used during each task. A main effect for task was significant: more medium distancing strategies were used during the picture book task than during the play-doh task, $F(1,12) = 11.30$, $p < .006$, Table I-4.

Table 5

Percent of Low, Medium and High Level Distancing Strategies Used by Fathers and Mothers During Each Activity

	Low	Medium	High
Play-doh			
Fathers	81.84	5.72	12.44
Mothers	80.63	5.61	13.76
Both parents	81.24	5.66	13.10
Picture book			
Fathers	79.78	7.77	12.45
Mothers	78.40	11.60	10.00
Both parents	79.09	9.68*	11.23

*$p < .006$.

Mother-child Interactions

The hypotheses posed the issues of whether or not (1) mothers would exhibit more warmth toward their children than fathers, (2) mothers would exhibit greater sensitivity to their children than fathers, and (3) mothers would be more likely to actively engage their children in both the play-doh and picture book tasks more frequently than fathers.

Warmth and Sensitivity. No support was found for the first and second hypotheses. Parent sex was nonsignificant

as a main effect for the warmth measure ($F(1,12) = .00$, ns, Table I-5) or for the sensitivity measure ($F(1,12) = .08$, ns, Table I-5). However, a significant main effect for sex of child was found for the warmth measure ($F(1,12) = 9.69$, $p < .01$, Table I-5), and for the sensitivity measure ($F(1,12) = 4.82$, $p < .05$, Table I-5). As shown in Figure 3 more warmth and greater sensitivity was exhibited toward girls than toward boys by both mothers and fathers.

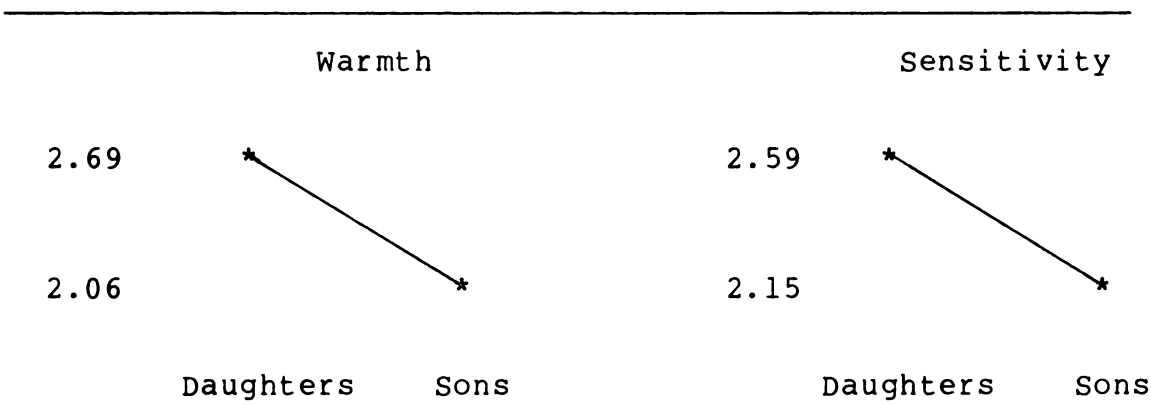

Figure 3. Mean ratings of parental warmth and parental sensitivity toward daughters and sons.

Child engagement. There was no evidence to support the third hypothesis that mothers, more so than fathers, would actively engage their children in both activities ($F(1,12) = .81$, ns, Table I-6). Four child engagement responses were possible: actively engaged, passively engaged, nonengaged, and no-time-to-respond.

Sex of parent was not significant as a main effect for any of the engagement responses. Main effects, however,

were found for task, and for sex of child. The task main effect, as shown in Table 6, indicates that the children were actively engaged more frequently during the play-doh task compared to the book task (F (1, 12) = 63.10, p < .001), Table I-6), and were more passively engaged during the book task than during the play-doh task (F (1,12) = 84.87, p < .001, Table I-6). Allowing children insufficient time to respond was rare, but when it occurred it was most likely to be during the picture book task (F (1,12) = 4.57, p < .05, Table I-6).

Table 6

Percent of Child Engagement Responses During Play-doh and Picture Book Tasks

	Percent of Child Engagement Responses			
	Active	Passive	Nonengaged	No Time
Play-doh	88.8*	5.8	4.3	1.1
Book	63.7	29.6*	4.8	1.9+

*p < .001
+p < .05

A main effect for sex of child, as shown in Table 7, suggests that the boys were nonengaged more frequently in both activities than were the girls (F (1,12) = 9.28, p < .01, Table I-6).

Table 7

Percent of Nonengagement Response by Sons and Daughters During Each Task

	Play-doh	Book	Tasks combined
Sons	6.87	9.23	8.05*
Daughters	1.74	.42	1.08

*$p < .01$

A parent x age of child interaction is shown in Figure 4. Not allowing children sufficient time to respond was rare inasmuch as this category accounted for less that 2% of the responses, but when it happened it was most likely to be when fathers were interacting with the younger children (F (1,12) = 7.71, $p < .02$, Table I-6).

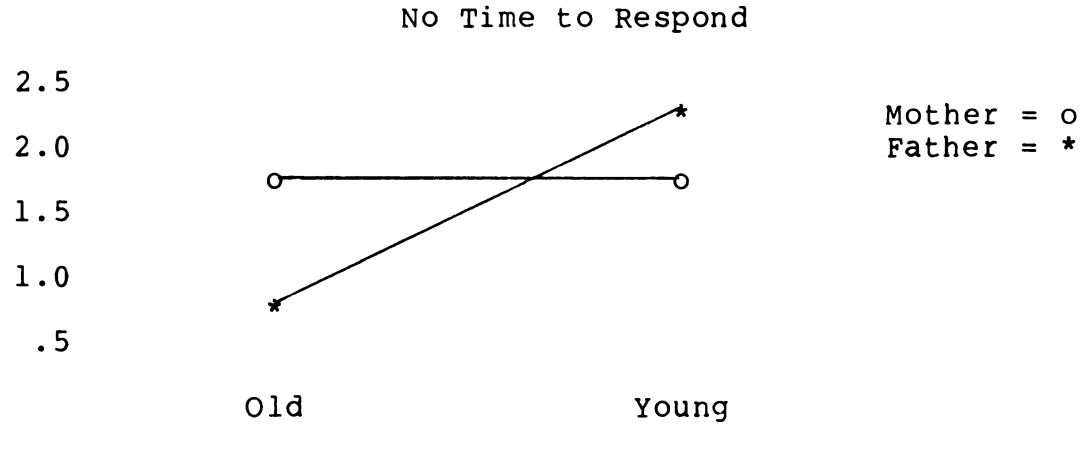

Figure 4. Percent of no-time-to-respond to fathers and mothers by young and old children

Also, a task x parent x sex of child interaction effect was found. Figure 5 shows that during the play-doh task daughters were passively engaged more frequently with their mothers than with their fathers ($F(1,12) = 9.28$, $p < .01$, Table I-6).

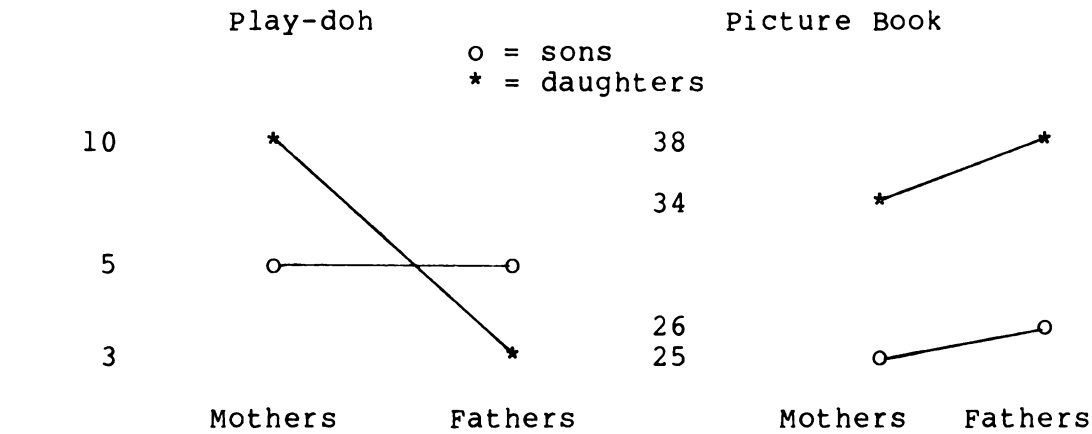

Figure 5. Percent of passive engagement responses by sons and daughters to their mothers and fathers during each task.

Children: Age and Sex Variables

The hypotheses pertaining to children posed the issues of whether (1) children would produce longer MLUs when interacting with their fathers than mothers, (2) older children would receive more distancing strategies than younger ones, (3) children who produced longer MLUs would receive more distancing strategies than those who produced shorter MLUs, and (4) children who produced longer MLUs

would be more actively engaged in the task than those children who produced shorter MLUs.

Children did not produce longer MLUs when interacting with their fathers (F (1,12) = 1.61, ns, Table I-7). However, main effects for child age and for task were found. Older children produced longer MLUs (F(1,12) = 5.66, $p < .04$, Table I-7), and longer MLUs were produced during the play-doh activity (F (1,12) = 18.27, $p < .001$, Table I-7).

Older children received neither more medium (F(1,12) = .42, ns, Table I-4) nor high (F (1,12) = .67, ns, Table I-4) levels of distancing strategies than did younger children. As shown in Table 8 the percent of levels (low, medium and high) of distancing strategies received by younger and older children are comparable.

Table 8

Percent of Levels of Distancing Strategies Received By Older and Younger Children

	Low	Medium	High
Old	79.43	8.15	12.42
Young	80.89	7.20	11.91

No support was found for the hypothesis that older

children, more so than younger ones, would be actively engaged in both tasks (F (1,12) = .76, ns, Table I-6). As noted in Table 9 child age was not a significant factor for an active engagement response.

Table 9

Percent of Child Engagement Responses by Old and Young Children During Both Tasks

	Active	Passive	Nonengaged	No Time
Play-doh				
Old	89.6	4.0	5.6	.8
Young	88.2	7.4	3.0	1.4
Book				
Old	67.1	24.8	6.6	1.5
Young	60.6	34.0	3.0	2.4

As was previously mentioned and shown in Figure 4 a parent x age of child interaction was significant in the no-time-to-respond category: fathers allowed less time for younger children to respond (F (1,12) = 7.71, $p < .02$, Table I-6).

Additional Measures of Parent-child Interaction

Other analyzed measures that have not been discussed are: length of interaction time during each activity,

parent MLUs, number of child utterances per minute, number of parent utterances per minute, number of parent conversational turns per minute, number of child conversational turns per minute, child MLTs, and parent MLTs.

Length of interaction time. A main effect of task resulted: more time was spent in the play-doh activity than in the picture book task (F (1,12) = 84.89, $p < .001$, Table I-8). An interaction of task x sex of child was also found: girls spent more time in both activities than did the boys but only the book activity difference was significant (F (1,12) = 7.57, $p < .02$, Table I-8).

Parent MLU. This measure produced a significant interaction of task x age of child x sex of child. Parent MLUs were longer when interacting with older boys during the play-doh task, and when interacting with older girls during the picture book task (F (1,12) = 6.08, $p < .03$, Table I-7).

Child utterances per minute. No effects were found for this measure. (See Appendix I, Table 9.)

Parent utterances per minute. Main effects for task and sex of child were found. More utterances per minute were directed to boys (F (1,12) = 5.92, $p < .03$, Table I-9) and were made during the book task (F (1,12) = 23.78, $p < .001$, Table I-9).

Parent conversational turns per minute. Two main effects for task and sex of child were found: parents took

more turns when interacting with the boys (F (1,12) = 4.71, $p < .05$, Table I-10) and when looking at the picture book (F (1,12) = 6.25, $p < .03$, Table I-10).

Child conversational turns per minute. Two main effects, task and sex of child, were found: boys took more conversational turns than girls (F (1,12) = 4.67, $p < .05$, Table I-10) and more conversational turns were taken during the picture book task than during the play-doh task (F (1,12) = 5.85, $p < .03$, Table I-10).

Parent and Child MLTs. No effects were found for either measure. (See Appendix I, Table 11.)

Descriptive Analysis

After the data were analyzed it became apparent that answers to three additional questions regarding the dyad interaction would be of interest. These questions were: (1) which member of the dyad began the verbal interaction, (2) what was the content of the parent's first utterance, and (3) who terminated the activity. No statistical analyses were performed but the descriptive data are presented.

First Utterance. Parents initiated verbal interaction 86% of the time compared to 14% for the children. Fathers made the first utterance 87% of the time and mothers 84% of the time. Parents initiated verbal interaction 84% of the time during the play-doh task and 87% of the time during the picture book task. Of the 14% of the children who began

the verbal interaction, 66% were older children, and 55% were girls.

Content of parental first utterance. As shown in Table 10 almost half of the parent's first utterances were either a statement or a question directing the child's actions, for example, "Here's a piece of play-doh for you to play with and one for me." or "What is that?", when referring to an object in the picture book. Parental utterances directing the children's actions or responses occurred 78% of the time at the beginning of the picture book task, compared to about 16% at the beginning of the play-doh task.

Parents requested their child's input or opinion 32% of the time. Examples of parental request statements include: "Do you want me to tell you a story?" or "What would you like to make with the play-doh?". Parents asked for their child's opinion 59% of the time when using play-doh but only 3% of the time when looking at the book.

Twelve percent of the parents made explanatory statements to their children. Examples are "That's called play-doh." and "The book has a bunny picture on the cover."

Statements in the category of other, which accounted for 9% of first utterances, were mainly repetitions of the children's utterances.

Table 10

Percent of Type of Parental First Utterance at Each Task

	Content of Parent First Utterance			
	Directing	Requesting	Explaining	Other
P-doh	15.62	59.38	12.50	12.50
Book	78.13	3.12	12.50	6.25
Combined	46.88	31.25	12.50	9.37

Termination of activity. As shown in Table 11, 81% of the dyads continued with the play-doh task for 15 minutes or longer while less than 13% of the dyads used the allotted time for the picture book activity. The picture book task was terminated by the children 53% of the time, and of the children who terminated the book task 71% were boys.

Table 11

Percent of Termination of Play-doh and Picture Book Tasks

	Termination of Activity			
	Child	Parent	Mutual Consent	Time Limit
Play-doh	9.37	3.13	6.25	81.25
Book	53.12	12.50	21.88	12.50

Summary:

The hypotheses that posed issues of differences between fathers' and mothers' speech to their preschoolers were not supported. Parent differences, as significant main effects, were found only in one speech measure--mothers used more exclamations than fathers. This finding, however, should be viewed with caution because of the low reliability in the scoring of exclamations. A combination of interacting variables--type of task, sex of child, and age of child--however, contributed to the differences as well as to the similarities found in fathers' and mothers' speech.

The major differences found between parents are that fathers directed more declaratives to girls, more interrogatives to boys, and more yes/no statements to younger boys, whereas mothers directed more interrogatives to girls, more yes/no declaratives to older girls, and more indirect questions to boys when looking at the picture book. Also, the girls were passively engaged with their mothers during the play-doh task.

The major similarities are that both fathers and mothers directed more imperatives to boys (fathers to older boys when using play-doh and to younger boys when looking at the book, and mothers to older boys when looking at the book) and made more utterances per minute to the boys as well as taking more conversational turns with them. Tag

questions were asked more frequently of the girls than of the boys. Both fathers and mothers exhibited greater warmth and greater sensitivity toward girls than toward boys.

CHAPTER 4

DISCUSSION

The current study found no evidence to support the suggestion that fathers' and mothers' verbal interactions with their preschool children provide differential experiences for children (Gleason 1975, 1979, and 1983; McLaughlin, White, McDevitt & Raskin, 1983; and Rondal, 1980). That is, there was no evidence that mothers were warmer and more sensitive to their children than were fathers. Nor was there any evidence that mothers asked questions that the children could readily answer or could answer with minimal effort while fathers asked questions that placed higher cognitive demands upon the children. The data, however, did indicate that parent-child verbal interaction was influenced by the kind of task in which the dyad was involved. Finally, the data did support the idea that parents' interactions are influenced by the sex and the age of their child, and as a result, they engage in differential treatment.

Contribution of task

The parent-child dyads interacted for a longer time during the play-doh task than during the picture book task (an average of 14 minutes compared to an average of 10 minutes, respectively). No less than 15 minutes were spent with the play-doh task by 81% of the dyads, whereas only 13% spent the allotted time looking at the picture book. Both tasks were enjoyed by the dyads, but the play-doh task

encouraged longer participation. For some dyads manipulation of play-doh was a novel experience as well as an opportunity for greater active involvement. In contrast, the shorter average interaction time in the picture book task was the result of the finite quality inherent in the task. Most dyads terminated active involvement on the last page of the book.

Children had longer MLUs when playing with the play-doh than when looking at the book. During the play-doh activity, 59% of parental first utterances were inquiries about what the child wished to make or what the child wanted the parent to do. Children were active controllers of this task, and many parents allowed and encouraged their children to guide the interaction--verbally and physically. By way of contrast, parents controlled the picture book task inasmuch as few parents asked for their child's input or suggested that their child "read" to them, or tell them about the book. It appeared that the task influenced the child's MLUs.

During the book task, 78% of parents' first utterances were statements or questions directing the child's involvement. Parents made more utterances per minute during this task and gave the children less time to respond to their utterances. Parents and children also took more conversational turns per minute during the book task indicating shorter verbalizations. Children terminated the

task where they terminated 9% of the time. Boys terminated the book task more quickly than girls. In addition, parents' MLUs were longer when looking at the picture book with older girls. It may be that girls have a longer attention span for quiet activities than boys, whereas boys may prefer activities that are less quiet and passive. The longer parental MLUs, which were found when parents interacted with older boys during the play-doh task, may be indicative of the dyad's greater interaction. These findings differ from Malone and Guy (1982), McLaughlin, White, McDevitt & Raskin (1983) and Rondal (1980) who reported that mothers' MLUs were greater than fathers' MLUs. The data, however, support Golinkoff and Ames (1979) and Wilkinson, Hiebert & Rembold (1981) who reported no differences between parental MLUs.

During the play-doh activity, the most frequently asked questions were repetitions of children's utterances and yes/no questions. Yes/no and repetition questions appear to serve a two-fold purpose: On the one hand, they convey parental understanding of the children's statement or action while, on the other hand, they are requests for the children to verify their verbalizations or actions. All of the dyads developed themes during their play-doh interactions and parents' use of questions assisted in maintenance of the themes. Some of the themes were planning a birthday party, planting a garden, going

fishing, having an animal fight, preparing a meal, meeting grandfather at the airport, and re-enacting a recently seen movie. Children and parents alike engaged in rather creative play.

Exclamations were used more frequently during the play-doh task. Exclamatory statements were generated by the parents out of enthusiasm for the children's creative efforts. Typical comments were "Oh, how nice!", "Great!", and "Wow!".

All of the children were more actively engaged in the play-doh task, and more passively engaged in the book task. Play-doh is a medium which lends itself to active engagement; however, for a child to be involved in the book task one would expect a more frequent passive engagement because children are attending to and quietly listening to their parents. When looking at the picture book, parents made more utterances per minute and also gave the children less time to respond to their utterances. (This was particularly true of fathers of young sons.) It seems reasonable for parents to make several remarks about pictures in the book without either encouraging or expecting the child to make a response after each utterance. And it may well be that parents, particularly fathers, give younger children less time to respond because they are attempting to hold the child's attention. Gleason (1975 and 1978) reported that fathers in her studies concentrated on telling interesting stories. Fathers in the

current study did not appear compelled to tell more interesting stories than mothers. There were stylistic differences between dyads; some fathers and mothers made up interesting stories about the pictures, while other fathers' and mothers' verbalizations focused strictly on the content of each individual picture.

The picture book task elicited the greatest number of medium distancing strategies. Every parent used medium distancing strategies during this task. Even though all of the defined mental operational demands were made, the most common were reproduction, enumeration, and sequencing. Parents particularly encouraged their children to recall past events (reproduction) and to discuss them. This distancing strategy was either elicited by a specific picture or by comments the child made about a picture. Examples of reproduction are:

P: That looks like James' rabbits, doesn't it?
James have some rabbits?
C: Annie (referring to self) have some rabbit?
P: Annie doesn't have rabbits.
James has rabbits.
Do you remember, did you feed the rabbits?
With Daddy?
C: I hold on Daddy's hand.

and

C: She's putting cream on her.
P: Well, she's not putting cream on her head.
What happens when the lamb is taking a bath.
What do we do to your hair when we take a bath?
C: Pour water on me.
P: Pour water on you and what do we do to your hair?
What do we do?
C: Wash my hair.
P: Wash your hair!

Is that what's happening here?
C: Yea.
P: Is the sheep getting his shampoo?
C: Yea.
If they don't cooberate (sic) they have water in the eyes.
P: That's right, won't get water in the eyes if they cooperate.

Medium distancing strategies were also used during the play-doh task but the picture book task elicited more medium distancing strategies, especially strategies involving the reproduction of past events.

Parental references to past events as discussed by Fash and Madison (1981) resemble medium distancing strategies inasmuch as previous experiences are emphasized. They reported that fathers in their sample referred to past events more frequently than mothers. This difference between parents was interpreted to mean that fathers' demand a higher level of cognitive processing from their children. The current study provides no support for their interpretation; mothers and fathers were equally challenging of their children. The task, rather than specific parent, was the important factor in the reproduction of past events.

Sex of child

Warmth and sensitivity. On both the warmth and sensitivity scales mothers and fathers of daughters were rated higher than were mothers and fathers of sons. All parents exhibited warmth and sensitivity toward their

children, but more so toward their daughters. This finding is contrary to Gleason (1978) and Gleason and Grief (1983) who suggested that mothers are warmer, more tuned in and sensitive toward their children than fathers. It also runs counter to Maccoby and Jacklin (1974) who suggested that fathers are more sex-differentiating in their interpersonal and socialization behaviors toward their children than are mothers. The data do support Block's (1978) report that parents engage in differential socialization of sons and daughters, and particularly that greater warmth is shown toward daughters.

Tag questions. Parents of daughters used more tag questions than did parents of sons. Grammatically, the function of a tag question is to request confirmation of the speaker's statement (de Villiers and de Villiers, 1980). On the other hand, Lakoff (1973) believes that tag questions typify the kind of immature, overpolite, and nonassertive language that is commonly used by women. If Lakoff's assertion about tag questions is correct, parents may be teaching their daughters to be polite and nonassertive in their verbalizations. The current study also found that parents of sons used more imperatives than did the parents of daughters. Gleason (1975) suggests that imperatives directed to sons gives the impression that boys are to become accustomed to taking orders early in life thereby learning to give them later in life. Consequently, these particular forms of parental verbal interaction may be

indicative of a subtle differentiation in socialization: Daughters are being taught an indirect form of communication through the use of tag questions, whereas sons are being taught a direct form of communication through the use of imperatives.

MLTs and utterances per minute. Mothers and fathers of sons made more utterances per minute and had more conversational turns per minute than did parents of daughters. This latter finding supports Golinkoff and Ames' (1979) and partially supports Stoneman and Brody's (1981) report that fathers took more conversational turns with their sons. Parents may have been reacting to sons who were not particularly loquacious. Boys took more conversational turns per minute which also indicates that their utterances were shorter than girl's utterances. It may also be that because sons were frequently nonengaged in activities, more parental utterances as well as greater conversational turn taking were techniques used by parents to help keep their sons involved in the tasks.

Age of child

MLUs and questions. Older children used longer MLUs than did younger children suggesting more linguistic maturity. This may be one reason why more yes/no questions were asked of younger children while more wh/questions were directed to older children. If wh/questions are cognitively more demanding, it is reasonable to expect that

a greater number of these questions would be asked of older children or of those children who are linguistically more mature. Older children are learning to refine their discourse skills and wh/questions assist in this refinement. Conversely, it is also reasonable to expect that a greater number of yes/no questions would be directed to younger children because they are linguistically less mature. The following dialogue between a parent and young child is an example of a yes/no question used to verify the child's request:

C: I got a big leg.
I got a really big leg.
Put a stick on it here.
P: Stick it on here?
C: Yes.

The following dialogue between a parent and older child is an example of wh/questions:

P: Why do you think he might be in the box?
C: Maybe he might hurt.
That's why maybe he's ina box.
P: Could be.
Any other reasons you can think of why he might be in the box?
C: Don't know.
P: Well, if you had a bunny rabbit when would you put him in a box?
C: When I put him next to the car seat with me.

Distancing strategies. The data were examined to determine whether older children (3 1/2 years) received more distancing strategies than younger ones (2 1/2 years), and also whether those children who produced longer MLUs received more distancing strategies than those who produced

shorter MLUs. It was found that older children produced longer MLUs but parental distancing strategies were comparable for both age groups. Older children received less lower level distancing strategies and more medium and higher level distancing strategies than younger children. The difference between the two age groups was slight. It may be that many of the high level distancing strategies are inappropriate for children 3 1/2 years of age and younger. Even though each mental operational demand identified in the high level distancing strategy category was made by parents, some demands, such as transformation and generalization, were made infrequently. The most frequent mental operational demands were for planning (e.g., "What do you want me to make with the play-doh?", "How are you going to make a tiger?", "What should I do to make a snowman?") and for evaluating consequences (e.g., "What do you like best about the story?", "What was your favorite picture?", and "Why was that your favorite?"). These particular high level distancing strategies were asked mainly at the beginning of the task (i.e., questions about planning), and at the end of the task (i.e., evaluation questions). Unfortunately, the closing remarks of several dyads in the play-doh task are unknown because the audio equipment was shut off after 15 minutes. Whether this additional data would have produced other results is unknown.

Types of sentence

Declaratives. Fathers made more declarative statements to their daughters than mothers did. In addition, more declarative statements and longer MLUs were made to older daughters when looking at the picture book. Thus, parents, and particularly fathers, frequently told their daughters about the pictures rather than encouraging them to be actively involved with the book.

Fathers made more yes/no declarative statements during the picture book task, whereas mothers made more during the play-doh task. Mothers and fathers did not differ in the kind of utterance used but their utterances were influenced by the task. Child age and sex also produced interaction effects: fathers of younger sons and mothers of older daughters used the largest percentage of yes/no declaratives. Whether the parental utterance was one of affirmation or negation, it appeared that for some parents the yes/no declaratives served as a filler statement, whereas for other parents yes/no declaratives was a tactic used to encourage the child's interaction. An example of a yes/no declarative is:

C: That's a birdie.
P: No.
C: Yes, a birdie.
P: No.
C: Not a birdie?
P: No.

C: What is it?
P: You don't know?
(Child shakes head no.)
P: It's a bumblebee.
C: Oh, a bumblebee.
P: Yes.

Interrogatives. Fathers asked their sons more questions while mothers asked their daughters more questions. This partially supports Cherry and Lewis (1976) who found that mothers of daughters asked more questions than did mothers of sons; however, there were no fathers in their sample for comparison. More questions were asked of younger daughters and older sons during the picture book task, and more questions were asked of younger sons during the play-doh task. The specific kind of questions asked may offer some explanation about these interactions. During the picture book task more test questions were asked by mothers, more test questions were asked of young children, and more test questions were asked of boys. The purpose of a test question is to access a child's knowledge. Block (1978) found that mothers and fathers were concerned with achievement in the socialization of sons and that fathers, in particular, emphasized the cognitive aspects of teaching when interacting with their sons. This is one explanation for the book/son interaction. The picture book task is a perfect medium for testing a young child's knowledge about colors, numbers, and properties of various animals and objects. Questions typically asked by parents included "What does a lamb

say?", "What color is that rabbit?", and "How many apples are on the step?". Engle (1980), comments that mothers of young children take their teaching role seriously, and it may be that mothers greater use of test questions is indicative of both teaching and testing their child.

Mothers of sons asked more indirect questions while looking at the picture book. It may be that mothers want to be certain that their sons can demonstrate their cognitive abilities directly and indirectly. It seems more likely, however, that indirect questions were asked of the sons in an attempt to keep them involved in the picture book task.

Tag questions were asked most frequently of older children by parents during the book task, while mothers asked more tag questions of both younger and older children during the play-doh task. Tag questions served to keep the children involved in the discourse.

Imperatives. Fathers directed more imperatives to their older sons while engaged with play-doh. However, when engaged in the picture book task they directed more imperatives to their younger sons. Mothers directed more imperatives to their older sons during the book task. Several researchers who reported greater paternal use of imperatives toward sons speculated that the use of imperatives encourages sons to be direct and to give orders, behaviors considered appropriate for males. No

mention has been made in the literature of mothers directing imperatives to their sons with the exception of Cherry and Lewis (1976) who noted the nonsignificant finding that mothers of boys used more imperatives than mothers of girls. (No fathers were in their study.) The greater use of imperatives with boys in the current sample may be a pattern of speech used to gain and sustain an active child's attention. Many of the boys were indeed active; the boys, more so than the girls, were nonengaged more frequently because of their involvement in other activities, such as jumping on the furniture, playing with other toys, making loud noises, or leaving the room. Or the use of imperatives may be another example of parental differentiation in the socialization of young children: Parental verbalizations are more direct and directive to sons than are their verbalizations to daughters.

Child Engagement

Girls were more passively engaged when playing with mothers during the play-doh task. Although this particular task lent itself to active engagement the girls (but seldom the boys) frequently watched their mothers make various objects with the play-doh, and demonstrate various "how to do" techniques. This supports Block's (1978) report that mothers tend to supervise and restrict their daughters more so than their sons. This would certainly encourage passive and possibly dependent behavior from the girls. All in all

the boys were more active, preferring to manipulate the play-doh themselves rather than watch a demonstration by their mothers. In a few instances, boys were admonished for not sharing the play-doh with their parent. This rarely occurred with girls because they shared the play-doh.

Summary. The findings in the current study support reports of some researchers while challenging others. The idea that fathers are cognitively more demanding of their children than mothers was not supported. Mothers and fathers in this study were equally demanding of their children. None of the reviewed studies had a direct test to determine whether fathers were more demanding than mothers. Frequently, that idea was given as an explanation for specific findings (e.g., fathers ask more wh/questions than yes/no questions and wh/questions are more taxing). The current study is an attempt to quantify and measure the type of questions parents used by identifying and counting the levels of distancing strategies. Mothers' and fathers' use of all levels of distancing strategies was approximately the same. The task, not the sex of the parent, was the important variable. No analysis was made to assess the childrens' responses to the parents' questions. It would be interesting to know whether, and how often, parents' distancing strategies were successful in eliciting the intended mental operational demand. An investigation of childrens' responses to parental questions

would help clarify the issue of cognitive demands.

Several reviewed studies suggested that mothers and fathers prefer specific kinds of questions. This study found no evidence to support parental question preference. Parents asked yes/no questions of younger children and wh/questions of older children. This difference was not found in the reviewed studies because they generally had samples of children younger than age two.

The current study gives no support to the idea that mothers exhibit more warmth and greater sensitivity to their children than do fathers. This idea is a presumption supported mainly by anecdotal material. None of the reviewed studies included measures to compare mothers and fathers on warmth and sensitivity. Again, the sex of the parent was not a crucial variable, however, the sex of the child was. Both mothers and fathers of daughters exhibited greater warmth and sensitivity than did mothers and fathers of sons.

Investigators who reported no difference between parents in their use of imperatives had samples of children who were age 2 and under. The reviewed literature suggests that mothers' and fathers' imperative use is comparable when talking to young children, however, as the children become older mothers' imperative use decreases while fathers' use remains approximately the same. It may be, in the main, that fathers do use imperatives more frequently with older children than mothers. However,

occasions occur when mothers' imperative use is comparable. At least in this study mothers' imperative use increased when interacting with older sons during the book task. On the other hand, this finding may be spurious because of a 4-way interaction in a small sample. Partial support is given to reports where fathers direct more imperatives to their sons than to their daughters. In the current study fathers of sons used more imperatives than did fathers of daughters; however, mothers of older sons used more imperatives, also. This study strongly supports the finding that differential treatment occurs in parents' use of imperatives--imperatives are directed to boys.

The current study examined fathers' and mothers' speech to their preschool sons and daughters to find out whether their verbal interactions with their children were different or comparable. There is no compelling evidence to suggest that the sex of the parent influenced parental speech to their preschool children. Considerable evidence was found, however, to suggest that parental speech is influenced strongly by specific tasks as well as by their child's sex and age. Differential treatment of boys and girls was evident.

Appendices

Appendix A

Recruitment Letter

Dear Parents:

We are currently conducting a study on how young children interact with their mothers and fathers during play time. First born children between the ages of 2 and 4 years and their parents are invited to participate in the study.

Families who agree to participate in the study will be visited in their homes on two occasions. During one visit we will videotape your child while playing with the mother, and during the other visit your child will be videotaped while playing with the father. Each child and parent will look through a book and play with modeling clay. These toys will be provided by us. Each visit will take no longer than 30 minutes. Two visits, rather than one, are made to ensure that the visits do not tire your child.

Data collected on your child's interactions will be used only for scientific purposes. Anonymity of each child and family is assured. Code numbers will be assigned to all participants. No names will be attached to any information nor will names be used in any report of the results of the study. After completion of the project you will receive a summary of the overall results.

If you are interested in participating in the study or if you want more information, please call us at 353-3933 or fill out and return the attached self-addressed stamped postcard.

Sincerely,

Carla L. Barnes
Ph.D Candidate

Hiram E. Fitzgerald, Ph.D.
Professor

Appendix B

Consent Form

Code Number _____

Michigan State University

Department of Psychology

CONSENT FORM

1. I have freely consented to take part in a scientific study on young children's interactions with their parents that is being conducted by Carla L. Barnes, doctoral candidate, under the supervision of Hiram E. Fitzgerald, Professor of Psychology at Michigan State University.

2. The study has been explained to me and I understand the explanation that has been given and what my and my child's participation will involve.

3. I understand that I am free to discontinue our participation in this study at any time.

4. I understand that the anonymity of my child and family is assured and that the results of the study will be treated in strict confidence. Within these restrictions results of the study will be made available to me at my request.

5. I understand the videotaping is for the purpose of scoring. I also understand that no videotape demonstrations will be made without further written consent.

6. I understand that my participation in the study does not guarantee any beneficial results to me or to my child.

Signatures:

_____

Relationship to the child_____

Date_____

_____

Relationship to the child_____

Date_____

Appendix C

Transcription Guidelines and Editing Guidelines

TRANSCRIPTION GUIDELINES

Listen to the tape in its entirety before you begin to transcribe. This will help familiarize you with the content as well as the participants' voices. Determine the recording length in minutes and seconds. Begin timing the recording when the experimenter concludes the instructions to the dyad participants.

The transcription begins with a dyad member's first utterance after the experimenter gives the instructions.

TRANSCRIPTION FORMAT

1. Copy the subject number from the cassette (e.g., S1AC, S14BS, etc.) onto the top of the first transcript page.

2. Write the length of interaction time in minutes and seconds under the identification code.

3. Number each page in succession.

4. Leave a line between each speaker's utterance.

5. When the transcript is complete, write **"the end"** on the last page.

6. Sign your name and date the transcript.

7. Return the audio cassette and tape to me.

TRANSCRIPTION CONVENTIONS

C	child speaker
P	parent speaker
?	use at the end of an utterance where an interrogative meaning is considered to have been intended
!	use at the end of an utterance considered to have exclamatory intention
//	use to indicate an interruption
...	3 dots signify a lengthly pause, that is, 5 seconds
^ **v**	shift of pitch range relatively higher (^) or lower (**v**) than normal for the speaker
^^ **vv**	shift to extra high (^^) or extra low (**vv**) pitch
CAPS	represents heavier emphasis on a word, e.g., "That´s **MINE.**"
:::	3 colons indicate that the syllable before the colon is prolonged, e.g., "ba:::by" or "cu:::tie"
( )	indicates that an utterance or a portion of it is unintelligible

TRANSCRIPT EDITING INSTRUCTIONS

1. Listen to the tape while reading the transcript.

2. Make the written changes legibly in pencil on the transcript. If the changes are lengthy, attach a sheet of paper to the transcript. A few of the transcripts are single spaced, which makes it difficult to write the corrections on the copy--I apologize.

3. The open parenthesis **()** means that the transcriber could not understand the utterances. Fill in those blanks the **VERY BEST** that you can. If you are unable to understand the utterance leave the **()** blank.

4. The symbol **//** stands for interruption. Determine if a true interruption occurred or if one speaker paused and then the other speaker made an utterance.

5. The symbols **^** and **v** indicate that the speaker shifted the pitch range relatively higher (**^**) or lower (**v**) than normal.

6. Capitals represent a heavier emphasis on a word, such as, MINE.

7. The 3 dots ... indicate a pause of 5 seconds or longer.

Example: P: Look...
Do you see the cow? ...
That´s a cow.

C: Yeah.

Use the 3 dots if the pause was five seconds or longer. Since I need only a general idea, there is no need

to use a stopwatch.

8. Please pay special attention to the punctuation. A question mark (?) is used at the end of an utterance when an interrogative meaning is intended. An exclamation point (!) is used at the end of an utterance for an exclamatory intention.

Example- a typed transcript may read:

C: Ok.
P: Yeah, that's good.
C: Yeah.
Go to town.
P: Go to town.
C: Ok.

However, what you hear is:

C: Ok.
P: Yeah!
That's good.
C: Yeah, go to town.
P: Go to town?
C: Ok.

9. Sometimes a child speaker (C) mispronounced a word but the transcribers assumed the intended word and wrote what they thought the child intended to say, e.g., "C: There's a yellow ball." However, what the transcriber heard was "yelon". When you come upon those incidents place in parentheses the word C uttered.

Example: C: There's a yellow (yelon) ball.

or

C: Look, a little (yiddle) lamb.

10. When a speaker whispers write (WHISPER) at the

beginning of the utterance.

11. When C uses the words "mom" or "dad", or forms thereof, change those words to P (for parent).

12. When the parent calls the child by name, replace the given name with CN (for child's name)

13. If the proper names of people (other than the researcher) and names of pets have not been changed on the typed transcripts please rename the people and animals.

14. Some of the tapes may be longer than 15 minutes. Begin timing the tape after the researcher has given the instructions to the family dyad. Write **STOP-15 MINUTES** at the appropriate point in the transcript.

15. When you have completed editing the transcript sign your name and write the date on the top of the first page. Place the transcript in the folder that is labeled "completed transcript" located in the cabinet in 119 PRB.

16. If you have **ANY** question (s) please ask.

Appendix D

Scoring Instructions

and

Forms for Conversational Measures

MEAN LENGTH OF UTTERANCE (MLU) CODING INSTRUCTIONS

Purpose and definition:

The mean length of utterance (MLU) is a measure of a child's language maturity as well as a measure of an adult's speech complexity. MLUs are determined by counting the morphemes (a morpheme is the smallest unit of meaningful speech) in each utterance and dividing the total number of morphemes by the total number of utterances obtained during a speech sample. An example of one speaker's utterances during a verbal exchange is:

Hi!	1
How are you feeling this lovely day?	8
I feel great because of the weather.	7
Autumn is my favorite season.	5
	21

Total = 21 morphemes and 4 utterances

MLU = 21/4 = 5.25

Calculating MLUs:

1. Count all of the utterances in the transcript. (An utterance is defined as a word or string of words identified by a pause or by grammatical completeness.) Utterances were determined at the time of transcription. Generally, an utterance is on one line of a transcript, although some utterances may be two or three lines in length.

2. All inflections are counted as single morphemes. Inflections include the possessive -s, the plural -s, past tense -ed, and progressive -ing.

Example:

(1) (2) (3) (4)
Eating carrots. 4 morphemes

(1) (2) (3)
Petted her. 3 morphemes

3. All catenatives (e.g., gonna, wanna, thatsa) are counted as one morpheme.

Example:

(1) (2) (3) (4) (5)
What do you wanna make? 5 morphemes

(1) (2) (3) (4)
I gonna make flower. 4 morphemes

4. Count all diminutives (e.g., horsey, doggie, mommy) as a single morpheme.

Example:

(1) (2) (3)
Doggie wanna eat. 3 morphemes

5. Compound words are treated as a single morpheme.

Example:

(1) (2) (3) (4)
Lamb having birthday. 4 morphemes

(1) (2) (3)
Smell the playdoh. 3 morphemes

6. All ritualized duplications (e.g., bye-bye, oink oink, pee pee) are counted as one morpheme.

Example:

(1) (2) (3)
Duckie say quack quack. 3 morphemes

(1) (2) 2 morphemes
A kitty cat!

7. Stuttering is considered a repeated effort of a single word, therefore, count the repeated word ONCE in its most complete form.

Example:

(1) (2) (3) (4)
The the the lamb, the lamb eating. 4 morphemes

(1) (2) (3) (4) (5)
The apples, apples, apples went bump. 5 morphemes

8. When a word is used repeatedly for emphasis or attention, count the word each time it is used.

Example:

(1) (2) (3) (4) (5) (6) (7)
CN, CN, lookit, lookit, a baby bunny. 7 morphemes

(1) (2)
Mine, mine! 2 morphemes

9. Do not count fillers (e.g.,uh, oh, ah, er) as morphemes but do count HH+, HH-, no, yeah, yes, ok, utoh and UO. These latter words or sounds appear to be meaningful as conversational aids rather than as fillers.

Please note that when these words or sounds are the only morphemes in the utterance circle the corresponding number on the coding form. (See sample coding form.)

Example:

(1) (2) (3) (4) (5) (6) (7)
Look,here is the, ah, little, ah, the little lamb, ah,

(8) (9)(10)
peeking at you. 10 morphemes

HH+ 1 morpheme (1 is circled on the coding form)

MLU and MLT
CODING INSTRUCTIONS*

1. Use the MSU computer lab data coding forms to score these measures.

2. Write the subject number on the first line.

3. Score the parent's (**P**) speech first. Identify the speaker, e.g., **P**. Count the morphemes in each utterance and enter the number on the coding form. Utterance #1 will correspond with columnn #1 on the coding form, utterance #2 will correspond with column #2, and so forth.

4. After coding all **P** utterances in a speech sample, which is the entire transcript, code **C** (child) utterances.

5. Sign and date all of your coding forms.

6. Enter the data from the coding sheet on the Mean Length of Utterance form (yellow form) and on the Conversational Turns and Mean Length of Turn form (pink form).

7. Return the transcripts, the completed coding sheets and data forms to the labeled box in the file cabinet.

8. If you have questions please contact me.

*Please see attached sample form and sample transcript

Coder_____ SUBJECT_____

Date_____

MEAN LENGTH OF UTTERANCE

Formula for MLU:

$$\frac{\text{(total number of morphemes / length of time)}}{\text{(total number of utterances / length of time)}}$$

Parent MLUs:

$$\frac{(\quad /\quad)}{(\quad /\quad)} = \_\_\_\_\_ = \_\_\_\_\_$$

Child MLUs:

$$\frac{(\quad /\quad)}{(\quad /\quad)} = \_\_\_\_\_ = \_\_\_\_\_$$

Coder_____ SUBJECT_____

Date_____

CONVERSATIONAL TURNS

and

MEAN LENGTH OF CONVERSATIONAL TURN

A. Conversational turns are all the utterances of one speaker until the other person speaks. From the transcripts carefully count all of the **P** turns and then count all of the **C** turns.

Parent turns = _____

Child turns = _____

B. The formula for the Mean Length of Turn for each speaker is

$$\frac{\text{(total number of utterances / length of time)}}{\text{(total number of turns / length of time)}}$$

PARENT MLT:

$$\frac{(\quad / \quad)}{(\quad / \quad)} = \_\_\_\_\_ = \_\_\_\_\_$$

CHILD MLT:

$$\frac{(\quad / \quad)}{(\quad / \quad)} = \_\_\_\_\_ = \_\_\_\_\_$$

Appendix E

Scoring Instructions

and

Form for Types of Sentences

DEFINITIONS AND EXAMPLES OF SENTENCE TYPES
(as listed on the Parent Utterance Scoring Form)

A. DECLARATIVES are statements that end with a period.

1. A declarative is a statement that ends with a period.

2. Repeat as a declarative the child's previous utterance.

EX: C: It is a baby sheep.
P: It is a baby sheep.

a. Repeat and confirm

EX: C: It is a baby sheep.
P: That's right, it is a baby sheep.

3. Repeat and expand

EX: C: It is a baby sheep.
P: It is a little black baby sheep.

a. Repeat, expand and confirm

EX: C: It is baby sheep.
P: It is a little black baby sheep, yes.

4. Count a yes or no statement used alone.

EX: Yes, yeah, sure, ok, nope, no, etc.

B. IMPERATIVES are explicit directives that usually begin with the word "you" or the word "you" is implied.

EX: You turn the page.
Turn the page.
Get your feet off the wall.
You tell me.
Look.

Whether an imperative is labeled as positive/neutral or negative depends upon the parent's intonation as well as the actual words.

C. EXCLAMATIONS are sharp sudden outcries. Usually an exclamation point is used after the interjection.

EX: Wow! or Great! or Ouch!

D. INTERROGATIVES are questions.

1. Yes/no questions are direct questions that can be answered with either a yes or no.

EX: Do you want a drink of water?

2. Wh/questions include who, what, when, where, how, why, and which statements in order for parents to obtain information.

EX: What do you want to do?

a. A test question is a question that parents ask when they have a specific answer in mind, in other words, the parents is testing the child.

EX: P: What color is the egg? (test question)
C: Blue.
P: No, what color is that egg?
C: Blue.
P: No, that's a green egg.

b. In an occasional question the wh-word is POSITIONED where the missing would be in the sentence.

EX: P: The lamb is eating what?
C: Milk.

P: Baa, baa black sheep, have you any (what)?
C: Wool.

c. Based upon the parent-child discourse

"huh" may be interpreted as a question meaning "what" rather than a filler.

d. Based upon the parent-child discourse "yes", "yeah", may be interpreted as a question meaning "what", "what do you mean", "what do you want", etc., rather than a filler.

3. Repeat child's previous utterance as a question.

EX: C: A doggie.
P: A doggie?

OR

C: A doggie?
P: A doggie?

a. Repeat and expand

EX: C: A doggie.
P: A white doggie?

b. Combination of repeat and yes/n.

EX: C: I hold onto Daddy's hand.
P: You held onto Daddy's hand, didn't you?

c. Repeat, expand and yes/no

EX: C: They're playing.
P: Are they playing with the rabbit?

d. Combination of repeat and wh/question

EX: C: Little girl.
P: What little girl?

e. Repeat, expand and wh/question

EX: C: Little girl.
P: Where is the pretty little girl?

4. An indirect question is a declarative

statement that contains an embedded partial interrogative phrase.

EX: I wonder where the little lamb is.
I don't know what you mean.

5. A tag question is a declarative statement with an interrogative attached at the end.

EX: That's a cute bunny, isn't it?
You're good at making balls, aren't you?

E. OTHER: There may be statements that do not fit neatly into these categories. On those occasions write the entire utterance on the scoring form and define the sentence.

EX: C: Feeding her carrot to her.
P: Yep, feeding carrots to the bunny, huh?

(DECLARATIVE- repeat, expand, confirm and tag question)

Coder_____ SUBJECT _____

Date _____

PARENT UTTERANCES SCORING FORM

A. DECLARATIVES (TOTAL) _____

1. declaratives _____

2. repeat child's utterances _____
   a. repeat and confirm _____

3. repeat and expand child's utterances _____
   a. repeat, expand, confirm _____

4. yes/no _____

B. IMPERATIVES (TOTAL) _____

1. positive/neutral _____
2. negative _____

C. EXCLAMATIONS (TOTAL) _____

D. INTERROGATIVES (TOTAL) _____

1. yes/no questions _____

2. wh/questions _____

   a. test questions _____
   b. occasional questions _____
   c. huh _____
   d. yes _____

3. repeat child's previous utterance _____

   a. repeat and expand _____
   b. repeat and yes/no _____
   c. repeat, expand, and yes/no _____
   d. repeat, wh/question_____
   e. repeat, expand and wh/question _____

4. indirect questions _____

5. tag questions _____

E. OTHER

Appendix F

Scoring Instructions

and

Form for Parental Distancing Strategies

Mental Operational Demands on the Child Through the Use of Parental Distancing Strategies*

Distancing strategies are those techniques used by parents to psychologically separate (or distance) children from the immediate, ongoing present. The process of distancing suggests that children can transcend the immediate present by mentally projecting themselves into the past or into the future.

Parental distancing strategies are hypothesized as activating a child's cognitive process (or processes) in the form of some kind of representation. It is thought that some distancing strategies may activate a child's anticipatory schema while other distancing strategies may focus on reconstructive schema.

Three levels of distancing strategies, and the specific mental operational demands that they make, have been identified: Level 1--Low distancing strategies make the mental operational demands of observing, labeling, producing, describing, and demonstrating; Level 2--medium distancing strategies include the demands of sequencing, reproducing, comparing, symmetrical classifying, asymmetrical classifying, and enumerating; and Level 3--high distancing strategies demand the mental operations of evaluating, inferring, transforming, generalizing, and planning.

Definitions and Examples of Distancing Strategies and Their Mental Operational Demands

A. Low Distancing Strategies

1. OBSERVE: Getting the child to attend by using any of the child's senses, e.g., hearing, seeing, smelling, etc. Asking the child to examine, or parent demonstrates an action which demands that the child observes. The form of the demand is in a verbal context and the parent's action is in a demonstration, but to comply the child must observe.

   Examples: "Lookit, see the pretty picture in the book?"
   "Watch, see how the play-doh gets soft?"

2. LABEL: Naming a singular object or event or action; naming a place, appropriate designation of something, locating; identify a single discrimination; no elaboration; ownership, possessive. Labeling is discrete and does not involve inference.

   Examples: "What is on the lamb's neck?"
   "Where is the bunny?"
   "What color is that egg?"
   "What is that?"

3. PRODUCE INFORMATION: Produce, process, confirm or reject information about labeling, location, materials, event; associational information. Requires a yes/no answer from child. Only questions appear here, no parent telling.

   Examples: "Is this a goat?"
   "Is that the doggie's house?"
   "Are those green apples?"

4. DESCRIBE: Provide elaborated information of a single instance. Actions as well as inner states such as feelings, fantasies, ideas, etc., are included.

   Examples: "What do you mean?"
   "Why do you think the girl is sad?"

5. DEMONSTRATE: Shown primarily through action or gestures how something is to be done; the how process.

   Examples: "Show me how to roll the playdoh."
   "Show me how to make a rolly oval."

B. Medium Distancing Strategies

1. SEQUENCE: Temporal ordering (or steps) of events is articulated, as in a story or when carrying out a task. Key words include last, next, afterwards, start, and begin.

   Examples: "First, break the clay into small pieces, ok?"
   "First you roll the clay and make it soft, ok?"
   "What do we do next?"

"Make the head first, then put on the eyes, then the nose, and then the mouth."
"What happened to the bunny after the little girl fell asleep?"

2. REPRODUCE: Reconstruction of previous experiences; dynamic interaction events, interdependence, functional, open-ended; the child's organization of previous experience.

   Examples: "Tell me how you made this with Daddy."
   "What did you and Mommy make with this playdoh?"
   "What did you do in school today?"
   "What did you do when you found the worms?"

3. COMPARE: (Compare-describe and Compare-infer) Compare-describe is the description of differences and similarities. There is a perceptual analysis of the sensory materials present in the interaction.

   Examples: "Does your snowman look like mine?"
   "Do your shoeslook like the little girl's shoes?"
   "Is my pancake as flat as yours?"

   Compare-infer is the inference of differences and similarities. Inference refers to literal nonpresence of all or part of the materials.

   Examples:

   "Does Uncle Bill's rabbit look like this one?" (infers Uncle Bill's rabbit although a picture ofa rabbit is present)

   "Does your bike have a basket like that boy's?" (however, if the child's bike is within viewing distance this would be an example of compare-describe rather than compare-infer).

   "Does a tiger and dog look the same?" (infers both animals)

   "This looks more like a green bean than a carrot."

4. SYMMETRICAL CLASSIFYING: Identifying the commonalities of a class of equivalent instances or labeling the class.

Examples: "What do you call red, yellow, blue, and green?"
"What do you call green beans, lima beans and corn?"

5. ASYMMETRICAL CLASSIFYING: Organizing instances within the same class in some sequential ordering; logical hierarchy; viewing the relationship as a continuum; seriation of any kind; comparative where each instance is related to the previous one and the subsequent one; relative (bigger to smaller, more or less).

Examples: "Is the brown bunny bigger or smaller than the white bunny?"
"Are there more apples in the basket or on the steps?"
"Is this lamb younger or older than that lamb?"

6. ENUMERATING: Seriation, enumeration of number of things, and ordinal counting.

Examples: "How many sheep are in the field?"
"How many balls have you made?"
"How many bunnies are in the box?"

C. High Distancing Strategies

1. EVALUATE CONSEQUENCES: Assessing the quality of a product, or outcome, or feasibility, or the aesthetic quality of personal liking. Criteria needed for evaluation includes words such as good, bad, right, wrong, fun, not fun, silly, not silly, etc.

Examples: "Do you like this book?"
"Can you tell me what the lamb did in the story?"
"Why was the sheep naughty?"
"Why was the little girl unhappy?"

2. EVALUATE OWN COMPETENCE: Assessing own competence or ability.

Examples: "Can you make a snowman like that?"
"Can you make a daisy chain like the girl?"
"Do you know how to make a pizza?"
"Can you make a tiger from the playdoh?"

3. EVALUATE AFFECT: Assessing the quality of a feeling state.

   Examples: "Is it fun to feel happy?"
   "How would you feel if a lamb knocked over your birthday cake?
   "How would you feel if someone wouldn't share the playdoh with you?"

4. INFER AFFECT/FEELINGS: Predicting or assessing how a person feels or believes or intends. This is not a description of affective behavior.

   Examples: "Was the little girl feeling unhappy?"
   "Did the lamb feel sorry for pulling down the table?"
   "Did the lamb mean to knock over the basket of apples?"

5. INFER CAUSE/EFFECT: Predicting outcomes on the basis of causal relationships of instances; explanation of reasons for some event, direct or indirect.

   Examples: "How can you make that tiger stand up?"
   "Will the playdoh ball bounce when you drop it?"
   "How can you make that worm fit in the hole?"

6. INFER (OR PREDICT) EFFECTS: Predicting what will happen without articulating causality.

   Examples: "Did the rabbit find his friend?"
   "Will the little girl miss her pet lamb?"
   "What will the lamb tell its mommy?"

7. GENERALIZE: The application or transfer of knowledge to other settings or objects; a new situation going beyond the immediate task or context.

   Examples: "The little girl is giving the lamb medicine. When does Mommy give you medicine?"

   "What other animals wear leashes?"

8. TRANSFORM: Changing the nature, function, appearance of instances; focusing on the process of

change of state of materials, persons or events.

Inferring is part of this, that is, the prediction of what will happen relating to a change of state.

Examples: "What happens to the caterpillar when it grows up?"
"Is that the same bunny?"
"What happened to the bunny?"

9. PLAN: Arrangement of conditions to carry out a set of actions in an orderly way; acting out a rule of the task or actual carrying out of the task. The child is involved in the decision.

Examples: "What do you want to do?"
"Do you want to read to me?"
"What do you want me to do?"

10. NECESSARY AND/OR SUFFICIENT EVALUATION: Assessing information that is necessary or sufficient for something to happen; reality confirmation; recognition of absurdities.

Examples: "What do baby bunnies need to grow big and strong?"

*Adapted From Parent-Child Interaction Observation Schedule (PCI) by J. Flaugher and I. Sigel, 1982.

Coder_____ SUBJECT _____
Date _____

MENTAL OPERATIONAL DEMANDS SCORING FORM

A. LOW DISTANCING STRATEGIES (TOTAL) _____

1. observe _____
2. label _____
3. produce _____
4. describe _____
5. demonstrate _____

B. MEDIUM DISTANCING STRATEGIES (TOTAL) _____

1. sequence _____
2. reproduce _____
3. compare _____
4. symmetrical classifying _____
5. asymmetrical classifying _____
6. enumerating _____

C. HIGH DISTANCING STRATEGIES (TOTAL) _____

1. evaluate consequences _____
2. evaluate own competence _____
3. evaluate affect _____
4. infer affect/feeling _____
5. infer cause/effect _____
6. infer effect _____
7. generalize _____
8. transform _____
9. plan _____
10. evaluate necessary/sufficient _____

Appendix G

Scoring Instructions

and

Forms for Warmth and Sensitivity Measures

Coder_____ SUBJECT_____
Task_____

RATING OF PARENTAL WARMTH*

This is a general rating based upon the coder's impressions of the warmth exhibited by the parent toward the child during each task.

The warmth rating is determined by those parental actions that express enthusiasm, playfulness, enjoyment of the child or of doing something with the child, understanding, and compassion. These actions may be evident through the parent's tone of voice, facial expressions, and head and body movements.

After viewing the videotape check the appropriate rating on the following scale.

RATING SCALE

____some warmth exhibited but not a great deal of the time

____warmth exhibited more often and more intensely

____much warmth exhibited often

*adapted from Parent-Child Interaction Observation Schedule (PCI) J.Flaugher and I. Sigel (1982).

Coder_____ SUBJECT_____
Task_____

RATING OF PARENTAL SENSITIVITY*

This is a global rating that combines the parent's sensitivity to the child's cognitive, emotional, and physical states. The rating is essentially a measure of how well the parent is "tuned in" to the child. This is not a rating of whether or not the coder likes the parent or feels the parent is warm, but one in which an attempt is made to objectively rate the sensitivity of the parent to the child. The following questions will help determine the rating.

1. Is the construction of sentences or questions too complex or too simple for the child?

2. Is the parent bombarding the child with verbalizations, e.g., questions, statements or imperatives?

3. Is the parent working with the child's attention span or against it?

4. Does the parent seem to know how to get the child to do the task or to cooperate?

5. Does the parent seem aware of when the child can function alone or when the child needs help?

After viewing the videotape, check the appropriate rating on the following scale.

RATING SCALE

_____some sensitivity exhibited but not often or not over all areas

_____sensitivity exhibited more often and over more areas

_____much sensitivity exhibited most of the time and over most areas

*adapted from PCI, Flaugher and Sigel, 1982.

Appendix H

Scoring Instructions

and

Form for Child Engagement

DEFINITION OF CHILD ENGAGEMENT*

The child's response to the parent's utterance is coded for each parent utterance. The categories and definitions of engagement are as follows:

1. Actively Engaged (AE): The child gives an active, relevant response (motoric and/or verbal). The correctness of the response is unimportant.

2. Passively Engaged (PE): The child is attending (listening) but there is no visible physical or verbal response other than eye fixation and orientation.

3. Nonengaged (NE): The child is either involved in an irrelevant response or in another activity, or is neither attending nor exhibiting any overt non-task behavior. The child is unresponsive to questions and/or imperatives.

4. No-Time-to-Respond (NT): The parent does not allow time for the child to respond. The parent may be "bombarding" the child with a series of questions or statements, thereby not giving the child an opportunity to respond. The parent may ask a question which is immediately followed by another utterance.

*Adapted from PCI Schedule, Flaugher and Sigel, 1982.

INSTRUCTIONS FOR CODING CHILD ENGAGEMENT

1. With typed transcript in hand watch the video of the parent-child interaction.

2. When the child is not **ACTIVELY ENGAGED** press the search/pause button on the Betamax to stop the video. Find the parent statement and code the appropriate child response, e.g., PE, NE, or NT, on the transcript at the end of the parent utterance. Use a BLUE colored pencil.

3. Upon completion of the video viewing, code each of the remaining parent statements as AE. (It is presumed that child responses to statements NOT coded during viewing are AE.)

4. EACH parental statement must be coded for child engagement.

5. Tally the types of child responses and enter the information on the Child Engagement Scoring Form.

6. Return the transcripts and completed forms to the box in the file cabinet in 101 PRB.

7. If you have **ANY** questions please call me.

Coder_____ Subject_____

Date_____ Task_____

CHILD ENGAGEMENT SCORING FORM

1. Actively Engaged (AE) _____

2. Passively Engaged (PE) _____

3. Nonengaged (NE) _____

4. No Time to Respond (NT) _____

COMMENTS:

Appendix I

Analysis of Variance, Repeated-measures, F Value Tables

Table I-1

Analysis of Variance, Repeated-measures, F Values of Sentence Types: Declaratives, Interrogatives, Imperatives, and Exclamations (df = 1, 12)

Source	Declaratives		Interrogatives		Imperatives		Exclamations	
	F	Prob	F	Prob	F	Prob	F	Prob
Age	.71	.42	1.71	.22	.35	.56	.35	.57
Sex	4.69	.05	.89	.36	2.83	.12	.74	.41
AS	4.60	.05	1.56	.24	.99	.34	.03	.86
Error*	(115.45)		(134.42)		(68.97)		(3.88)	
Task	5.06	.04	.97	.34	3.53	.08	6.96	.02
TA	2.58	.13	1.32	.27	.01	.91	.14	.72
TS	3.14	.10	.01	.93	.43	.52	2.18	.17
TAS	18.93	.001	11.51	.005	.55	.47	.47	.51
Error*	(20.62)		(59.33)		(45.31)		(3.81)	
Parent	.46	.51	.30	.59	.29	.60	5.82	.03
PA	.25	.62	.12	.73	.48	.50	3.08	.10
PS	8.79	.01	11.77	.005	1.01	.33	.03	.86
PAS	1.90	.19	.34	.57	.51	.49	1.12	.31
Error*	(55.71)		(64.39)		(31.61)		(2.37)	
TP	2.37	.15	.00	.95	14.17	.003	4.00	.07
TPA	2.65	.13	.61	.45	2.68	.13	.01	.93
TPS	.03	.86	.97	.35	1.98	.18	.87	.37
TPAS	.83	.38	3.18	.10	6.53	.03	1.76	.21
Error*	(53.01)		(60.97)		(12.88)		(1.95)	

*Error term mean squares are in parentheses.

Table I-2

Analysis of Variance, Repeated-measures, F Values of Interrogative Subtypes (df = 1, 12)

Source	Yes/No		Wh/		Repeat		Tag		Indirect		Occasional		Test	
	F	Prob	F	Prob	F	Prob	F	Prob	F	Prob	F	Prob	F	Prob
Age	10.12	.01	9.14	.01	.46	.51	.36	.56	2.01	.18	.04	.85	3.10	.10
Sex	2.44	.14	.69	.42	2.29	.16	9.12	.01	.16	.69	2.01	.18	5.01	.04
AS	.82	.38	.09	.77	.34	.57	.29	.60	.09	.77	.77	.40	1.66	.22
Error*	(48.03)		(131.80)		(90.87)		(34.80)		(.0002)		(.001)		(.003)	
Task	10.91	.006	.54	.48	5.22	.04	.66	.43	7.36	.02	.60	.45	73.73	.00
TA	1.18	.30	.50	.49	.01	.94	.87	.37	.55	.47	.04	.84	5.11	.04
TS	.05	.82	.71	.42	.03	.88	.01	.93	1.13	.31	.20	.67	8.30	.01
TAS	.01	.93	.30	.59	.00	.95	.02	.89	.06	.82	1.24	.29	1.11	.31
Error*	(95.32)		(84.97)		(77.39)		(34.42)		(.0001)		(.0003)		(.002)	
Parent	.28	.60	4.12	.07	.00	1.00	2.18	.17	8.10	.01	.55	.47	6.84	.02
PA	.43	.53	.45	.51	1.81	.20	1.14	.31	.64	.44	.05	.82	.67	.43
PS	.09	.77	1.28	.28	.03	.87	.37	.55	.20	.66	.00	.98	2.75	.12
PAS	.16	.70	.12	.74	.52	.49	.71	.42	1.54	.24	.21	.66	4.09	.07
Error*	(152.21)		(145.75)		(107.87)		(15.70)		(.0002)		(.0006)		(.002)	
TP	.22	.64	1.73	.21	.53	.48	20.73	.001	.06	.81	.26	.62	4.77	.05
TPA	.58	.46	.03	.87	.04	.85	7.75	.02	.16	.69	.47	.51	3.46	.09
TPS	.94	.35	.00	.98	1.91	.19	3.20	.10	4.97	.05	.02	.88	2.07	.18
TPAS	1.16	.30	.46	.51	.22	.64	1.89	.19	1.27	.28	4.27	.06	1.32	.27
Error*	(68.41)		(60.63)		(37.06)		(4.09)		(.0004)		(.0002)		(.003)	

*Error term mean squares are in parentheses.

Table I-3

Analysis of Variance, Repeated-measures, F Values of Subtypes of Declaratives (df = 1, 12)

Source	Direct Statements F	Prob	Repetitions F	Prob	Yes/No F	Prob
Age	2.07	.18	1.91	.19	.01	.94
Sex	.12	.74	.48	.50	.17	.69
AS	.71	.42	.00	.95	.59	.46
Error*	(115.85)		(137.91)		(116.33)	
Task	2.39	.15	3.87	.07	20.26	.001
TA	.09	.77	.48	.50	.13	.73
TS	.14	.71	.01	.93	.43	.52
TAS	.00	.95	.94	.35	1.42	.26
Error*	(77.41)		(46.50)		(36.02)	
Parent	.29	.60	4.04	.07	.79	.39
PA	.31	.59	.00	.95	1.00	.34
PS	.21	.66	.10	.76	.23	.64
PAS	.44	.52	1.78	.21	5.32	.04
Error*	(216.35)		(60.71)		(76.63)	
TP	.20	.66	2.04	.18	5.44	.04
TPA	2.69	.13	.90	.36	2.57	.14
TPS	.44	.52	.50	.49	.08	.78
TPAS	.28	.60	.13	.73	.22	.65
Error*	(81.54)		(38.69)		(30.87)	

*Error term mean squares are in parentheses.

Table I-4

Analysis of Variance, Repeated-measures, F Values of Levels of Distancing Strategies (df = 1, 12)

Source	Low		Medium		High	
	F	Prob	F	Prob	F	Prob
Age	.23	.64	.42	.53	.07	.80
Sex	.30	.60	.16	.69	.25	.63
AS	.14	.72	.18	.68	.69	.42
Error*	(146.72)		(34.59)		(68.27)	
Task	1.13	.31	11.30	.006	1.42	.26
TA	.13	.72	1.97	.19	2.29	.16
TS	.00	1.00	.35	.57	.21	.65
TAS	.13	.72	.08	.78	.06	.82
Error*	(65.41)		(22.66)		(39.66)	
Parent	.50	.49	2.51	.14	.11	.74
PA	3.13	.10	4.25	.06	.24	.63
PS	.82	.38	2.10	.17	.00	.96
PAS	2.40	.15	.02	.88	3.25	.10
Error*	(53.55)		(22.43)		(45.39)	
TP	.00	.95	1.64	.22	1.41	.26
TPA	1.17	.30	.53	.48	2.46	.14
TPS	.31	.59	.11	.75	.01	.91
TPAS	.51	.49	3.13	.10	1.30	.28
Error*	(25.52)		(36.98)		(40.37)	

*Error term mean squares are in parentheses.

Table I-5

Analysis of Variance, Repeated-measures, F Values of Parent Warmth and Sensitivity (df = 1, 12)

Source	Warmth		Sensitivity	
	F	Prob	F	Prob
Age	3.48	.09	.89	.37
Sex	9.68	.01	4.82	.05
AS	.39	.55	.39	.54
Error*	(.65)		(.64)	
Task	.43	.53	1.14	.31
TA	3.86	.07	2.57	.13
TS	.43	.53	.29	.60
TAS	.43	.53	.00	1.00
Error*	(.15)		(.22)	
Parent	.00	1.00	.08	.78
PA	.41	.53	.32	.58
PS	1.66	.22	.32	.58
PAS	1.66	.22	2.00	.18
Error*	(.60)		(.78)	
TP	.18	.68	.40	.54
TPA	.18	.68	1.60	.23
TPS	.18	.68	1.60	.23
TPAS	.18	.68	.40	.54
Error*	(.35)		(.16)	

*Error term mean squares are in parentheses.

Table I-6

Analysis of Variance, Repeated-measures, F Values of Child Engagement Responses

(df = 1, 12)

Source	Actively Engaged		Passively Engaged		Nonengaged		No-Time To-Respond	
	F	Prob	F	Prob	F	Prob	F	Prob
Age	.76	.40	2.69	.13	1.67	.22	2.76	.12
Sex	.03	.88	3.00	.11	8.69	.01	2.39	.15
AS	.30	.59	.08	.78	2.56	.14	.13	.72
Error*	(361.23)		(250.76)		(89.52)		(3.58)	
Task	63.10	.00	84.87	.00	.16	.70	4.57	.05
TA	.76	.40	1.37	.26	.15	.70	.18	.68
TS	.66	.43	3.76	.08	1.99	.18	1.66	.22
TAS	.20	.67	.04	.85	.42	.53	.00	.97
Error*	(161.04)		(106.51)		(27.18)		(2.39)	
Parent	.26	.62	.13	.72	.10	.75	.77	.40
PA	.13	.72	.01	.94	.21	.66	7.71	.02
PS	.02	.88	.00	.97	.09	.77	.04	.84
PAS	.33	.58	.01	.92	.61	.45	2.02	.18
Error*	(234.17)		(186.65)		(46.86)		(1.26)	
TP	.81	.39	2.24	.16	.09	.77	1.01	.33
TPA	.02	.90	1.65	.22	1.23	.29	.55	.47
TPS	3.77	.08	9.28	.01	.02	.89	.19	.67
TPAS	.79	.39	.31	.59	.84	.38	.40	.54
Error*	(80.75)		(30.80)		(36.70)		(2.72)	

*Error term mean squares are in parentheses.

Table I-7

Analysis of Variance, Repeated-measures, F Values for Child and Parent MLUs (df = 1, 12)

Source	Child		Parent	
	F	Prob	F	Prob
Age	5.66	.03	4.90	.05
Sex	.00	.97	.95	.35
AS	.10	.76	.02	.89
Error*	(1.39)		(.76)	
Task	18.27	.001	11.24	.006
TA	.55	.47	.54	.48
TS	.07	.80	3.58	.08
TAS	.03	.87	6.08	.03
Error*	(.28)		(.35)	
Parent	1.72	.21	.03	.86
PA	.10	.76	1.43	.25
PS	1.61	.23	.12	.73
PAS	2.42	.15	.27	.61
Error*	(.47)		(1.75)	
TP	1.56	.24	.39	.54
TPA	.00	.99	.09	.77
TPS	1.07	.32	.42	.53
TPAS	1.80	.21	.01	.91
Error*	(.22)		(.84)	

*Error term mean squares are in parentheses.

Table I-8

Analysis of Variance, Repeated-measures, F Values for Length of Interaction During Each Task (df = 1, 12)

Source	Length of Task	
	F	Prob
Age	.14	.71
Sex	3.06	.11
AS	1.68	.22
Error*	(48207.24)	
Task	84.89	.00
TA	.96	.35
TS	7.57	.02
TAS	2.13	.17
Error*	(9794.72)	
Parent	.15	.71
PA	4.42	.06
PS	.19	.67
PAS	3.51	.09
Error*	(20266.56)	
TP	3.15	.10
TPA	2.97	.11
TPS	.00	.95
TPAS	.07	.79
Error*	(21652.12)	

*Error term mean squares are in parentheses.

Table I-9

Analysis of Variance, Repeated-measures, F Values for Child and Parent Utterances per Minute (df = 1, 12)

Source	Child		Parent	
	F	Prob	F	Prob
Age	3.59	.08	.11	.74
Sex	3.50	.09	5.92	.03
AS	.76	.40	1.35	.27
Error*	(14.09)		(26.18)	
Task	.62	.45	23.78	.001
TA	.02	.89	.61	.45
TS	.86	.37	.79	.39
TAS	.48	.50	.00	.99
Error*	(7.37)		(12.50)	
Parent	1.98	.18	.89	.37
PA	1.01	.34	.17	.69
PS	1.48	.25	.76	.40
PAS	.27	.61	.48	.50
Error*	(6.47)		(11.93)	
TP	2.33	.15	.71	.42
TPA	1.69	.22	.06	.81
TPS	.10	.75	.00	.97
TPAS	.18	.68	1.16	.30
Error*	(3.36)		(13.76)	

*Error term mean squares are in parentheses.

Table I-10

Analysis of Variance, Repeated-measures, F Values for Parent and Child Conversational Turns per Minute (df = 1, 12)

Source	Child		Parent	
	F	Prob	F	Prob
Age	1.58	.23	1.51	.24
Sex	4.67	.05	4.71	.05
AS	.09	.77	.09	.77
Error*	(9.39)		(9.44)	
Task	5.85	.03	6.25	.03
TA	.55	.47	.56	.47
TS	1.50	.24	1.70	.22
TAS	.19	.67	.21	.66
Error*	(3.59)		(3.67)	
Parent	.10	.75	.09	.77
PA	1.22	.29	1.29	.28
PS	2.63	.13	2.46	.14
PAS	.14	.71	.13	.73
Error*	(5.98)		(6.07)	
TP	.76	.40	.98	.34
TPA	.12	.74	.14	.72
TPS	.28	.60	.32	.58
TPAS	.04	.85	.11	.74
Error*	(2.61)		(2.51)	

*Error term mean squares are in parentheses.

Table I-11

Analysis of Variance, Repeated-measures, F Values of Child and Parent Mean Length of Turn (df = 1, 12)

Source	Child		Parent	
	F	Prob	F	Prob
Age	2.13	.17	3.65	.08
Sex	.85	.38	1.83	.20
AS	2.03	.18	2.94	.11
Error*	(.19)		(.89)	
Task	1.10	.32	2.81	.12
TA	1.17	.30	.60	.45
TS	.08	.78	.57	.47
TAS	.00	.97	1.43	.25
Error*	(.10)		(.34)	
Parent	4.12	.07	.22	.65
PA	1.09	.32	.47	.51
PS	2.41	.15	.15	.70
PAS	2.84	.12	.42	.53
Error*	(.11)		(1.85)	
TP	.29	.60	.57	.47
TPA	.54	.48	.44	.52
TPS	.09	.77	1.23	.29
TPAS	.43	.52	3.70	.08
Error*	(.16)		(.21)	

*Error term mean squares are in parentheses.

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