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FATHER INVOLVEMENT WITH FIRST-BORN INFANTS AND
THE EFFECT OF INFANT SEX, DEVELOPMENTAL
STATUS, AND TEMPERAMENT

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy in the Graduate
School of the Ohio State University

By
Irma Esner Rendina, B.A., M.A.

*****

The Ohio State University
1976

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CHAPTER I

INTRODUCTION

Background and Purpose

The importance of the father in the family has been recognized for many years by psychologists, psychiatrists, and others in the health and helping professions (Bartemeier, 1953; Bronfenbrenner, 1961; English, 1954; Frank, 1939; Ostrovsky, 1959). The extent of the father's availability to his children as well as the manner in which he behaves with them has been related to the children's development. In some cases social and personality development of boys and girls have been adversely affected by low father availability. The absence or presence of the father has also had an effect on boys' intellectual development.

Although many children are growing up in homes with little or no father involvement in childcare, there is a trend toward increased paternal interest and participation in child rearing. Employed women pursuing careers who have young children are seeking egalitarian participation by husbands in family responsibilities including sharing in the care of their infants and children.

Information about fathering has often been obtained indirectly from reports by mothers (Bernstein & Cyr, 1957; Minturn & Lambert, 1964; Pedersen & Robson, 1969; Sears, Maccoby, & Levin, 1957). Information from fathers about their participation in child rearing has involved
retrospective recall in response to questionnaires, interviews (Gardner, 1943; Tasch, 1952) or clinical case studies (Burlingham, 1973). Experimental designs in laboratories have focused on the attachment of the infant to his father (Ban & Lewis, 1974; Cohen & Campos, 1974; Lewis & Weinraub, 1974; Spelke, Zelazo, Kagan, & Kotelchuck, 1973), and observations of the behavior of fathers administering tests to 7-week-old infants (Moss, 1964). Fathers have also been observed with newborns in the mothers' hospital rooms (O'Leary, 1972; Parke, 1973). Fathers' verbal interaction with infants from birth to 3 months has been monitored in the home (Rebelsky & Hanks, 1971).

To understand the nature and extent of father involvement with infants, observations of fathers and their infants in a variety of activities in a naturalistic home setting are needed. With mothers also available in the home during the observation, the fathers do not take on a substitute caretaker role. They are involved only as much as they feel inclined to participate.

Influence of Father on Child Development

Nurturant and controlling behaviors by fathers toward their children have been studied and correlated with aspects of personality development such as sex role development, identification with and adoption of sex roles (Biller, 1969; Bronson, 1959; Mussen & Distler, 1959; Mussen & Rutherford, 1963), with peer group adjustment (Hoffman, 1961), with aggression (Eron, Banta, Walder, & Laulicht, 1961), and with intellectual development in boys (Jordan, Radin, & Epstein, 1975; Radin, 1972, 1974). Father permissiveness and closeness have been related to dependency, expressed as negative attention-seeking, in daughters (Sears, Rau, &
The value of the father's positive participation with his child has been demonstrated in research. Boys who possessed a high degree of confidence, independence, adaptability to frustrating situations, and low use of force were found to have warm, affectionate, companionable fathers (Hoffman, 1961). On the other hand, aggressive and delinquent boys were found to come from families in which the father was cold and rejecting (Bandura & Walters, 1959; Glueck & Glueck, 1950).

Father availability has been found to affect the infant's behavior when separated from the father. In a country, for example, in Guatemala, where fathers are slightly involved in the care of young children, infant protest was minimal. Where father availability is greater, for example, in the United States, the infant's protest behavior at departure of the father was similar to behavior exhibited when the mother left (Lester, Kotelchuck, Spelke, Sellers, & Klein, 1974).

Not only is the father's presence believed to be important for the child's development, but some evidence supports the view that the father's availability during the first five years of the child's life has particular consequences for his later development (Blanchard & Biller, 1971; Hetherington, 1966, 1972; Santrock, 1970, 1972). Male college students' abilities in verbal and mathematical skills were related to whether or not the father was present when the student was an infant. Those students with continuous father presence did better on the mathematical than verbal tests, while boys with fathers temporarily absent during their early childhood did better in verbal than in mathematical skills (Carlsmith, 1964).
In a study of third grade boys, intellectual achievement was greater for boys who had high participating fathers, 6 hours a day, than for students with low father availability or absent fathers, particularly before the child was five years old (Blanchard & Biller, 1971). Pre-adolescent boys whose fathers were not available during the first five years engaged in non-physical, non-competitive games and sought attention from adult males more than boys whose fathers were available during the first 5 years (Hetherington, 1966).

Adolescent girls' behavior was affected more when father absence came before they were 5 years old, than when they were older. Father absent girls sought more praise and attention from male adults and more physical contact with adults than girls whose fathers were available during the first 5 years of their lives (Hetherington, 1972).

Fathers' Changing Role

The role fathers play in the home is in part determined by the expectations of the culture (Barry, Bacon & Child, 1957; Barry & Paxton, 1971; Josselyn, 1956; Liebenberg, 1967; Mead & Newton, 1973). In the United States one attitude toward fathering, which is still prevalent, reinforces the view that manliness involves toughness and ruggedness while expressions of tenderness, affection, and solicitude are not acceptable (Bartermeyer, 1953; Ostrovsky, 1959). The father, in his male role, is discouraged from using proximal forms of behavior (Lewis & Weinraub, 1974), and demonstrating his fatherly feelings with his children (Josselyn, 1956).

Cultural forces conflict with this view. In a nuclear family structure the father has to be prepared to assume the caretaking role,
traditionally the mother's role, if she is incapacitated or absent from the home (Barry, Bacon, & Child, 1957). Sander (1962) noticed that in specific cases where the mother was unable to respond appropriately to her infant's cues, the father could often establish the needed responsiveness. He became more successful than the mother in quieting the infant and eliciting smiles. Mogey (1957) suggested as the father's instrumental role is reduced, that is, as women share in providing for the family by working outside the home, men have a greater need to participate in the expressive role in the family. In addition, close contact with his infant may be critical for the father's development of human feelings of love, tenderness, and attachment (Hines, 1971). Early and frequent involvement with infants has been considered an important factor for the father's positive participation in subsequent relations with his children (Cronenwett & Newmark, 1974).

Stolz's (1954) study lends indirect evidence to support the importance of early fathering. Returning World War II veterans had difficulty forming close relationships with their children born while they were in the service. The mother and infant ties formed while they were away were strong and left the father out of the close family relationship. The same fathers did not have the problem with second children born while they were at home.

The suggestion that early participation by fathers with their infants has a positive effect on the father-child relationship may have contributed to the trend, by hospital and medical professionals, to encourage father participation in prenatal and childbirth classes, in the birth process, and in the care of infants during the first hours and days
following delivery (Bradley, 1965; Goetsch, 1966; Hines, 1971; Schaefer & Zisowitz, 1964; Wonnell, 1971). Through these means it is believed that fathers can be helped to mature into their role. Fathers do not undergo hormonal changes comparable to those mothers experience during pregnancy. Most authorities do not believe there is a father instinct, so fathering must be learned (Schaefer and Zisowitz, 1964; Wonnell, 1971).

As a result of preparation for the child's birth, fathers reported they felt close to their wives and children (Schaefer & Zisowitz, 1964). Women remarked that their husbands, who had participated in natural childbirth delivery, improved their attitudes about being fathers when taught the importance of actively helping the mother (Bradley, 1965).

**Child Influences on Parent Behavior**

While cultural and role expectations may be partly responsible for father participation with infants, recent discussions of parent and child interactions have stressed the need to focus on the child's contribution in shaping the parents' behavior (Bell, 1968, 1971; Harper, 1971; Kagan, 1971; Korner, 1974(b); Rheingold, 1969; Yarrow & Goodwin, 1965). For example, father nurturance toward sons may be a result of the sons' adopting the desired sex role or imitating the fathers' behavior. This explanation appears as viable as the one that suggests that the nurturant father behavior causes the son to identify with and imitate his father. Bandura (1969) explained that boys who express the father's values and imitate his behavior are rewarded by increased contact and affection from the father. This, in turn, encourages the son to continue more of the same behavior. The effect of father and son behavior, is, therefore, bi-directional.
The bi-directional relationship has been suggested as a focus for studying mother-infant interaction (Rosenthal, 1973). Both the infant and the adult have the potential for reinforcing each other's behavior in a feedback system (Kagan, 1971; Rheingold, 1969).

There may be selected characteristics of the parent or child that evoke a specific behavior in the other (Clarke-Stewart, 1973). In examining data for causal effects, Clarke-Stewart (1973) indicated that the child's behavior influenced the mother in the area of social relations and that responsive maternal behavior influenced the infant's intellectual development. Recognizing the reciprocal nature of the interaction, investigators have designed studies to determine the effect of specific characteristics of the child on the parent (Campbell, 1973; Osofsky & Danzger, 1974; Osofsky & O'Connell, 1972; Yarrow, Waxler, & Scott, 1971).

**Effect of Sex of the Child**

Korner (1974a) suggested sex differences in neonatal behavior, such as, taste sensitivity and amount of reflexive smiling, may influence parents to respond to daughters and sons differently. The extent of father participation in specific activities with infants has varied with the sex of the child (Moss, 1964; Rebelsky & Hanks, 1971). Fathers played games with sons more than daughters (Tasch, 1952). Responses to particular child behavior also varied with the child's sex. Fathers accepted comfort seeking behavior from girls more than from boys (Rothbart & Maccoby, 1966).
Effect of Developmental Level of Child

A second attribute of the child that influences the parents' response is the stage of the child's development. Some mothers are comfortable with very young infants. Others find their enjoyment of the baby increases as the infant matures (Sears, Maccoby, & Levin, 1957). During the first year the infant undergoes dramatic shifts in behavior. Because parents respond to the infant's behavior, they also change their responses (Kagan, 1971).

Differences in the amount of caretaking and social activities participated in by the parents change with the development of the child. During the first year of the infant's life the parent spends much time with the child in caretaking functions such as feeding and diapering. By the second year, the infant is awake longer, eats less frequently, and more of the parent-child interactions center around play or other social stimulation than during the first year (Lewis & Weinraub, 1974).

Often an interaction of developmental status and some other child attribute, such as irritability, influences the parents' behavior. A parent may respond to a particular characteristic of the child at one stage in his development in a different way than in a later stage in the child's development (Kagan, 1971; Lewis, 1972; Bell, 1974).

Effect of Temperament of the Child

Other attributes of the child that may have an effect on parent behavior are temperamental traits of the child, i.e., the characteristic ways in which a child interacts with the environment. Differences in activity level, response to stimulation, response to changes in environment, and predominant state have been observed at birth or early in
infancy (Brazelton, 1969; Chess, Thomas, & Birch, 1959; Escalona, 1968; Gesell & Ames, 1937; Korner, 1974; Schaffer & Emerson, 1964; Shirley, 1933; Thomas, Chess, Birch, Hertzig, & Korn, 1963; Yarrow, 1963). Aspects of personality are considered by some psychologists to be constitutionally determined, initially independent of environmental influences and later interacting with the environment (Schaefer & Bayley, 1963; Willerman, 1973; Willerman & Plomin, 1973).

Variations in the child's temperament also affect parental behavior. An active and responsive infant is reported to elicit more social response and stimulation from others than one who is inactive and unresponsive (Yarrow, Rubenstein, Pedersen, & Jankowski, 1972; Yarrow & Goodwin, 1965). Infants who are inactive may inhibit the mother, father, or other caretakers from handling them (Harper, 1971; Schaffer & Emerson, 1964). The state of the infant influences the quantity and quality of care given to the infant (Moss, 1967). Unusual or negative infant behavior, excitability, or lethargy may reduce the caretakers' responsiveness and break down the caregiving system (Bell, 1974; Provence & Lipton, 1962; Prechtl, 1963).

Ainsworth and Bell (1969) observed infant temperament differences. They suggested that mothers were more in harmony with a baby whose behavior could be understood, predicted, and who responded with pleasure, than with one who was unpredictable and distressed. Kagan (1971) suggested that if the child's characteristics are congruent with the mother's ideal she will behave in a different manner toward her infant than if there is a conflict between the desired and real characteristics of the child.
Fathers are also under the influence of the stimuli coming from the child and may have their behavior modified by the child's temperament. Since fathers are not usually the primary caretakers, parent-child studies have not been directed toward determining the sensitivity of fathers to individual differences in their children.

Father is important for the child's development, and special emphasis is directed toward his availability in the early years. The particular behavior of fathers with infants that makes their presence important has not been delineated. Whether or not they participate in the same way as mothers in aspects of child rearing has not been fully described. This study was undertaken in order to observe fathers in a natural home setting interacting with their infants. It was designed to add to what is known about fathers' involvement in providing for the physical, social, and emotional needs of their infants. A second aspect of this study was to observe whether or not there were differences in father involvement that might be attributed to the infant's sex, developmental status, and certain characteristics of temperament.

Statement of the Problem

The problem investigated in this study was two-fold: first, to investigate fathers' involvement in caretaking, affective proximal, and social activities with their first born infants in the naturalistic setting of the home; second, to examine the effect of three infant characteristics on father involvement. These infant characteristics were: 1) sex, 2) developmental status, and 3) temperament.
Research Objectives

The objectives of the study were:

1. To determine the amount of time fathers are involved with infants

2. To investigate the effect of sex of infant on father involvement with infants

3. To investigate the effect of developmental status of infant on father involvement with infants

4. To investigate the effect of infant temperament on father involvement with infants

5. To investigate the interaction effect of sex, developmental status and temperament on father involvement with infants.

Null Hypotheses

The following null hypotheses were adopted for investigation:

Hypothesis 1. The amount of time of the father's involvement in all activities is the same regardless of the sex of the infant.

Hypothesis 2. The amount of time of the father's involvement in all activities is the same regardless of the developmental status of the infant.

Hypothesis 3. The amount of time of the father's involvement in all activities is the same regardless of the temperament of the infant.

Hypothesis 4. The amount of time of the father's involvement in all activities is the same regardless of the interaction effects of sex, developmental status, and temperament of the infant.

Hypothesis 5. The sex of the infant does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

Hypothesis 6. The developmental status of the infant does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

Hypothesis 7. The temperament of the infant does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.
Hypothesis 8. The interaction effect of sex, developmental status, and temperament does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

Definition of Terms

Terms used in this study are defined below: The operational definitions of each activity observed and coded are in Appendix A.

1. Father involvement: Involvement refers to the amount of time the father was engaged in an activity or group of activities with his infant.

2. Caretaking activities: These behaviors included feeding, diapering, dressing, bathing, putting the child in a place to sleep, putting the child in a place to eat or play, and following the child. These are items one through eight and 10 in Appendix A.

3. Affective proximal activities: In these behaviors the father was responding to the infant's need with physical contact. This included lifting, patting, holding, cuddling, rocking, hugging and kissing the infant. These are items 11 through 19 in Appendix A.

4. Social activities: These behaviors consisted of visual, eye-to-eye exchanges, making faces, smiling, laughing, making sounds, talking, singing, showing a book, restricting, and various kinds of play. Items 20 to 37 in Appendix A are included in this category of father activities.

5. Developmental status: Fathers were observed with infants at two different levels of development. One group consisted of developmental status 1 infants who were between the ages of 5.2 and 6.3 months and were not walking or talking. The other group consisted of developmental status 2 infants who were between the ages of 11.2 and 15.0 months of age and were walking and speaking two words understandable to their parents.

6. Temperament: Temperament refers to the behavior style or manner in which an individual child reacts to its environment (Chess & Thomas, 1973). Five categories of characteristic ways of reacting were included in infant temperament in this study. These were 1) rhythmicity, 2) intensity of reaction, 3) approach-withdrawal, 4) adaptability, and 5) quality of mood.

The behavioral definitions of these categories of temperament by Chess, Thomas, and Birch (1959), follow:
a. [Rhythmicity]: Regular-Irregular refers to the predictability and unpredictability and arrhythmicity of function and can be analyzed in relation to the sleep-wake cycle, hunger, elimination, appetite and demand cycles.

b. [Intensity of reaction]: Intense-Mild refers to the quality of response and its vigor, independent of its direction. A negative response may be either mild or intense as can a positive response. Responses to stimuli, to pre-elimination tension, to hunger, to repletion, to new foods, to attempts at control, to restraint, to dressing and diapering all provide scorables items for this category.

c. [Approach-Withdrawal]: Approach-Withdrawal represents a category of responses to new things, be they people, foods or toys. In it the behaviors reported are scored for the nature of initial responses.

d. [Adaptability]: Adaptive-Nonadaptive again refers to responses to new or altered situations. However, in this category one is not concerned with the nature of the initial responses, but with the ease with which such responses are modified in desired directions.

e. [Quality of mood]: Positive Mood-Negative Mood represents a category in which degrees of pleasure-pain, joy-crying, friendliness-unfriendliness are rated (p. 791).

In order to describe an infant as "easy" or "difficult" these five categories of reactivity were clustered together (Thomas, Chess, & Birch, 1970). The method used for determining temperament 1, "easy" infants and temperament 2 "difficult" infants is described in the methodology chapter of this report.

Limitations

Due to the size of the sample and the criteria for selection of the subjects, the results are limited in their generalizability to other populations of fathers.

Due to the time selected for naturalistic observation, the results are limited in their generalizability to father involvement at other
times during the day or times when the mother is not at home.

**Plan of Study**

The purpose in undertaking this study was to investigate father involvement in caretaking, affective proximal, and social activities with first born infants in a naturalistic home setting. The effect of three infant characteristics on father involvement were examined statistically. These infant characteristics were: 1) sex, 2) developmental status, and 3) temperament.

Subjects were selected from a county hospital birth listing in a newspaper. When possible, initial contact was by telephone so that three infant characteristics, sex, developmental status, and birth order, could be obtained before the first home visit. The study was designed to include 40 fathers of first-born infants, with equal numbers of male and female infants in two developmental status levels.

Data on the infant's temperamental characteristics were obtained from a questionnaire at the first home visit before the observations were conducted. Other information about the infant, father, and his wife, was obtained from interviews conducted at the conclusion of the observations.

The method used for the observations was repeated series of 5 minutes of continuous observation and recording of precoded father activities with his infant. The starting and ending time in seconds of involvement for each father activity with his infant was marked on a checklist. This was followed by 2 minutes of recording the location and activity of the infant, father, and wife, and the general mood of the infant during the preceding 5 minute observation period.
Observations were made over a period of 3 hours during the time when father and mother were home and the infant was awake. At least two home visits were made, following the initial visit, for observing the father's involvement. A total of 26 observation periods of 5 minutes each were recorded.

Father involvement with infants in the home was described, expressed as the amount of time spent in caretaking, watching, affective proximal, and social activities. The data were treated with analysis of variance to test the null hypotheses of the study.
CHAPTER II

REVIEW OF RELATED RESEARCH

The research on father involvement with infants has been slight compared with investigations of mother-infant interaction. Because there are so few studies in the literature describing father involvement with infants, research reviewed in the first section of this chapter will include descriptive studies of fathers interacting with children, as well as studies focusing on fathers and infants. Research that has been designed to investigate the effect of the child's sex, developmental status or age, and aspects of temperament on the father's involvement with his child will be reviewed in the second section. Some of these studies compare the effect of infant characteristics on the father with the effect on the mother. Where information in the literature pertaining to the father and his infant is especially scarce, relevant research about mothers and infants will be briefly discussed.

Father Behavior: Descriptive Studies

Infants

In observational studies of father-infant interaction during the neonatal period, fathers were active participants whether or not the mothers were present in the hospital room. Active participation by fathers was observed in a study designed to explore the way middle-class fathers interact with newborns and to compare father and mother behavior.
with 19 first born infants 6 to 48 hours after delivery. The fathers vocalized to their first-born infants, held and rocked them, as well as played with them in the hospital room (O'Leary, 1972; Parke, 1973).

In a second study which included 81 lower-class families, fathers were observed in the mother's hospital room with first and later-born infants, with and without the mother present. These fathers were also highly involved. In comparison with mothers, fathers provided more physical stimulation for their infants, held them more, and were more visually attentive to them than were the mothers. They were observed to smile less at the infant than the mother (Parke, 1973).

In a structured laboratory situation, 80 pairs of parents were asked to administer nine tests to their 7-week-old infants. Fathers, more than mothers, spent time on tasks designed to stress motor development, that is, grabbing for a ball, and less time than mothers on tasks designed to elicit vocalization and smiling from the infant (Moss, 1964).

The amount of time fathers spend at home with infants and young children and the extent of father involvement in selected activities have been investigated. The father's availability and participation have been reported in a variety of ways making comparison of results difficult. Forty-five mothers estimated their husbands were at home, when 8.5 month-old infants were awake, an average of 26 hours a week (Pedersen & Robson, 1969). In a study of infant attachment to fathers, 20 fathers reported contact with their 1-year-old infants an average of 15 to 20 minutes a day, ranging from 0 to 2 hours a day (Ban & Lewis, 1974). Fathers reported, in retrospect, that they were at home, but not necessarily in contact with their awake newborn to 5-year-old children, for an average
of 45 minutes on weekdays and most of Saturday and Sunday (Gardner, 1943).

Father involvement in specific activities has been reported. Vocalizations by fathers to 10 infants between 2 weeks and 3 months of age was measured by a microphone recording device in the home. The mean number of interactions each day was 2.7, and the average amount of vocalization in time was 37.7 seconds a day. About half of the vocalizations occurred while the father participated in caretaking activities and half at other times (Rebelsky & Hanks, 1971).

Young Children

Interviews with 300 fathers were conducted to investigate the activities in which fathers were involved with their children of various ages and to learn about the attitudes of fathers toward the paternal role. Two out of three of the fathers recalled participating in routine care of their children between birth and 5 years of age. Feeding the child was the most frequently named caretaking activity. Bouncing the baby on the father's knee and lifting the baby in the air were play activities with children under 5 years most frequently cited by the fathers. Other frequently mentioned play activities included reading to the child, carrying the child on the father's back and peek-a-boo (Gardner, 1943).

In another study involving 85 urban fathers, designed to explore their paternal role, the fathers considered daily routine child care an important function of fathering when the children were between birth and 4 years of age. In fathers' reports of participation in activities involving the child's motor activities and skills, slightly less than 50 percent of 57 fathers with children up to 4 years of age engaged in
rough-and-tumble play. Only 44.7 percent of the fathers with children in that age group reported playing games with them (Tasch, 1952).

**Effect of Infant Characteristics on Father Involvement**

**Effect of Sex of Infant**

The literature on sex differences has been reviewed extensively in Maccoby (1966) and Maccoby and Jacklin (1974). Differential treatment of boys and girls by their parents has been observed and discussed in the results of studies designed to examine this effect and in studies in which these differences become apparent even though not included in the design. The importance of considering the effect of the sex of the child in interaction studies has been stressed since findings are altered or masked when the child is considered a neuter variable (Goldberg & Lewis, 1969; Moss, 1974).

A large amount of the literature concerned with child effect on the parent is devoted to the effect on the mother. However, fathers and children have been found to affect each other differently than mothers and children. The effects of children's dependent and independent behaviors on their mothers and fathers were examined in a study involving 42 sets of parents and their 5-year-old daughters. Fathers positively reinforced dependent behavior in girls, whereas mothers did not. Mothers were more controlling toward dependent daughters than independent daughters, while fathers were not (Osofsky & O'Connell, 1972).

Fathers, more than mothers, rated children's behavior as sex appropriate for daughters and sons (Bronfenbrenner, 1961; Fagot, 1974). Where fathers' behavior has differed toward sons and daughters most of the variance has been observed with children older than those in the present
study. On certain variables, including attention to and indulgence of
the infant, sex differences in socialization were not found during the
infancy period in 92 percent of 96 cultures examined by anthropologists.
The differentiation by sex of the baby into boy and girl occurs later
in childhood (Barry, Bacon & Child, 1957).

However, some differences in this culture have been noted in fathers' responses to boy and girl infants. Mothers described father behavior with 45 first born boys and girls at 8 and 9.5 months of age. The fathers expressed more anxious concern about infant daughters than sons well-being. Other sex differences were not reported (Pedersen & Robson, 1969).

Moss (1964) suggested that fathers are more concerned about daughters than sons social behavior. In a laboratory experiment designed so that fathers and mothers could try to get their 7-week-old infants to participate in various activities, fathers of girls spent more time than fathers of boys trying to get them to smile and vocalize (Moss, 1967). In a sample of 12 families, fathers and mothers were observed to praise girls between the ages of 18 and 24 months more than boys at that age. They also criticized girls more than boys. The mothers gave more praise and more criticism than the fathers (Fagot, 1974).

Differences in the fathers' handling of and play with infants have been reported. Fathers of boys were found to touch newborn males in the mother's hospital room more than fathers of females touched their infants (Parke, 1973). Fathers of 7-week-old boys more than fathers of 7-week-old girls stressed muscular coordination activities (Moss, 1964).
Fathers visited 8-month-old boys more than girls of the same age in an Israel Kibbutz (Gewirtz & Gewirtz, 1969). Fathers of 18- to 24-month-old boys more than fathers of girls participated in play activities (Fagot, 1974). These fathers reported, in an interview, they would be more gentle if playing with a daughter than a son and would spend more time in physical play with a boy than a girl (Fagot, 1974). Compared to these results, the study by Tasch (1952) reported that fathers of 3- to 5-year-old boys and girls did not indicate they played more roughly with boys than girls.

**Effect of Developmental Status of Infant**

Contradictory findings of differential treatment by fathers of boys and girls may be attributed partially to the different stages of development of the children in the studies. Little research has examined the shifts of behavior of the father-infant relationship over time.

Father participation has been reported to change with the age of the infant. A clinical study was undertaken to find out the concerns of young men about to be fathers. There were 69 families in the study and 31 prospective fathers were interviewed separately from their wives. After the child was born the interviews were continued. Up to 6 weeks following the birth of the child, most mothers talked of the fathers' positive interest in the baby. Fathers were helpful in feeding and dressing the infant and played with it. At 2 months, the mothers reported a drop in the level of participation and were less satisfied with their husbands' involvement in childcare (Bernstein & Cyr, 1957).

Rebelsky and Hanks (1971) studied the vocalization of 10 fathers to their infants every 2 weeks for a 24 hour period from 2 weeks to 3 months
of age. Tape recordings were made by means of a microphone attached to the infant's shirt. Fathers spent less time vocalizing when the infants were 8 to 12 weeks old than when they were younger. The vocalization decreased during the time the fathers were engaged in caretaking activities. Vocalization during non-caretaking activities remained the same for boys but decreased for girls.

The father becomes more available to the infant after the first year. The reactions of infants to being separated from parents when left with a familiar and unfamiliar person were studied when the infants were 6 months old and at 3 month intervals thereafter until the infants were 21 months of age. Infants protested their mothers' departure and played less following their mothers' departure at 12 months of age. They showed a reduction of play following the fathers' departure at an older age, i.e., 15 months. This reduction of play response reached the highest level for both mothers and fathers when the infants were 18 months old (Kotelchuck, Zelazo, Kagan, & Spelke, 1975).

The observation that infants were older when they responded by reduced play behavior to fathers' departure than to mothers' departure was attributed to the availability of the father at different ages. It was hypothesized that fathers were more involved with infants after they were a year old than at an earlier age. The father became a more familiar person to the child.

Changes in maternal behavior toward children have been related to developmental changes in the child. For example, younger infants demand more caretaking activities by the parents. Infants at 3 months of age were observed to cry less than infants at 1 month of age. Mothers
respond to the crying infant by providing food or physical contact. As the child gets older, vocalizing and smiling occupy more of the infant's awake time than when it was younger. The mother responds to the infant's vocalizing and smiling in social activities involving more distal than proximal stimulation (Moss, 1967).

In one study 30 mothers and their first-born infants were observed interacting in a natural home environment. Observations were made at weekly intervals during the first month of the infant's life and again when they were 3 months old. The mothers' proximal behavior decreased by 30 percent for both sexes by the time the infants were 3 months old (Moss, 1967).

In another observation study of 36 mothers with infants 9 months to 18 months of age this decrease in proximal behavior was seen to continue over time. The time spent in proximal behavior decreased from 14 percent of the observed time with 9-month-old boys and girls to 8 percent of the time with 18-month-old infants (Clarke-Stewart, 1973).

Interaction Effects of Sex and Developmental Status

For both girls and boys touching, a proximal behavior, decreased over time for mothers and looking increased (Bell, 1974). However, the decrease in proximal behavior changed at a different rate depending on the sex of the child. Mothers of 3-month-old boys held, touched, and rocked them more than mothers of girls did with their infants at this age. The girls' mothers vocalized to and looked at their infants more than boys' mothers at this age. At 1 year girls received more proximal stimulation than boys from their mothers. At 2 years of age no sex
differences were in evidence for proximal mothering behavior. There was an interaction effect of sex and age for proximal behavior by the mother. Infant boys initially received more proximal stimulation, holding and touching, and less distal stimulation, looking and vocalizing, than girls (Lewis, 1972).

An interaction effect on fathers' vocalization was present with infant sons and daughters. The fathers vocalized more with females at 2 to 4 weeks of age than 12 weeks of age. Fathers of males vocalized more to them at 12 weeks of age than at 2 to 4 weeks (Rebelsky & Hanks, 1971).

Effect of Temperament of Infant

Variations in infant temperament have an effect on parental behavior. Through his temperament the infant helps to shape the mother's behavior (Moss, 1967). In a longitudinal study of the development of social attachments of 37 infants, information was obtained from the mothers about the behavior of their infants in contact seeking and avoidance with adults. There were babies who resisted cuddling. The amount of fondling or handling by the mother depended as much on the receptiveness of the infant to being held or kissed, as to the mother's own inclinations (Schaffer & Emerson, 1964).

Negative infant behavior can change the mother's feelings toward her child. Individual differences in the onset of 54 mothers' attachment feelings toward their first infants were explored through interviews with the mothers when the infants were 3.5 months old. A mother's attachment to her infant decreased if the infant cried excessively during the first month (Robson & Moss, 1970).
In the study by Moss (1967) male infants were observed to cry and continue to be irritable even with maternal attempts to comfort them. The mother's response to her male infant's crying at 3 months of age was reduced compared to her response to his crying at one month. An interaction effect of temperament and age was demonstrated. While mothers initially used more stimulation with irritable infants, the continued fussiness influenced the mother to feel less attached to the infant and respond differently to the same behavior at a later age.

Chess and Thomas (1973) also found the child's characteristics of temperament influenced the attitude of the mother. Sets of twins were included in the longitudinal study of individual behavioral styles and the effect of temperamental qualities on later development and relationships. In two families the infant twins showed differences in temperament. One twin was easy to care for while the other was a difficult child and his care consumed much of the mother's time. The mother's attitude toward both infants was initially the same, but her responses toward the difficult child changed as they grew older. Twins in three other families had similar temperaments, and the mothers' responses and attitudes toward each twin continued to appear the same.

Fathers are also under the influence of the stimuli coming from the child and may have their behavior modified by the child's temperament. A study of 36 fathers and 1-year-old infants was undertaken to observe the infant's behavior upon separation from either parent and from both parents in an experimental setting. Infants with low interacting fathers more frequently engaged in irritable fretting than infants with high interacting fathers (Spelke, Zelazo, Kagan, & Kotelchuck, 1973). The
investigators suggested the fretting may be a temperamental attribute and not necessarily the result of social experience. Fathers may be reacting to the irritableness of the child by interacting with them less than they would to a child who does not have this attribute.

Summary

In studies of fathers and infants, it has been found that fathers actively participated with newborns and infants in caretaking and social activities. An effect of the sex of the infant on the father's involvement has been observed by some investigators and not by others. The nature of the involvement and the age of the infant have contributed to the different findings in these studies. Concern about girls' well-being and social behavior has been greater than concern about these aspects of boys' behavior. Fathers touched newborn boys, visited 8-month-old boys, and played with 18- to 24-month-old boys more than fathers of girls engaged in these activities.

Fathers were more vocal with younger girls than older girls and more vocal to older boys than younger boys. It was suggested that fathers become more available to infants after the first birthday.

Temperament of the infant was also found to shape the parent's participation. The affective response of mothers to infants who display negative temperamental characteristics, such as fussiness and excessive crying has been diminished. Fathers low in interaction with 1-year-old infants may behave this way because of the infants' fretfulness.
CHAPTER III

METHODOLOGY

This naturalistic observational study was designed to investigate fathers' involvement with their first-born infants and to examine the effect of the infant's sex, developmental status and temperament on the father's participation. In addition to home observation, a questionnaire and interviews were used to collect data. Three hours, divided into two occasions, were spent in each home observing fathers and their infants with mothers present. An analysis of variance was performed on the data to test the null hypotheses of the study.

The Sample

Criteria

Five criteria were established for selecting the subjects for study. One criterion was the location of the sample population. After consideration of alternate methods for locating subjects, such as fathers who had attended hospital prenatal classes, the decision was made to obtain a more representative group by including fathers who had infants born at the Wood County Hospital, Bowling Green, Ohio. To facilitate data collection in the home, the fathers' residences were approximately within 10 to 15 miles of Bowling Green, Ohio.

A second criterion was the birth order of the infant. The infant was the father's first child. Findings from past research have shown
parental behavior differences toward first born and later born infants (Moss, 1964; Parke, 1973; Thomas, Liederman, & Olson, 1972).

A third criterion established that both the father and his wife agreed to participate and were willing to be at home with the infant awake during the observation periods. All husbands and wives were living together at the time of the study.

A fourth criterion was that infants were free from observable abnormalities at birth and in the months preceding the observation.

A fifth criterion concerned the developmental status of the infants. Developmental status 1 infants were between 5.0 and 7.0 months of age at the time of observation. Developmental status 2 infants were walking, speaking two words understandable to the parents, and were not older than 15.0 months of age.

**Selection**

Fathers were selected from birth listings appearing in the Wood County Hospital news column in the *Daily Sentinel-Tribune* between October 15, 1973 and December 15, 1974. Home addresses and telephone numbers were obtained from city, county and telephone directories of the area.

There were 283 names of families in the birth listings. Initial contacts were completed for 202 families. Of the families contacted, 131 were excluded for failure to meet the criteria of the study. Excluded were 122 fathers with additional children, two fathers with infants having birth abnormalities, one divorced father, three fathers of infants who did not meet the developmental status criteria, and three fathers who were not at home long enough while the infant was awake and the wife also
present. In addition, seven fathers were part of the pilot study and were excluded. Twenty-four fathers, or their wives, refused to participate. The reasons for not wanting to participate included lack of time available at home by 12 families, illness in the family in two cases, lack of interest in the study or no reason given by 10 families.

Initial contacts were made to families listed in the newspaper birth column until 40 fathers meeting the criteria established for the study were obtained who were willing to participate.

Pilot Study

A pilot study was conducted to determine the activities of fathers with infants at two stages of development. Identification of these activities was necessary for developing the instruments of the study. Names of fathers for the pilot study were obtained from a list of parents who had attended classes in prenatal care at the hospital. Ten fathers with first-born boys or girls at two developmental status levels were contacted. Telephone calls were made to the home. If the father was not at home, information about the study was given to his wife. A letter was sent as a follow-up to the conversation (see Appendix H).

The fathers were asked to keep a twenty-four hour record of everything they did with and for their sons or daughters (Lytton, 1973) and the time they spent in the activity. They were given a booklet of paper for record keeping, and a stamped return envelope. (See Appendix H for directions given in the booklet).

Four fathers completed the study. A list was compiled of all the activities mentioned by the fathers. Items were combined if, in the judgment of the investigator, they carried the same meaning, and specific
behaviors were substituted for more global descriptions. For example, "getting ready to go out" includes such specific behavior as dressing or washing the infant. Additional items gleaned from reading past studies (Gardner, 1943; Minturn & Lambert, 1964; Moss, 1964; Tasch, 1952; Pedersen & Robson, 1969; Sears, Maccoby, & Levin, 1957) were also included in the list. The list appears in Appendix H.

The list was then presented to three different fathers who were asked to keep a record for one day. They were asked to record the amount of time they spent in each activity. These fathers were interviewed in order to obtain additional items of interaction with their infants and discuss any difficulties with the original list. Revisions were made and the final checklist was evolved (see Appendix B).

**Instruments**

Four instruments were used to collect data for the study: 1) The Carey Survey of Temperamental Characteristics, 2) father involvement checklist, 3) father interview, and 4) background information interview. A description of each instrument follows.

**Carey Survey of Temperamental Characteristics**

The instrument for identifying the infant's temperament was the Carey Survey of Temperamental Characteristics (Carey, 1970, 1973, Appendix C). The investigator explained the procedure for filling out the survey in the following way:

The survey concerns individual differences in children's behavior. There are no right or wrong, or good or bad answers. We are interested in accurate descriptions of normal infant behavior. The statements are about children's behavior in daily routine activities. Respond by circling
the statement that accurately describes your baby. If none of the choices is suitable, do not mark anything for that item.

The 70 behavioral situations in the survey were based on interviews of the New York Longitudinal Study by Thomas, Chess, Birch, Hertzig, & Korn (1963). The interview was developed to identify characteristics of individuality in behavior during the first months of life and to explore the degree of persistence of these characteristics in later years. The Carey Survey was designed to facilitate collecting and rating information on infant temperament for use in pediatric practice.

Both the interview and the Carey Survey asked the mother about the infant's actual behavior and not the mother's reactions or interpretations of the behavior. Each item in the questionnaire had three possible choices. Nine categories of reactivity were measured including activity level, rhythmicity, approach or withdrawal, adaptability, intensity of reaction, threshold of responsiveness, quality of mood, distractibility, and attention span and persistence (Thomas, Chess, Birch, Hertzig, & Korn, 1963). To avoid a halo effect, items used to identify a particular temperament category were interspersed throughout the survey rather than grouped together. In the present study five of these categories of reactivity were used: 1) rhythmicity, 2) adaptability, 3) approach, 4) intensity, and 5) mood. These were the five categories used to identify "easy" and "difficult" infants. The categories of activity level, distractibility, threshold of responsiveness, and attention span and persistence were not used in this study. These characteristics were not included by Thomas et al. (1963) in describing easy and difficult infants.
Validity. The characteristics of temperament obtained from the interview method were compared with those obtained from two direct observations using the same method of scoring. The findings from direct observations agreed with the parent interview assessment (Thomas, Chess, Birch, Hertzig, & Korn, 1963).

The Carey Survey of Temperamental Characteristics was standardized on 200 infants 4 to 8 months of age. In comparing the interview and the questionnaire on different but similar populations the same percent of difficult babies was identified. When the interview and the questionnaire were given to the same three mothers there was agreement in the five major categories, approach, rhythmicity, adaptability, intensity, and mood, which were used to identify the difficult child (Carey, 1969, 1972, 1973). The reliability of the questionnaire was affirmed by giving the same mothers the form a second time two weeks later and getting complete agreement.

The Carey standardized scores were used for rating the infants in this study. A comparison of the means and standard deviations of the study infants between 5 and 15 months of age, and the standardized scores based on 200 infants between 4 and 8 months are in Table 1 (Carey, 1972).

**Father Involvement Checklist**

The instrument for recording the father's activity and amount of time he spent in the activity with the infant was a checklist of 37 specific behaviors. The list of activities included caretaking activities, items 1-8 plus 10; affective proximal activities, items 11-19; and
TABLE 1
A COMPARISON BETWEEN CAREY STANDARDIZED AND STUDY SAMPLE
MEAN SCORES AND STANDARD DEVIATIONS
FOR CATEGORIES OF REACTIVITY

<table>
<thead>
<tr>
<th>Categories of Reactivity</th>
<th>Mean ± S.D.</th>
<th>One S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Carey</td>
<td>Study</td>
</tr>
<tr>
<td></td>
<td>Standardized</td>
<td>Sample</td>
</tr>
<tr>
<td>Rhythmicity</td>
<td>.55 ± .47</td>
<td>.56 ± .40</td>
</tr>
<tr>
<td>Adaptability</td>
<td>.34 ± .26</td>
<td>.40 ± .26</td>
</tr>
<tr>
<td>Approach</td>
<td>.47 ± .35</td>
<td>.62 ± .27</td>
</tr>
<tr>
<td>Intensity</td>
<td>1.06 ± .31</td>
<td>1.10 ± .23</td>
</tr>
<tr>
<td>Mood</td>
<td>.41 ± .23</td>
<td>.45 ± .20</td>
</tr>
</tbody>
</table>

Social activities, items 20-37. Operational definitions of each item appear in Appendix A. A sample checklist appears in Appendix B.

A digital clock, showing minutes and seconds, was used for recording the starting and ending time of each activity. If the infant moved to a place where the electric cord from the clock could not reach, or a wall socket was not available, a stop watch was used in conjunction with the clock.

Father Interview

Additional information about the father's activities in caretaking was obtained in an interview. The questions were read to the father and his answers written down by the observer. The father was also asked about his participation in prenatal classes for expectant parents and observation of the infant's birth. The father interview is in Appendix E.
Background Information

Information for describing the population of this study was obtained from an interview. The ages of the infant, mother and father, the educational level achieved, occupations of the mother and father, and the health and developmental status of the infant were obtained from the interview questionnaire. The father's answers were written down by the observer. The background information interview is in Appendix F.

Data Collection

Initial Contact

Wherever possible, the initial contact was made by telephone to determine whether or not the potential subject met the criteria of the study. On the telephone the father, or his wife, was informed that the caller was a graduate student at The Ohio State University studying family and child development. The parent was told that the caller was interested in learning about infant behavior in a home situation, and would appreciate the assistance of mothers and fathers with infants of certain ages. The party was told that his name had been obtained from the Wood County Hospital birth listings in the Daily Sentinel-Tribune. If the criteria were met for parity, sex, and developmental status of the infant, and the parent was agreeable to hear more about the study, an appointment was made to see both parents in their home.

First Home Visit

At the first visit the father and his wife were given information about the study. The investigator explained she wanted to know how infants of both sexes, at two stages of development, behaved in a natural
situation when both parents were at home. Parents were also told the
study was designed to include infants with various behavioral styles. A
temperament questionnaire would be used to find out how the infant
behaved in routine situations. The fathers were told that the two visits
to their homes would last about two hours each, a week to ten days apart,
when the infant was awake and both parents were home. No special be-
havior was needed and the family could pursue their normal activities
while the observer was present. The observer would have a clock for
timing behavior, and check activities and events on a paper attached to
a clipboard while following the infant from room to room.

In order to de-emphasize the father's role in the study so that his
behavior would be less inhibited and self-conscious, the specific
nature of the study was not described at the first visit (Lytton, 1973;
Moss, 1965). If the father were informed that he was the focus of
interest his positive involvement with the infant might be exaggerated.
This situation was evident in laboratory studies of parent-child involve-
ment where mothers played more and were more verbal with the child when
informed that they were being observed than when they were not informed
(Zegob, Arnold, & Forehand, 1975). In the home, fathers increased their
positive interactions and decreased their negative interactions with
children when they were aware that an observer was present (Patterson &
Reid, 1970).

Potential subjects for the study were given the explanation that
specific information about the particular behavior being observed might
influence their natural way of behaving during the observations. They
were told the investigator would provide details of the study at the
conclusion of the observations and interviews. No subjects objected to this procedure.

The subjects were assured that their names would not be used in reporting the information for research purposes. If the father and his wife agreed to participate, letters of agreement were signed by both parents and the investigator. A copy of the letter appears in Appendix G.

Questionnaire. At the first visit the Carey Survey of Temperamental Characteristics was presented to the wife of the subject to complete before observations were made. In some cases the father was interested in expressing his answers to the questions. Sometimes the mother asked the father what he thought. Since the purpose of the temperament survey was to obtain an accurate description of the infant's behavior, consultations between the father and his wife were not discouraged.

Second and Third Home Visits

Home observations. Two observations, each 1.5 hours duration, were scheduled a week to 10 days apart following the first visit. The reliability of the father's behavior, subject to the effect of an observer in the home, was believed to be improved when more than one visit was made to the home. The parents would be less self-conscious after a repeated visit to the home (Lytton, 1971).

During the second and third visits both parents were at home and observations were made when the infant was awake. The observer was situated so that she could see the infant. Most of the observations took place in the living-dining areas of the home. In many homes the kitchen, dining, and living room areas could be seen from one location
and a minimum of moving was necessary for the observer. This was particularly true in trailers, apartments, and small homes. Nine of the fathers lived in mobile homes and 10 in apartments, 12 in one-story small homes and nine in large homes with two stories or large living areas.

When the father interacted with the infant the beginning and ending times were recorded on the checklist. Since more than one activity could be participated in at the same time these checklisted activities were not mutually exclusive. If the activity took only one second a check mark was made instead of recording the starting-ending sequence of time. This occurred with such activities as giving a kiss and speaking to the child.

Observations were continuously recorded for a 5-minute period. This was followed by a 2-minute period in which information was recorded about the father’s and mother’s main activities, the infant’s location and mood, and elaborations of activities observed during the previous 5-minute period. Twenty-six 5-minute sequences were observed in at least two visits. When the infant fell asleep or visitors came to the home before the first hour and 30 minute observation was completed, the observation time was extended for the second visit. When this was not possible, due to absence of one parent or sleep routine of the infant, three visits for one subject and four visits for another were necessary.

Interviews. The purpose of the interview was to partly offset the problem of representativeness of the time selected for observing the father with his infant (Lytton, 1973). Specific questions were asked about the father’s participation in caretaking activities. The father was also asked if the two observation periods were typical of what
happened when he was home and the infant was awake. The interview took place following the last observation. This interview is in Appendix E. At this time background information about the father, his wife, and infant were obtained. The schedule used to ascertain background information appears in Appendix F.

Methods of Analysis

Father Involvement

The amount of time the father spent in activities with his infant during the home observations was obtained. An average involvement score in seconds was calculated for all the fathers. The percent of time the fathers were involved with their infants during the 3 hours of observations was also calculated.

Separate time involvement scores were obtained in the manner described above for the three major categories of involvement: caretaking, affective proximal, and social. Caretaking included feeding, diapering, bathing, and following (items 1 through 8, 10, plus 38 in Appendix A). Affective involvement included lifting, patting, holding, walking, rocking, cuddling, and kissing (items 11 through 19 plus 39 in Appendix A). Social involvement included eye-to-eye contact, smiling, laughing, talking, singing, playing, and restricting (items 20 through 37 plus 40 in Appendix A). Individual activity items of father involvement were also scored in seconds and in percent of the total observation time.

Main and Interaction Effects

To test for the main and interaction effects of infant sex, developmental status, and temperament on the father's involvement, the data
were analyzed using least squares analysis of variance. Differences were considered statistically significant if the $F$ values had a probability level of .05 or less. A probability of .10 was considered to lend tentative support to the alternative to the null hypothesis.

In addition to testing the main and interaction effects on the major categories of activity, several sub-categories of involvement were examined by analysis of variance tests. Watching the infant, verbal language, vocalizations, play with the infant, and rough-and-tumble play were analyzed separately.

**Interview-Caretaking Score**

A rating score of the father's involvement in caretaking activities was based on the subjective report of the father during the interview. He was asked whether or not he participated in seven kinds of caretaking activities, and if he did, the extent of his participation (the interview is in Appendix E). The activities were: 1) feed bottle, 2) feed solids, 3) diaper, 4) dress, 5) bathe, 6) put to bed, and 7) get up at night to tend infant. Involvement in each activity was rated separately in the following way:

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>Rarely, once a month</td>
<td>1</td>
</tr>
<tr>
<td>Once a week</td>
<td>2</td>
</tr>
<tr>
<td>Two to three times a week, one-third of the time compared to mother</td>
<td>3</td>
</tr>
<tr>
<td>Four to five times a week</td>
<td>4</td>
</tr>
<tr>
<td>Daily or more frequently, 50-50 with mother</td>
<td>5</td>
</tr>
</tbody>
</table>

The individual scores were summed and the composite score was divided by the number of scores, usually seven, for a caretaking score. If, for
example, mothers were nursing the infants, or if infants no longer took a bottle, the activity "feed bottle" was not included and the father's score was based on six items.

The caretaking scores were analyzed using analysis of variance to test for the main and interaction effects of sex, developmental status, and temperament.

**Temperament**

The scoring sheet for the temperament questionnaire appears in Appendix D. The answer to each question, a, b, or c, was placed under the appropriate category of activity. Since six of the questions were placed in two categories, the total possible ratings was 76.

Each category of activity had three scores. For example, mood could be positive, variable, or negative; rhythmicity could be regular, variable, or irregular. Each infant has three scores within each of the nine categories of activity. Since 27 different scores for each of 40 infants was difficult to analyze, a method for consolidating the scores was used. The method is described below.

In order to arrive at a description of the infant as difficult, intermediate high, intermediate low, and easy, only five of the categories were utilized in this study. These categories were: 1) rhythmicity, 2) adaptability, 3) approach, 4) intensity, and 5) mood (Thomas et al., 1963).

The technique of scoring was taken from Carey (1970), and was originally used by Thomas, Chess, Birch, Hertzig, & Korn (1963).

The total points at the three levels in each category were converted by a weighting process to a single score between 0 and 2; . . . e.g., the total
of intense ratings was multiplied by 0, variable by 1, and mild by 2. These products were added and that sum divided by the total number of completed items in the category. This yielded a mean score between 0 and 2, representing the infant's typical reaction for this category (Carey, 1970, pp. 189-190).

An infant defined as difficult was:

One having 4 or 5 difficult category ratings, 2 or more of which were greater than one standard deviation from the mean. . . . The easy baby was defined as having 0 to 2 such ratings, but none as large as one standard deviation. Intermediate babies, high and low, fell in between. (Intermediate high had 4 to 5 difficult ratings with 1 > 1 S.D. or 2 to 3 with 2 to 3 > 1 S.D. Intermediate low had 3 to 5 with 0 > 1 S.D. or 1 to 3 with 1 > 1 S.D.) (Carey, 1970, p. 191).

The standardized means and standard deviations were used for determining the temperament designation of the infants in this study (Carey, 1972).

These appear in Table 1, page 33.
CHAPTER IV

FINDINGS AND DISCUSSION

The purpose in undertaking this study was to investigate fathers' involvement in caretaking, affective proximal, and social activities with first-born infants in the home, when the mothers were also present. The effect of the infant's sex, developmental status, and temperament on the father's involvement was examined statistically. Fathers were observed for 3 hours in at least two home visits. The infant's temperament was identified from the Carey Survey of Temperamental Characteristics given to the mothers or fathers or both to complete. Descriptive information about the fathers, their wives, and infants was obtained from an interview with the father at the conclusion of the observations.

The findings of the study are presented in three parts. The first describes the characteristics of the sample of fathers, wives, and infants. The second part describes the fathers' involvement with their infants in activities including caretaking, affective proximal, and social behaviors. Non-infant interaction activities of the father are described. The third part presents the statistical analysis and evidence for accepting or rejecting the hypotheses.
Description of the Sample

Characteristics of the Fathers and Their Wives

The 40 fathers in this study were Caucasian and ranged in age from 19 to 33 years with an average age of 26.2 years. All the fathers had completed high school and 32 had post-high school training. The majority of fathers were employed in skilled or professional work. The demographic information on the fathers and their wives appears in Table 2.

The wives of the subjects were from 18.5 to 31 years old, with an average age of 24.5. Thirty-nine wives were Caucasian, one was from Asia. All but two of the wives had completed high school and 17 had some additional schooling. More than half of the wives were full-time homemakers. Table 3 shows the mother's employment status by sex of infant, developmental status, and temperament of the infant.

Information was obtained from the father on whether or not he had attended a prenatal care class, either given at the hospital or by the Lamaze society. The father also indicated whether or not he had attended the birth of the infant at the Wood County Hospital. Table 4 shows the number of fathers who had attended classes and the birth of the infant by sex, developmental status, and temperament of the infant. Prenatal care classes were attended by 28 fathers, 25 had observed the birth, 20 had participated in both these events, and seven attended neither.

Characteristics of the Infants

The fathers were selected for the study partly by their infants' characteristics. There were 20 male and 20 female infants in the study. Developmental status level 1 infants consisted of 10 males and 10 females and were between 5.5 months and 6.8 months of age, mean age 5.8 months.
TABLE 2
NUMBER AND PERCENT OF FORTY FATHERS AND THEIR WIVES IN SELECTED DEMOGRAPHIC CHARACTERISTICS

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Father</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 - 26 years</td>
<td>18</td>
<td>45.0</td>
</tr>
<tr>
<td>27 - 33 years</td>
<td>22</td>
<td>55.0</td>
</tr>
<tr>
<td>Age of Wife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.5 - 25 years</td>
<td>19</td>
<td>47.5</td>
</tr>
<tr>
<td>26 - 31 years</td>
<td>21</td>
<td>52.5</td>
</tr>
<tr>
<td>Highest Grade Completed by Father</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed High School</td>
<td>8</td>
<td>20.0</td>
</tr>
<tr>
<td>Some College or Technical School</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>Graduate of 4-year College</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>Post-Graduate Studies</td>
<td>12</td>
<td>30.0</td>
</tr>
<tr>
<td>Highest Grade Completed by Wife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 4 Years High School</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Completed High School</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>Some College or Technical School</td>
<td>12</td>
<td>30.0</td>
</tr>
<tr>
<td>Graduate of 4-year College</td>
<td>9</td>
<td>22.5</td>
</tr>
<tr>
<td>Post-Graduate Studies</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>Occupation of Father</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td>Full-time Students</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Unskilled</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Farm</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Skilled</td>
<td>17</td>
<td>42.5</td>
</tr>
<tr>
<td>Professional</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>Employment Status of Wife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time Homemakers</td>
<td>24</td>
<td>60.0</td>
</tr>
<tr>
<td>Employed Part-time</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Students</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Employed Full-time</td>
<td>12</td>
<td>30.0</td>
</tr>
</tbody>
</table>
### Table 3

**Employment Status of Wives by Sex, Developmental Status, and Temperament of Infant**

<table>
<thead>
<tr>
<th>Employment Status of Wives</th>
<th>Sex of Infant</th>
<th>Developmental Status</th>
<th>Temperament</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female (N = 20)</td>
<td>Male (N = 20)</td>
<td>1 (Non-Walk., Non-Speak.)</td>
</tr>
<tr>
<td>Not Employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Employed Part-time or Student</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Employed Full-time</td>
<td>9</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

### Table 4

**Fathers' Prenatal Participation by Sex, Developmental Status, and Temperament of Infant**

<table>
<thead>
<tr>
<th>Fathers' Prenatal Participation</th>
<th>Sex of Infant</th>
<th>Developmental Status</th>
<th>Temperament</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female (N = 20)</td>
<td>Male (N = 20)</td>
<td>1 (Non-Walk., Non-Speak.)</td>
</tr>
<tr>
<td>Attended Classes Only</td>
<td>16</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Observed Birth Only</td>
<td>14</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Both</td>
<td>10</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Neither</td>
<td>1</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>
Developmental status level 2 infants, 10 males and 10 females, were between 11.3 and 15 months, mean age 13.2. They had started to walk alone and speak a few words understandable to the parents. In one case an infant was walking around the furniture during the observation period. Since the room was very small, and she was confined to a playpen for a good portion of the time when the observer was present, her inability to walk unaided went unnoticed by the observer until the interview was obtained. However, two weeks following the last observation, a phone call to the home verified that she had begun to take steps without help. This infant was, therefore, retained in the study sample.

Since the sample was drawn from a population of normal births in a particular location, it was not unexpected that the distribution of infants by temperament was unequal. The number of infants in easy, intermediate low, intermediate high, and difficult categories is shown in Table 5.

<table>
<thead>
<tr>
<th>TABLE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER OF INFANTS IN EACH CLASSIFICATION OF TEMPERAMENT</td>
</tr>
<tr>
<td>Temperament 1</td>
</tr>
<tr>
<td>Easy</td>
</tr>
<tr>
<td>Intermediate low</td>
</tr>
<tr>
<td>Temperament 2</td>
</tr>
<tr>
<td>Intermediate high</td>
</tr>
<tr>
<td>Difficult</td>
</tr>
</tbody>
</table>

Using four levels of temperament a small number of difficult infants were classified by sex and developmental status. Therefore, the infants were reclassified into two temperament categories. Easy and intermediate
low infants were classified as temperament 1 infants, and intermediate high and difficult infants were classified as temperament 2 infants. Table 5 shows the distribution of infants by temperament with four classifications and with the two classifications used for analysis in this study.

The Carey questionnaire, used to identify the temperament characteristics of the infants, was standardized on a population of 200 infants between 4 and 8 months of age. In that sample, 74 percent of the infants were categorized as temperament 1, or easy infants, and 26 percent as temperament 2, or difficult infants. In the present sample of 40 infants, 67.5 percent were temperament 1 infants, and 32.5 percent temperament 2 infants. Tables 6 through 9 show the number of infants in sex, developmental status, and temperament categories.

| TABLE 6 |
| NUMBER OF INFANTS BY DEVELOPMENTAL STATUS AND SEX |

<table>
<thead>
<tr>
<th>Group</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developmental Status 1 (non-walking, non-speaking)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Developmental Status 2 (walking, speaking)</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

| TABLE 7 |
| NUMBER OF INFANTS BY TEMPERAMENT AND SEX |

<table>
<thead>
<tr>
<th>Group</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperament 1 (Easy)</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Temperament 2 (Difficult)</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>
### TABLE 8

**NUMBER OF INFANTS BY TEMPERAMENT AND DEVELOPMENTAL STATUS**

<table>
<thead>
<tr>
<th>Group</th>
<th>Developmental Status 1 (non-walking, non-speaking)</th>
<th>Developmental Status 2 (walking, speaking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperament 1 (Easy)</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Temperament 2 (Difficult)</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

### TABLE 9

**NUMBER OF INFANTS BY TEMPERAMENT, SEX, AND DEVELOPMENTAL STATUS**

<table>
<thead>
<tr>
<th>Group</th>
<th>Female Develop. 1 Status (non-walk., non-speak.)</th>
<th>Female Develop. 2 Status (walking, speaking)</th>
<th>Male Develop. 1 Status (non-walk., non-speak.)</th>
<th>Male Develop. 2 Status (walking, speaking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperament 1 (Easy)</td>
<td>9</td>
<td>4</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Temperament 2 (Difficult)</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

### Description of Father Involvement

Fathers were observed for 26 5-minute intervals, that is, 7,800 seconds. In one case a father was observed for a shorter period of time due to an observer oversight. The infant had fallen asleep at the first visit after one hour and 15 minutes of observation time and the 15 minutes were not made up at the next visit to the home. The error was discovered at the conclusion of the data collection. Since the major portion of observations had been completed, this father was retained in the study. The calculations were based on 7,800 seconds of observation time for 39 fathers and 6,900 seconds of observation time for one father.
Involvement with Infants

The fathers in this study were involved with their infants during 36 percent of the observed time. The range of fathers' involvement was from 12 to 84 percent of observed time, indicating a large difference among individuals. The mean frequency of the fathers' involvement in major categories of activity, the range, and standard deviation are in Table 10.

TABLE 10
OVERALL MEANS, RANGE, AND STANDARD DEVIATIONS OF PROPORTION OF OBSERVED TIME IN ACTIVITY CATEGORIES

<table>
<thead>
<tr>
<th>Activity Categories</th>
<th>Mean</th>
<th>Range</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>.361</td>
<td>.121 - .841</td>
<td>.172</td>
</tr>
<tr>
<td>Total Minus Watch</td>
<td>.233</td>
<td>.036 - .616</td>
<td>.137</td>
</tr>
<tr>
<td>Caretaking</td>
<td>.038</td>
<td>0 - .140</td>
<td>.040</td>
</tr>
<tr>
<td>Affective Proximal</td>
<td>.092</td>
<td>.003 - .402</td>
<td>.093</td>
</tr>
<tr>
<td>Social</td>
<td>.104</td>
<td>.006 - .422</td>
<td>.078</td>
</tr>
<tr>
<td>Play</td>
<td>.062</td>
<td>.001 - .353</td>
<td>.061</td>
</tr>
<tr>
<td>Vocalization</td>
<td>.034</td>
<td>.001 - .102</td>
<td>.027</td>
</tr>
</tbody>
</table>

Note: Based on 7800 seconds for 39 fathers and 6900 seconds for 1 father

The percent of time spent by fathers with their infants in the present study was similar to time mothers spent in interaction with their 9- to 18-months-old infants (Clarke-Stewart, 1971). It may be assumed that the mothers, as primary caretakers, in the Clarke-Stewart study, had
more time at home than fathers did in the present study. These results support the finding that the amount of time at home is not the sole determinant for father involvement with the infant (Gardner, 1943).

On the average, the fathers spent more time in socializing with and giving physical affective attention to their infants, than in giving routine care. Social involvement accounted for 10.3 percent of the fathers' total involved time, affective proximal attention accounted for 9.2 percent of the observed time, while caretaking activities were participated in during an average of 3.8 percent of the time.

It is possible that caretaking activities were participated in at times when the observer was not present, as at breakfast, a problem of the methodology of selecting particular hours to observe. However, in answering the second question of the interview which asked "Are there any other things you do with your infant that you haven't done this evening (afternoon)?", only five fathers answered they fed the infant.

To understand the smaller amount of time fathers were involved in caretaking compared to social and proximal behaviors, the role of the infant in the interaction can be considered. Bell (1974) suggested, one way the infant contributes to social interaction is by reducing the demand for caregiving, that is, being in a state that favors social exchanges with the parent. A second way is by taking the initiative for social interactions.

In most cases the father is not the primary caretaker. He, therefore, can become involved in more social than caregiving interactions with the infant. The infant may initiate social interactions with the father, whereas the mother may receive more of the baby's signals of
distress than the father. The mother may respond to demands for care-taking to a greater extent than the father and participate in social interaction with the infant during a smaller percent of her available time.

Watching the Infant

Fathers spent more time in watching the infant than in any other single activity. Table 11 presents the father checklist of activities, the number of fathers participating in each activity, the mean frequency of time involved by those fathers, the percent of the total possible time, and the range.

Fathers participated in watching for an average of 12.8 percent of the total observed time, and during more than 36 percent of the time they were involved with the infant. These results show a continuation of the behavior of fathers who were observed to be particularly visually attentive to their newborn infants (Parke, 1973).

The fathers in this study appear to be similar to mothers in their behavior with infants of similar ages. In a study involving mothers with 9- to 18-month-old infants, visual attention directed at the infant was the most frequent maternal behavior observed. The mothers looked at the infants when they were awake during almost 40 percent of the 10-second time units measured (Clarke-Stewart, 1973). Mothers of 3-month-old infants spent 27 percent of the time looking at them (Lewis & Lee-Painter, 1974).

At least two explanations have been offered for this phenomenon. Rheingold (1969), suggested that looking at the infant is a source of
### TABLE 11

**ACTIVITIES OF FATHERS AND NUMBER OF FATHERS PARTICIPATING, MEAN FREQUENCY OF INVOLVEMENT, PERCENT OF TOTAL TIME AND RANGE IN SECONDS OF THOSE FATHERS**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Fathers</th>
<th>Mean Frequency in Seconds</th>
<th>Percent of Total Time Observed</th>
<th>Range in Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed Bottle</td>
<td>29</td>
<td>162</td>
<td>2.08</td>
<td>1- 683</td>
</tr>
<tr>
<td>Feed Solid</td>
<td>10</td>
<td>214</td>
<td>2.7</td>
<td>1- 688</td>
</tr>
<tr>
<td>Diaper</td>
<td>13</td>
<td>206</td>
<td>2.6</td>
<td>15- 481</td>
</tr>
<tr>
<td>Dress</td>
<td>11</td>
<td>113</td>
<td>1.4</td>
<td>2- 303</td>
</tr>
<tr>
<td>Toilet</td>
<td>--</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Bathe</td>
<td>12</td>
<td>15</td>
<td>.19</td>
<td>2- 122</td>
</tr>
<tr>
<td>Put to Bed</td>
<td>1</td>
<td>1</td>
<td>.01</td>
<td>---</td>
</tr>
<tr>
<td>Put Elsewhere</td>
<td>33</td>
<td>7</td>
<td>.08</td>
<td>1- 39</td>
</tr>
<tr>
<td>Watch</td>
<td>40</td>
<td>997</td>
<td>12.8</td>
<td>176-2242</td>
</tr>
<tr>
<td>Follow</td>
<td>8</td>
<td>56</td>
<td>.71</td>
<td>1- 237</td>
</tr>
<tr>
<td>Lift</td>
<td>35</td>
<td>4</td>
<td>.05</td>
<td>1- 16</td>
</tr>
<tr>
<td>Pat</td>
<td>29</td>
<td>13</td>
<td>.16</td>
<td>1- 64</td>
</tr>
<tr>
<td>Hold on Lap</td>
<td>36</td>
<td>573</td>
<td>7.3</td>
<td>15-2726</td>
</tr>
<tr>
<td>Hold Arms</td>
<td>31</td>
<td>116</td>
<td>1.5</td>
<td>1- 559</td>
</tr>
<tr>
<td>Cuddle</td>
<td>21</td>
<td>38</td>
<td>.48</td>
<td>1- 421</td>
</tr>
<tr>
<td>Rock</td>
<td>6</td>
<td>142</td>
<td>1.8</td>
<td>10- 264</td>
</tr>
<tr>
<td>Walk-Hold</td>
<td>23</td>
<td>67</td>
<td>.86</td>
<td>2- 407</td>
</tr>
<tr>
<td>Hug</td>
<td>9</td>
<td>6</td>
<td>.08</td>
<td>1- 25</td>
</tr>
<tr>
<td>Kiss</td>
<td>25</td>
<td>8</td>
<td>.10</td>
<td>1- 57</td>
</tr>
<tr>
<td>Eye-to-Eye</td>
<td>22</td>
<td>24</td>
<td>.31</td>
<td>1- 90</td>
</tr>
<tr>
<td>Faces</td>
<td>26</td>
<td>6</td>
<td>.08</td>
<td>1- 30</td>
</tr>
<tr>
<td>Smile</td>
<td>40</td>
<td>62</td>
<td>.79</td>
<td>1- 727</td>
</tr>
<tr>
<td>Laugh</td>
<td>36</td>
<td>28</td>
<td>.36</td>
<td>2- 318</td>
</tr>
<tr>
<td>Sounds</td>
<td>40</td>
<td>48</td>
<td>.62</td>
<td>2- 516</td>
</tr>
<tr>
<td>Talk-Converse</td>
<td>40</td>
<td>141</td>
<td>1.8</td>
<td>3- 462</td>
</tr>
<tr>
<td>Talk-Approve</td>
<td>18</td>
<td>7</td>
<td>.08</td>
<td>1- 35</td>
</tr>
<tr>
<td>Talk-Restrict</td>
<td>31</td>
<td>13</td>
<td>.16</td>
<td>1- 40</td>
</tr>
<tr>
<td>Sing</td>
<td>6</td>
<td>5</td>
<td>.06</td>
<td>2- 9</td>
</tr>
<tr>
<td>Show Book</td>
<td>13</td>
<td>200</td>
<td>2.56</td>
<td>23- 369</td>
</tr>
<tr>
<td>Play-Toss</td>
<td>24</td>
<td>35</td>
<td>.45</td>
<td>1- 145</td>
</tr>
<tr>
<td>Play-Tickle</td>
<td>33</td>
<td>37</td>
<td>.47</td>
<td>1- 466</td>
</tr>
<tr>
<td>Play-Bounce</td>
<td>22</td>
<td>67</td>
<td>.85</td>
<td>1- 748</td>
</tr>
<tr>
<td>Play-Contact</td>
<td>22</td>
<td>79</td>
<td>1.01</td>
<td>1- 370</td>
</tr>
<tr>
<td>Play-Game</td>
<td>32</td>
<td>76</td>
<td>.97</td>
<td>1- 345</td>
</tr>
<tr>
<td>Present Toy</td>
<td>37</td>
<td>24</td>
<td>.30</td>
<td>1- 144</td>
</tr>
<tr>
<td>Play Toy</td>
<td>30</td>
<td>274</td>
<td>3.5</td>
<td>1-2085</td>
</tr>
<tr>
<td>Restrict-Physical</td>
<td>15</td>
<td>5</td>
<td>.06</td>
<td>1- 24</td>
</tr>
<tr>
<td>Other-Caretaking</td>
<td>8</td>
<td>12</td>
<td>.15</td>
<td>1- 32</td>
</tr>
<tr>
<td>Other-Affective Proximal</td>
<td>15</td>
<td>35</td>
<td>.45</td>
<td>1- 180</td>
</tr>
<tr>
<td>Other-Social</td>
<td>22</td>
<td>25</td>
<td>.32</td>
<td>1- 95</td>
</tr>
</tbody>
</table>
gratification for the parent. Bell (1974), explained that by watching the child play, smile, and vocalize, the mother can be maintained in the social interaction with the child. Lewis and Lee-Painter (1974), hypothesized that the type of looking engaged in by mothers of 3-month-olds in an unrestricted, unstructured situation, probably reflected the mother's interest in her infant's condition. This looking is not the same as eye-to-eye contact that is interactive behavior.

In the present study fathers looked at their infants when the mother was interacting with the infant as well as when the infant was playing alone. The father was not necessarily giving care to the infant at these times. For fathers of first-born infants, with little or no experience with young children, watching the infant may satisfy their curiosity and provide a source of gratification as Rheingold suggested. Checking on the infant's well-being when the mother was not with the infant should also be considered as influencing the amount of time the father watched his baby.

Social Involvement

The second most frequent involvement of the fathers was participation in social activities with their infants. Fathers were involved in some item in this category for more than 10 percent of observed time (see Table 10).

Play activities comprised social interaction for 6 percent of the time. Not all 40 fathers participated in every category of play. Playing with a toy with their infant was participated in by 30 fathers for an average of 274 seconds, or 3.5 percent of the observed time (see Table 11). All but one father participated in some kind of contact or
rough-and-tumble play. Fifty-five percent of the fathers bounced their infants and the same number engaged in contact play on the floor. Tickling their infants was done by 82 percent of the fathers and 60 percent tossed the infant in the air. In response to the second interview question, asking fathers if there were other things they did with the infant that had not been observed, fathers mentioned participating more in active play such as "sometimes rough-house a little more," "horse around a little more," "bounce her around the bed," "wrestle on the floor," "dance with her," and "stand her up more often." The number of fathers playing with their children in some manner in this study appears greater than the number of fathers who reported playing with infants and young children over 20 years ago (Tasch, 1952).

Only 13 fathers, 32 percent, showed a book or pictures to the infant (see Table 11). Compared to 65 percent of the fathers in the Gardner (1943) study, fewer fathers were involved in this activity. However, the infants in Gardner's study ranged in age from birth to 5 years.

Vocal activities, that is, speaking, making sounds, singing, and showing pictures in books to the infant, occurred during 3.4 percent of the observed time. The number of fathers participating in the individual items comprising vocal activities with the infant varied. All 40 fathers conversed with their infants for an average time of 140 seconds. The range was between 3 and 462 seconds. Restrictive language was used by 31 fathers, and verbal approval was used by 18 fathers. Six fathers sang to their children and 13 stimulated their infants with picture books. All 40 fathers made sounds to their infants.
In this study the average time spent by fathers in vocal activities with infants, 3.4 percent of the observed time, or 265 seconds for two observation days, was more than the 37.7 seconds a day fathers vocalized to 2-week to 3-month-old infants in the Rebelsky and Hanks (1971) study. The effect of the developmental status of the infants on the fathers in the two studies should be considered. In the present study infants were older, thus, more responsive to different kinds of vocal activities by the fathers than infants in the Rebelsky and Hanks study.

Mothers appear to spend a greater percent of time in vocal activities with infants than fathers. For example, mothers of 9- to 18-month-old infants verbalized 25 percent of the time (Clarke-Stewart, 1973). Mothers vocalized with 12-week-old infants during 34 percent of the interaction time (Lewis and Lee-Painter, 1974). The results of the present study are like those in a study by Moss (1964), who found fathers engaged in more physical stimulation and less vocal stimulation than mothers.

Affective Proximal Involvement

Fathers were involved in affective proximal contact with their infants 9.2 percent of the time (see Table 10). Holding their infants on their laps was participated in by 36 fathers (see Table 11). This activity accounted for 6.6 percent of the observed time. While holding the infant on his lap the father was sometimes involved in other activities. One simultaneous activity, feeding a bottle, was a caretaking activity participated in by 29 fathers, 2 percent of the time. Showing a book, a social activity, was participated in by 13 fathers for an average of 2.5 percent of the time. However, both feeding and showing books were engaged in at some time by some fathers without holding the infant.
More fathers were observed to hold their infants in this study than
in the Gardner study, in which 51 percent of the fathers reported holding
their infants.

Involvement Without Infants

Fathers were engaged in many different activities during the time
they were observed. When not actively involved with their infants,
fathers spent the greatest amount of time watching television and reading.
Fathers also participated in homemaking, such as cooking, cleaning, and
washing dishes. Some fathers were involved with hobbies or work.

Fathers were in the same room as their infants during 85 percent of
the observation time. This room was frequently the living area of the
home.

An estimate was made of the time fathers were involved in extra-
infant activities. The non-infant-interaction activities were recorded
during the 2 minutes of notation following each 5 minutes of observation.
The predominant activities were recorded 26 times for each father. Table
12 shows the activities of the fathers during the 5-minute observation
periods, the number participating, the mean frequency of occurrence and
the mean proportion of occurrence to the total (26) observation periods.

Father Interview

In order to ascertain the validity of the observations, the fathers
were interviewed at the end of the study. Fathers said their behavior
during the observation period was typical of what they did when they were
at home with their wives and awake infants. Father involvement in care-
taking, based on the subjective report in the interview, was reported on
TABLE 12

NON-INFANT-INTERACTION ACTIVITIES OF FATHERS BY NUMBER OF FATHERS INVOLVED, MEAN FREQUENCY OF OCCURRENCE AND PROPORTION OF TOTAL OBSERVATION PERIODS

<table>
<thead>
<tr>
<th>Non-Infant-Interaction Activities</th>
<th>Number of Fathers Involved</th>
<th>Mean Frequency of Occurrence</th>
<th>Mean Proportion of Total Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watching Television</td>
<td>30</td>
<td>7.2</td>
<td>.28</td>
</tr>
<tr>
<td>Reading</td>
<td>31</td>
<td>5.7</td>
<td>.22</td>
</tr>
<tr>
<td>Eating</td>
<td>13</td>
<td>3.8</td>
<td>.15</td>
</tr>
<tr>
<td>Conversing with Wife</td>
<td>20</td>
<td>2.1</td>
<td>.08</td>
</tr>
<tr>
<td>Household Tasks</td>
<td>9</td>
<td>3.3</td>
<td>.13</td>
</tr>
<tr>
<td>Work Occupation</td>
<td>4</td>
<td>5.8</td>
<td>.22</td>
</tr>
<tr>
<td>Listening to Radio or Phonograph</td>
<td>6</td>
<td>3.0</td>
<td>.12</td>
</tr>
<tr>
<td>Talking on Telephone</td>
<td>9</td>
<td>1.3</td>
<td>.05</td>
</tr>
<tr>
<td>Writing</td>
<td>3</td>
<td>2.6</td>
<td>.10</td>
</tr>
<tr>
<td>Resting</td>
<td>2</td>
<td>2.5</td>
<td>.10</td>
</tr>
<tr>
<td>Miscellaneous Others</td>
<td>8</td>
<td>2.6</td>
<td>.10</td>
</tr>
</tbody>
</table>

\[ n = 26 \]

a scale from 0 - 5, where 0 represents no involvement, and 5 maximum involvement. The mean score was 2.7, the range from .50 to 4.67 with a standard deviation of 1.09. The correlation (Pearson correlation coefficient) of the scores obtained from the subjective interview and those obtained from the observation of caretaking participation by 40 fathers was +0.6456, significant at .001 level.

**Statistical Analysis Related to Hypotheses**

Each of the hypotheses discussed below was tested with the least squares analysis of variance. Table 13 presents the mean frequencies of father involvement expressed in proportions for the hypotheses tested. Tables 14 – 19 present the significant F values for the hypotheses tested.
<table>
<thead>
<tr>
<th>Categories of Activities</th>
<th>Female N=20</th>
<th>Male N=20</th>
<th>Developmental Status 1 N=20</th>
<th>Developmental Status 2 N=20</th>
<th>Temperament 1 N=13</th>
<th>Temperament 2 N=10</th>
<th>Female and Male Development. Status 1 N=10</th>
<th>Female and Male Development. Status 2 N=10</th>
<th>Hole and Temperament 1 N=14</th>
<th>Hole and Temperament 2 N=10</th>
<th>Development Status 1 N=7</th>
<th>Development Status 2 N=6</th>
<th>Development Status 1 N=3</th>
<th>Development Status 2 N=10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Minus Watch</td>
<td>.192</td>
<td>.261</td>
<td>.255</td>
<td>.198</td>
<td>.239</td>
<td>.214</td>
<td>.192</td>
<td>.318</td>
<td>.192</td>
<td>.204</td>
<td>.229</td>
<td>.249</td>
<td>.155</td>
<td>.273</td>
</tr>
<tr>
<td>Caretaking</td>
<td>.031</td>
<td>.035</td>
<td>.041</td>
<td>.024</td>
<td>.039</td>
<td>.026</td>
<td>.041</td>
<td>.041</td>
<td>.020</td>
<td>.029</td>
<td>.029</td>
<td>.051</td>
<td>.032</td>
<td>.019</td>
</tr>
<tr>
<td>Affective Proximal</td>
<td>.081</td>
<td>.103</td>
<td>.133</td>
<td>.051</td>
<td>.088</td>
<td>.096</td>
<td>.096</td>
<td>.170</td>
<td>.066</td>
<td>.036</td>
<td>.079</td>
<td>.098</td>
<td>.084</td>
<td>.108</td>
</tr>
<tr>
<td>Social</td>
<td>.080</td>
<td>.123</td>
<td>.081</td>
<td>.122</td>
<td>.111</td>
<td>.092</td>
<td>.055</td>
<td>.107</td>
<td>.105</td>
<td>.138</td>
<td>.109</td>
<td>.039</td>
<td>.146</td>
<td>.091</td>
</tr>
</tbody>
</table>
Null Hypothesis 1. The amount of time of the father's involvement in all activities is the same regardless of the sex of the infant.

Fathers of male infants were involved with their infants during 41.5 percent of the observed time compared to fathers of female infants who were involved during 30 percent of the time (see Table 13).

Fathers of male infants were more involved than fathers of female infants in overall participation (see Table 13). These differences were not at a significant level. Hypothesis 1 failed to be rejected. However, there was a trend ($p < .10$) to lend tentative support to the alternate hypothesis that father involvement in all activities does vary with the sex of the infant (see Table 14).

### TABLE 14

ANALYSIS OF VARIANCE SUMMARY TABLE FOR EFFECT OF INFANT SEX, DEVELOPMENTAL STATUS, AND TEMPERAMENT ON PROPORTION OF TOTAL TIME INVOLVED

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1</td>
<td>.117</td>
<td>.117</td>
<td>3.996*</td>
</tr>
<tr>
<td>Developmental Status</td>
<td>1</td>
<td>.012</td>
<td>.012</td>
<td>.419</td>
</tr>
<tr>
<td>Temperament</td>
<td>1</td>
<td>.002</td>
<td>.002</td>
<td>.054</td>
</tr>
<tr>
<td>Sex x Developmental Status</td>
<td>1</td>
<td>.043</td>
<td>.043</td>
<td>1.484</td>
</tr>
<tr>
<td>Sex x Temperament</td>
<td>1</td>
<td>.022</td>
<td>.022</td>
<td>.742</td>
</tr>
<tr>
<td>Develop. Status x Temperament</td>
<td>1</td>
<td>.003</td>
<td>.003</td>
<td>.115</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>.963</td>
<td>.029</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .10$ trend
In this study the total time spent in activities with the infants for all the fathers was 36 percent (see Table 10). The passive activity of watching the infant occupied the fathers for 13 percent of the observed time (see Table 11). Watching amounted to one-third of the time fathers were engaged with their infants. When fathers' involvement in watching was analyzed for variance due to the infants' characteristics, the sex of the infant had a significant effect ($F = 4.177, p < .05$) on involvement in the direction of male infants receiving more watching behavior than female infants from their fathers (see Table 15).

**TABLE 15**

ANALYSIS OF VARIANCE SUMMARY TABLE FOR EFFECT OF INFANT SEX, DEVELOPMENTAL STATUS, AND TEMPERAMENT ON SECONDS INVOLVED IN WATCHING

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1</td>
<td>1275063</td>
<td>1275063</td>
<td>4.177**</td>
</tr>
<tr>
<td>Developmental Status</td>
<td>1</td>
<td>67531</td>
<td>67531</td>
<td>.221</td>
</tr>
<tr>
<td>Temperament</td>
<td>1</td>
<td>34511</td>
<td>34511</td>
<td>.113</td>
</tr>
<tr>
<td>Sex x Developmental Status</td>
<td>1</td>
<td>124656</td>
<td>124656</td>
<td>.408</td>
</tr>
<tr>
<td>Sex x Temperament</td>
<td>1</td>
<td>17496</td>
<td>17496</td>
<td>.057</td>
</tr>
<tr>
<td>Develop. Status x Temperament</td>
<td>1</td>
<td>2676</td>
<td>2676</td>
<td>.009</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>10073845</td>
<td>305268</td>
<td></td>
</tr>
</tbody>
</table>

** p < .05
When a test for active father involvement was made, excluding the
time spent in watching, the sex of the infant failed to have a signifi-
cant effect on the fathers' involvement (see Table 16). The findings are
supported by the suggestion that sex differences may be averaged out when
behaviors are pooled to obtain a total effect of parent and child inter-
action (Goldberg & Lewis, 1969; Moss, 1974).

TABLE 16

ANALYSIS OF VARIANCE SUMMARY TABLE FOR EFFECT OF INFANT SEX,
DEVELOPMENTAL STATUS, AND TEMPERAMENT ON PROPORTION
OF TOTAL TIME INVOLVED MINUS WATCHING

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1</td>
<td>.039</td>
<td>.039</td>
<td>2.134</td>
</tr>
<tr>
<td>Developmental Status</td>
<td>1</td>
<td>.021</td>
<td>.021</td>
<td>1.138</td>
</tr>
<tr>
<td>Temperament</td>
<td>1</td>
<td>.004</td>
<td>.004</td>
<td>.226</td>
</tr>
<tr>
<td>Sex x Developmental Status</td>
<td>1</td>
<td>.029</td>
<td>.026</td>
<td>1.441</td>
</tr>
<tr>
<td>Sex x Temperament</td>
<td>1</td>
<td>.017</td>
<td>.017</td>
<td>.937</td>
</tr>
<tr>
<td>Develop. Status x Temperament</td>
<td>1</td>
<td>.003</td>
<td>.003</td>
<td>.141</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>.605</td>
<td>.018</td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 2. The amount of time of the father's involvement
in all activities is the same regardless of the developmental status of
the infant.

Fathers were involved with developmental status 1 infants for 38 per-
cent of the time compared to 33 percent for fathers of developmental
status 2 infants (see Table 13). Fathers of younger infants spent more
time in interaction with infants than did fathers of older infants.
However, there was no significant difference in the time fathers were
involved in all activities due to the developmental status of the infant (see Table 14). The second hypothesis failed to be rejected. In this study developmental status failed to have a significant effect on the time fathers spent in activities with their infants.

**Null hypothesis 3.** The amount of time of the father's involvement in all activities is the same regardless of the temperament of the infant.

Fathers were involved with temperament 1 infants during 36 percent of the observation time and with temperament 2 infants during 35 percent of the time (see Table 13). Although fathers spent more time interacting with easy babies than difficult babies, there was no significant difference in the time fathers were involved in all activities due to the temperament of the infant. The third hypothesis failed to be rejected (see Table 14). In this study temperament failed to have a significant effect on the amount of time fathers spent in activities with their infants.

**Null hypothesis 4.** The amount of time of the father's involvement in all activities is the same regardless of the interaction effects of sex, developmental status and temperament of the infant.

Table 13 shows the percent of time fathers were involved with infants in the 12 interaction classifications. Older male babies received the most involvement from their fathers (.474); difficult female babies, the least (.261). There was no significant difference in the time fathers were involved in all activities due to the interaction of sex and developmental status, sex and temperament, or temperament and developmental status of the infant (see Table 14). The fourth hypothesis failed to be rejected. Interactions of infant sex, developmental status, and temperament failed to have a significant effect on the amount of time fathers spent in activities with infants.
Null hypothesis 5. The sex of the infant does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

Caretaking activities included feeding, bathing, diapering, dressing, putting the infant to bed, putting the infant in another place, and following the infant. The average amount of time fathers of female infants spent in these activities was 3.1 percent of the total observed time. Fathers of males were involved 3.5 percent of the time in caretaking (see Table 13).

Affective proximal activities included lifting, patting, holding the infant on his lap or in his arms, hugging, cuddling, rocking, kissing, and walking while holding his infant. Fathers of females spent 8.1 percent of the observed time in these activities while fathers of males were involved during 10.3 percent of the time (see Table 13).

Items included in social involvement were eye-to-eye contact, making faces, smiling, laughing, vocalizing, playing, and physically restricting the infant. Vocalization included making sounds, conversing, restrictive talk, verbal approval, singing, and showing a book. Play included tossing, tickling, bouncing, contact on the floor, playing games, playing with toys, offering toys, and showing a book. Fathers of females were involved in social activities during 8.0 percent of the time and fathers of males during 12.3 percent of the time (see Table 13).

There was no significant difference due to the effect of sex of infant on father involvement in caretaking activities (see Table 17). Hypothesis 5a failed to be rejected. The sex of the infant failed to have a significant effect on the amount of time the father spent in caretaking activities with the infant.
TABLE 17

ANALYSIS OF VARIANCE SUMMARY TABLE FOR EFFECT OF INFANT SEX, DEVELOPMENTAL STATUS, AND TEMPERAMENT ON PROPORTION OF TIME INVOLVED IN CARETAKING

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.089</td>
</tr>
<tr>
<td>Developmental Status</td>
<td>1</td>
<td>.002</td>
<td>.002</td>
<td>1.098</td>
</tr>
<tr>
<td>Temperament</td>
<td>1</td>
<td>.001</td>
<td>.001</td>
<td>.831</td>
</tr>
<tr>
<td>Sex x Developmental Status</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.117</td>
</tr>
<tr>
<td>Sex x Temperament</td>
<td>1</td>
<td>.002</td>
<td>.002</td>
<td>1.305</td>
</tr>
<tr>
<td>Develop. Status x Temperament</td>
<td>1</td>
<td>.001</td>
<td>.001</td>
<td>.485</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>.053</td>
<td>.002</td>
<td></td>
</tr>
</tbody>
</table>

There was no significant difference due to the effect of sex of infant on father involvement in affective proximal activities (see Table 18). Hypothesis 5b failed to be rejected. The sex of the infant failed to have a significant effect on the amount of time the father spent in affective proximal activities with the infant.

In studies of younger infants there was a trend for fathers of boys to touch their infants more than fathers of girls (Parke, 1973). The effect of age or developmental status may be a contributing factor to different results in the studies.

There was no significant difference in father involvement in social activities due to the effect of sex of the infant (see Table 19). Hypothesis 5c failed to be rejected. The sex of the infant failed to have a significant effect on the amount of time the father spent in social activities with the infant.
### TABLE 18

**ANALYSIS OF VARIANCE SUMMARY TABLE FOR EFFECT OF INFANT SEX, DEVELOPMENTAL STATUS, AND TEMPERAMENT ON PROPORTION OF TIME INVOLVED IN AFFECTIVE PROXIMAL ACTIVITIES**

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1</td>
<td>.004</td>
<td>.004</td>
<td>.565</td>
</tr>
<tr>
<td>Developmental Status</td>
<td>1</td>
<td>.042</td>
<td>.042</td>
<td>5.968***</td>
</tr>
<tr>
<td>Temperament</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.053</td>
</tr>
<tr>
<td>Sex x Developmental Status</td>
<td>1</td>
<td>.022</td>
<td>.022</td>
<td>3.161*</td>
</tr>
<tr>
<td>Sex x Temperament</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.005</td>
</tr>
<tr>
<td>Develop. Status x Temperament</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.055</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>.233</td>
<td>.007</td>
<td></td>
</tr>
</tbody>
</table>

* p < .10  
*** p < .025

### TABLE 19

**ANALYSIS OF VARIANCE SUMMARY TABLE FOR EFFECT OF INFANT SEX, DEVELOPMENTAL STATUS, AND TEMPERAMENT ON PROPORTION OF TIME INVOLVED IN SOCIAL ACTIVITIES**

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1</td>
<td>.015</td>
<td>.015</td>
<td>2.591</td>
</tr>
<tr>
<td>Developmental Status</td>
<td>1</td>
<td>.011</td>
<td>.011</td>
<td>1.825</td>
</tr>
<tr>
<td>Temperament</td>
<td>1</td>
<td>.002</td>
<td>.002</td>
<td>.384</td>
</tr>
<tr>
<td>Sex x Developmental Status</td>
<td>1</td>
<td>.001</td>
<td>.001</td>
<td>.123</td>
</tr>
<tr>
<td>Sex x Temperament</td>
<td>1</td>
<td>.029</td>
<td>.029</td>
<td>5.007**</td>
</tr>
<tr>
<td>Develop. Status x Temperament</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.002</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>.192</td>
<td>.006</td>
<td></td>
</tr>
</tbody>
</table>

** p < .05  
** p < .05
The fathers in the present study did not spend more time in social behavior with their daughters than with their sons as was found earlier (Moss, 1974). Here again, the infants were younger than those in the present study.

Fathers of boys played 7.5 percent of the time compared to 3.8 percent of the time for fathers of girls. The mean proportion of time fathers were involved in the components of social activities by infants' sex, developmental status and temperament is in Appendix I.

There was a trend ($F = 3.092, p < 0.10$) for fathers of males, more than fathers of females, to be involved in the play component of social activities. Table 20 shows the $F$ values for the effects of sex, developmental status, and temperament on father involvement in components of social activities.

There was no significant difference or trend in father involvement in rough-house play due to the sex of the child. Rough-house play included tossing, tickling, bouncing, and contact with the infant. This finding is consistent with the results of other studies of fathers of infants similar in age, where no sex differences in play behavior was found (Pedersen & Robson, 1969), and with the studies that indicate differential treatment of the sexes in rough-house play does not appear until the children are older (Fagot, 1974; Tasch, 1952).

There was no significant difference in vocalization to the infant due to sex. Fathers vocalized to boys 4.1 percent of the time and to girls 3.1 percent of the time (see Appendix I). In vocal involvement fathers may be less affected by the sex of the child than are mothers. Mothers of infants of comparable ages to those in this study participated.
TABLE 20

F VALUES for Effects of Infant Sex, Developmental Status, and Temperament on Father Involvement in Components of Social Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Sex</th>
<th>Developmental Status</th>
<th>Temperament</th>
<th>Sex and Develop. Status</th>
<th>Sex and Temperament</th>
<th>Temperament and Develop. Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Play</td>
<td>3.092*</td>
<td>2.490</td>
<td>.553</td>
<td>.060</td>
<td>.714</td>
<td>.677</td>
</tr>
<tr>
<td>Rough-House Play</td>
<td>.341</td>
<td>1.687</td>
<td>.036</td>
<td>.191</td>
<td>.006</td>
<td>.345</td>
</tr>
<tr>
<td>Vocalization</td>
<td>1.165</td>
<td>1.244</td>
<td>.055</td>
<td>3.368*</td>
<td>4.047*</td>
<td>.241</td>
</tr>
<tr>
<td>Talking</td>
<td>.032</td>
<td>5.049**</td>
<td>.147</td>
<td>2.389</td>
<td>7.508****</td>
<td>.103</td>
</tr>
<tr>
<td>Sounds</td>
<td>2.309</td>
<td>5.229**</td>
<td>2.530</td>
<td>1.278</td>
<td>2.116</td>
<td>4.414**</td>
</tr>
</tbody>
</table>

* p < .10 trend
** p < .05
**** p < .01

In verbal interaction with girls to a more noticeable degree than with boys (Clarke-Stewart, 1973).

Differences in amount of vocalizing by fathers to boys and girls was found in another study (Rebelsky & Hanks, 1971). The interaction effect of sex and age are important to consider when comparing these studies.

Null hypothesis 6. The developmental status of the infant does not have an effect on the amount of time the father spends with the infant in a) caretaking activities, b) affective proximal activities, and c) social activities.

Fathers of developmental status 1 infants were involved in caretaking activities 4.1 percent of the time and fathers of developmental
status 2 infants were involved during 2.4 percent of the time. Fathers were involved in affective proximal activities with developmental status 1 infants during 13.3 percent of the time and with developmental status 2 infants during 5.1 percent of the time. Social activities occupied fathers of developmental status 1 infants 8.1 percent of the time and fathers of developmental status infants 12.2 percent of the time (see Table 13).

There was no significant difference in the amount of time fathers were involved in caretaking due to the developmental status of the infant (see Table 17). Hypothesis 6a failed to be rejected. The amount of time fathers spent with infants in caretaking activities was not significantly affected by the developmental status of the infant.

There was a significant difference ($F = 5.968, p < .025$) in affective proximal activities. Fathers of developmental status 1 infants were more involved than fathers of developmental status 2 infants (see Table 18). Hypothesis 6b was rejected. The amount of time fathers spent with their infants in affective proximal activities was affected by the developmental status of the infant.

It has been suggested that fathers are influenced by the culture in which they live. If the culture expects men to avoid emotional physical behavior (Lewis & Weintraub, 1974; Josselyn, 1956) this may account for the decrease in the amount of affective contact with older infants.

There was no significant difference in father involvement in social activities due to the developmental status of the infant (see Table 19). Hypothesis 6c failed to be rejected. The amount of time fathers spent with infants in social activities was not significantly affected by the developmental status of the infant.
Analysis of the vocalization components of social involvement showed fathers of developmental status 2 infants talked significantly more to them than fathers of developmental status 1 infants talked to their infants ($F = 5.229, p < .05$, see Table 20). There was no significant difference in father involvement in overall vocalization due to developmental status of the infant.

**Null hypothesis 7.** The temperament of the infant does not have an effect on the amount of time the father spends with the infant in:
- a) caretaking activities,
- b) affective proximal activities,
- c) social activities.

The fathers of temperament 1 infants were involved in caretaking activities during 3.9 percent of the observed time compared to fathers of temperament 2 infants who were involved 2.6 percent of the time. In affective proximal activities fathers of temperament 1 infants were involved 8.8 percent of the time compared to 9.5 percent of the time for fathers of temperament 2 infants. Fathers were occupied in social activities during 11.1 percent of the time with temperament 1 infants and 9.2 percent of the time with temperament 2 infants (see Table 13).

There was no significant difference in the time fathers were involved in caretaking activities due to the temperament of the infant (see Table 17). Hypothesis 7a failed to be rejected. The temperament of the infant did not significantly affect the amount of time fathers spent in caretaking activities.

There was no significant difference in the time fathers were involved in affective proximal activities due to the temperament of the infant (see Table 18). Hypothesis 7b failed to be rejected. The temperament of the infant did not significantly affect the amount of time fathers spent in affective proximal activities.
There was no significant difference in the time fathers were involved in social activities due to the temperament of the infant (see Table 19). Hypothesis 7c failed to be rejected. The temperament of the infant did not significantly affect the amount of time fathers spent in social activities.

Null hypothesis 8. The interaction effect of sex, developmental status, and temperament does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

There was no significant difference in father involvement in caretaking activities due to the interaction effect and hypothesis 8a failed to be rejected. The interaction effect of sex and developmental status, sex and temperament, and temperament and developmental status did not have a significant effect on the amount of time fathers spent with infants in caretaking activities.

There was no significant difference in father involvement in affective proximal activities due to an interaction effect, and hypothesis 8b failed to be rejected. The interaction of sex with developmental status or temperament, and developmental status and temperament did not have a significant effect on time spent in affective proximal activities. However, there was a trend (F = 3.161, p < .10) for an interaction effect of sex and developmental status. While there was a decrease in father involvement for older infants of both sexes, fathers were more involved in affective proximal activities with young boys than young girls, and more involved with older girls than older boys (see Table 21).

The interaction effect of sex and developmental status on father involvement in affective proximal activities can be compared to findings
of a study with mothers of infants of two ages and both sexes (Lewis, 1972). Boys at 3 months of age received more proximal stimulation than girls, whereas, girls at one year of age received more proximal stimulation than boys from the mother. Mothers were observed to decrease the amount of physical contact with their infants as they grew older (Clarke-Stewart, 1973). There was a decrease in the amount of time mothers held their infants between the ages of 3 weeks and 3 months (Moss, 1967).

| TABLE 21 |
| CROSS CLASSIFICATION OF SEX AND DEVELOPMENTAL STATUS IN MEAN PROPORTION OF TIME INVOLVED IN AFFECTIVE PROXIMAL ACTIVITIES |

<table>
<thead>
<tr>
<th>Developmental Status</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-walking</td>
<td>.170</td>
<td>.096</td>
</tr>
<tr>
<td>Non-speaking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking</td>
<td>.036</td>
<td>.066</td>
</tr>
<tr>
<td>Speaking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There was a significant effect on father involvement in social activities due to the interaction of sex and temperament ($F = 5.007$, $p < .05$) (see Table 19). For infants with difficult temperaments, boys received more social involvement than girls. For infants with easy temperaments, fathers of girls were more involved than fathers of boys (see Table 22). Hypothesis 8c was rejected and the alternative accepted. The amount of time the father spent with the infant in social activities was affected by the interaction effect of sex and temperament.
TABLE 22
CROSS CLASSIFICATION OF SEX AND TEMPERAMENT IN MEAN PROPORTION OF TIME INVOLVED IN SOCIAL ACTIVITIES

<table>
<thead>
<tr>
<th></th>
<th>Temperament</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Easy</td>
<td>Difficult</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>.122</td>
<td>.040</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>.100</td>
<td>.146</td>
<td></td>
</tr>
</tbody>
</table>

In the analysis of the vocalization component of social involvement there was a trend \((p < .10, \text{see Table 20})\) for an interaction effect on father involvement of sex and temperament. Males with difficult temperaments received more father vocalizations than females with difficult temperaments. With infants having easy temperaments, females received more involvement than males (see Table 23). There was also a trend for an interaction effect of sex and developmental status on vocal activities. With younger children fathers of males vocalized more than fathers of females. For older infants fathers of females vocalized more than fathers of males (see Table 24). The finding on father vocalization, in this study, is different than the fathers' vocal activities reported in the Rebelsky and Hanks (1971) study in which fathers of younger female infants vocalized more than fathers of younger male infants and fathers of older males vocalized more than fathers of older females. Rebelsky and Hanks observed fathers with infants younger than those in the present study.

There was a significant interaction effect of sex and temperament \((p < .01)\) on the amount of talking the fathers engaged in with their infants. Fathers talked more to easy female infants than easy males and
TABLE 23
CROSS CLASSIFICATION OF SEX AND TEMPERAMENT IN MEAN PROPORTION OF TIME IN VOCAL ACTIVITIES

<table>
<thead>
<tr>
<th>Sex</th>
<th>Temperament</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Easy</td>
<td>.041</td>
<td>.021</td>
</tr>
<tr>
<td>Male</td>
<td>Easy</td>
<td>.030</td>
<td>.051</td>
</tr>
</tbody>
</table>

TABLE 24
CROSS CLASSIFICATION OF SEX AND DEVELOPMENTAL STATUS IN MEAN PROPORTION OF TIME IN VOCAL ACTIVITIES

<table>
<thead>
<tr>
<th>Sex</th>
<th>Developmental Status</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Non-walking</td>
<td>.016</td>
<td>.045</td>
</tr>
<tr>
<td>Male</td>
<td>Non-walking</td>
<td>.043</td>
<td>.038</td>
</tr>
</tbody>
</table>

more to difficult males than difficult females (see Table 25). While developmental status appeared to affect sounds made to the infant, this was modified by temperament. There was a significant interaction effect of developmental status and temperament on sounds fathers made (see Table 26). With younger infants, fathers made more sounds to difficult than easy infants. With older infants, fathers of easy infants made more sounds than fathers of difficult infants. The findings suggest that fathers use other techniques for distracting difficult infants when they are older.
TABLE 25
CROSS CLASSIFICATION OF SEX AND TEMPERAMENT IN MEAN SECONDS INVOLVED IN TALKING

<table>
<thead>
<tr>
<th>Sex</th>
<th>Temperament</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Easy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>211</td>
<td>105</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>113</td>
<td>192</td>
</tr>
</tbody>
</table>

TABLE 26
CROSS CLASSIFICATION OF DEVELOPMENTAL STATUS AND TEMPERAMENT IN MEAN SECONDS INVOLVED IN MAKING SOUNDS

<table>
<thead>
<tr>
<th>Developmental Status</th>
<th>Temperament</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Easy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (Non-walking, Non-speaking)</td>
<td></td>
<td>48</td>
<td>159</td>
</tr>
<tr>
<td>2 (Walking, Speaking)</td>
<td></td>
<td>42</td>
<td>26</td>
</tr>
</tbody>
</table>

Interview Caretaking Scores

Father involvement in caretaking based on a subjective report by the fathers was scaled from 0-5. No involvement was rated 0 with increasingly high involvement going to a maximum of 5. The caretaking scores derived from the interview with the fathers were subjected to analysis of variance tests. There was no significant difference in the amount of time fathers were involved in caretaking due to the sex, developmental status, or
temperament of the infant, or to an interaction effect of these characteristics (see Table 27).

**TABLE 27**

**ANALYSIS OF VARIANCE SUMMARY TABLE FOR EFFECT OF INFANT SEX, DEVELOPMENTAL STATUS, AND TEMPERAMENT ON FATHER CARETAKING INTERVIEW SCORES**

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1</td>
<td>.81</td>
<td>.81</td>
<td>.643</td>
</tr>
<tr>
<td>Developmental Status</td>
<td>1</td>
<td>.00</td>
<td>.00</td>
<td>.002</td>
</tr>
<tr>
<td>Temperament</td>
<td>1</td>
<td>1.33</td>
<td>1.33</td>
<td>1.058</td>
</tr>
<tr>
<td>Sex x Developmental Status</td>
<td>1</td>
<td>1.25</td>
<td>1.25</td>
<td>.991</td>
</tr>
<tr>
<td>Sex x Temperament</td>
<td>1</td>
<td>.00</td>
<td>.00</td>
<td>.000</td>
</tr>
<tr>
<td>Develop. Status x Temperament</td>
<td>1</td>
<td>.41</td>
<td>.41</td>
<td>.323</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>41.53</td>
<td>1.26</td>
<td></td>
</tr>
</tbody>
</table>

*Note:* The range of scores is between 0 and 5. (0 = no involvement, 5 = high involvement).

**Unmeasured Intervening Factors**

It is possible that certain characteristics of the fathers and their families not included in the design could have had an effect on father involvement. In particular, the fathers' participation, or lack of participation, in prenatal classes or the birth of the infant may have played a part in forming his attitude toward fathering and, consequently, his behavior with the infant. During discussions with the fathers after completing the interviews it was learned that the hospital and some doctors in the sample area encouraged fathers to participate in preparation classes and to be present at the birth of the child.
A second factor, wives employment status, may have influenced the findings. More mothers of boys than girls were employed full time (9 males, 3 females, see Table 3). However, there was no significant difference in father caretaking of boys and girls. This is one area of involvement in which differences could conceivably have occurred if the father was acting as a mother substitute in caring for the infant.

After the data were collected and analyzed the fathers were ranked according to their involvement time in total participation, total minus watching, caretaking, affective proximal, and social activities. The 40 fathers were divided into two groups, those with the 20 lowest and 20 highest scores of involvement in each of the above areas. The fathers in each group were then examined by characteristics of age, education, participation in prenatal classes and the birth process, and employment status of the wives. The number and percent of lowest and highest scoring fathers in each category of involvement by age group, education, participation, and wives' employment status is summarized in Appendix J.

Summary

The 40 fathers in this study were involved with their infants during 36 percent of the observation time. They interacted with infants in social and affective proximal areas of fathering for longer amounts of time than in caring for the infants' routine physical needs.

Fathers spent more time in watching their infants than in any other single activity. The second greatest amount of time was spent by fathers in social activities with their infants. In examining the components of social involvement fathers were found to spend more time stimulating their infants in play than in vocal activities.
While not all fathers participated in each activity, all did watch, talk to, make sounds at, and smile at their infants. Most fathers, 93 percent, offered their infants toys to play with, 90 percent held them, and 90 percent laughed with them.

For most activities the range of time of the fathers' involvement was large, indicating a high degree of variability in father behavior. Some of this variability may be accounted for by the infants' characteristics of sex, developmental status, and temperament.

Whether or not the infants' characteristics had an effect on father involvement in this study depended upon the nature of that involvement. That is, presenting the findings in terms of the father's overall involvement with his infant would have left the effects of infant sex, developmental status, and temperament undisclosed.

There was a trend for the sex of the infant to affect overall father involvement, but this trend was not present when watching the infant was eliminated from the involvement. Fathers did watch boys more than girls. In both the observation and interview assessment of the fathers' involvement with infants in caretaking, sex failed to have a significant effect. The sex of the infant also failed to have a significant effect on the amount of affective proximal activities by the father. While sex of the infant failed to have a significant effect on the fathers' involvement in social activities, fathers played more with boys than girls. These differences were not at a significant level.

The developmental status of the infant failed to have a significant effect on the overall involvement or the amount of caretaking or social activities in which they participated. Developmental status did have a
significant effect on affective proximal activities. Younger infants received more proximal involvement than older infants from their fathers. Fathers talked more to older than younger infants. The temperament of the infant failed to have a significant effect on the time fathers spent in caretaking, affective proximal, or social activities. There were some significant interaction effects of temperament and sex. Fathers were more involved in social activities with difficult boys than difficult girls. They were more involved with easy girls than easy boys. Fathers also talked more to easy females than males, and to difficult males than females. An interaction effect of developmental status and temperament was found for the time spent in making sounds. Fathers were involved with young difficult infants for the greatest amount of time.
CHAPTER V

SUMMARY AND IMPLICATIONS

Summary

Purpose and methodology. The study was designed to investigate fathers' involvement with their first-born infants in caretaking, affective proximal, and social activities, and to examine the effect of the infants' sex, developmental status, and temperament on the fathers' participation. Data were obtained through observation, questionnaire and interviews. A total of three hours, on at least two separate occasions, were spent in each home observing fathers and their infants with mothers present.

Five criteria were established for selecting the subjects for study. These were: 1) the sample population lived within a 10 - 15 mile radius of Bowling Green, Ohio, and had infants born at Wood County Hospital; 2) the infant was the first child; 3) both the father and his wife agreed to participate and were at home during the observation period; 4) the infants were free from observable abnormalities at birth and in the months preceding the observation; 5) developmental status 1 infants were between 5.0 and 7.0 months, not walking and not speaking; developmental status 2 infants were walking, speaking two words understandable to the parents, and were not older than 15 months.
The instrument for identifying the infant's temperament was the Carey Survey of Temperamental Characteristics. Five categories of reactivity were used for establishing whether the infants were "easy" or "difficult" babies. These categories were: 1) rhythmicity, 2) adaptability, 3) approach, 4) intensity, and 5) mood.

The instrument for recording father involvement was a checklist of 37 specific behaviors. Time was recorded at the start and finish of an activity, by reading minutes and seconds on a digital clock. Observations were continuously recorded for a 5-minute period, followed by a 2-minute period in which information about the main activities of the father, mother, and infant during the previous 5 minutes was written down. The sequence was repeated 26 times in at least two home visits.

An interview with the father at the conclusion of the observations provided additional information about the father's caretaking activities. Background information about the father, mother, and infant were also obtained in an interview with the father at this time.

**Sample.** The 40 fathers in this study were Caucasian, and ranged in age from 19 to 33 years with a mean age of 26.2 years. The wives of the subjects were between 18.5 and 31 years old with a mean age of 24.5. More than half of the wives were full-time homemakers. Prenatal care classes or attendance at the infant's birth was attended by all but seven fathers.

There were 20 male and 20 female infants, ten of each sex in each developmental status group. There were 27 infants in the temperament 1, easy,' category and 13 infants in the temperament 2, difficult, category.

**Findings.** The 40 fathers in this study were involved with their infants during 36 percent of the observation time. They interacted with
infants in social and affective proximal aspects of fathering more than in caring for the infants' routine physical needs.

A greater proportion of time was spent in watching their infants than in more active interaction with them. The second greatest amount of time was spent by fathers in social activities with their infants. The fathers spent more time stimulating their infants in play than in vocal activities.

While not all fathers participated in each activity under study, all did watch, talk to, make sounds at and smile at their infants. Most fathers, 93 percent, offered their infants toys to play with, 90 percent held them, and 90 percent laughed with them.

For most activities the range of time of the father's involvement was large, indicating a high degree of variability in father behavior. Some of this variability may be accounted for by the infants' characteristics of sex, developmental status, and temperament.

Whether or not the infants' characteristics had an effect on father involvement in this study depended upon the nature of that involvement. That is, presenting the findings in terms of the father's overall involvement with his infant would have left the effects of infant sex, developmental status, and temperament undisclosed.

The data were analyzed using analysis of variance to test the eight hypotheses of the study. Each hypothesis and the results of the analysis are summarized below.

**Null hypothesis 1.** The amount of time of the father's involvement in all activities is the same regardless of the sex of the infant.

Fathers of male infants were more involved than fathers of female infants in overall total participation. These differences were not at a
significant level. Hypothesis 1 failed to be rejected. However, there was a trend to lend tentative support to the alternative hypothesis that fathers' involvement in total activities is affected by the sex of the infant.

**Null hypothesis 2.** The amount of time of the father's involvement in all activities is the same regardless of the developmental status of the infant.

There was no significant difference in the time fathers were involved in all activities due to the developmental status of the infant. The second hypothesis failed to be rejected. Therefore, developmental status of the infant failed to have a significant effect on the amount of time fathers were involved with their infants when all activities were considered.

**Null hypothesis 3.** The amount of time of the father's involvement in all activities is the same regardless of the temperament of the infant.

There was no significant difference in the time fathers were involved in all activities due to the temperament of the infant. The third hypothesis failed to be rejected. Therefore, temperament of the infant failed to have a significant effect on the amount of time fathers were involved with their infants when all activities were considered.

**Null hypothesis 4.** The amount of time of the father's involvement in all activities is the same regardless of the interaction effects of sex, developmental status, and temperament of the infant.

There was no significant difference in the time fathers were involved in all activities due to the interaction of sex, developmental status, and temperament of the infant. The fourth hypothesis failed to be rejected. Therefore, the interaction of sex, developmental status, and temperament failed to have a significant effect on the amount of time fathers were involved with their infants when all activities were considered.
Null hypothesis 5. The sex of the infant does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

There was no significant difference due to the effect of sex of infant for father involvement in caretaking activities. Hypothesis 5a failed to be rejected. Therefore, sex of the infant failed to have a significant effect on the amount of time fathers were involved in caretaking activities.

There was no significant difference due to the effect of sex of infant on father involvement in affective proximal activities. Hypothesis 5b failed to be rejected. Therefore, sex of the infant failed to have a significant effect on the amount of time fathers were involved in affective proximal activities.

There was no significant difference in father involvement in social activities due to the effect of sex of the infant. Hypothesis 5c failed to be rejected. Therefore, sex of the infant failed to have a significant effect on the amount of time fathers were involved in social activities. However, there was a trend for fathers of males, more than fathers of females, to be involved in the play component of social activities. There was no significant difference in father involvement in rough-house play due to the sex of the child nor in vocalization to the infant related to the sex of the infant.

Null hypothesis 6. The developmental status of the infant does not have an effect on the amount of time the father spends with the infant in a) caretaking activities, b) affective proximal activities, and c) social activities.

There was no significant difference in the amount of time fathers were involved in caretaking due to the developmental status of the
infant. Hypothesis 6a failed to be rejected. Therefore, developmental status of the infant failed to have a significant effect on the amount of time fathers were involved in caretaking activities.

There was a significant difference in father involvement in affective proximal activities. Fathers of younger, developmental status 1, infants were more involved than fathers of older infants. Hypothesis 6b was rejected. The amount of time the father spent with the infant in affective proximal activities was affected by the developmental status of the infant.

There was no significant difference in father involvement in social activities due to the developmental status of the infant. Hypothesis 6c failed to be rejected. Therefore, developmental status of the infant did not have a significant effect on the amount of time fathers were involved in social activities.

Analysis of the vocalization components of social involvement showed fathers of older infants talked significantly more to them than fathers of younger infants talked to their infants. There was no significant difference of father involvement in overall vocalization due to developmental status of the infant.

Null hypothesis 7. The temperament of the infant does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

There was no significant difference in the time fathers were involved in caretaking activities due to the temperament of the infant. Hypothesis 7a failed to be rejected. Therefore, temperament of the infant failed to have a significant effect on the amount of time fathers were involved with their infants in caretaking activities.
There was no significant difference in time fathers were involved in affective proximal activities due to the temperament of the infant. Hypothesis 7b failed to be rejected. Therefore, temperament of the infant failed to have a significant effect on the amount of time fathers were involved with their infants in affective proximal activities.

There was no significant difference in the time fathers were involved in social activities due to the temperament of the infant. Hypothesis 7c failed to be rejected. Therefore, temperament of the infant failed to have a significant effect on the amount of time fathers were involved with their infants in social activities.

Null hypothesis 8. The interaction effect of sex, developmental status, and temperament does not have an effect on the amount of time the father spends with the infant in: a) caretaking activities, b) affective proximal activities, and c) social activities.

There was no significant difference in father involvement in caretaking activities due to the interaction effect and hypothesis 8a failed to be rejected. Therefore, the interaction of sex, developmental status, and temperament failed to have a significant effect on the amount of time fathers were involved with their infants in caretaking activities.

There was no significant difference in father involvement in affective proximal activities due to an interaction effect, and hypothesis 8b failed to be rejected. Father involvement was greater for younger boys than girls and for older girls than boys. This interaction effect of sex and developmental status was not at a significant level.

There was a significant effect on father involvement in social activities due to the interaction of sex and temperament. Fathers were more involved with boys than girls of difficult temperament, and with girls than boys of easy temperament. Hypothesis 8c was rejected and the
alternative accepted. The amount of time father spent with the infant in social activities was affected by the interaction effect of sex and temperament.

There was a significant interaction effect of sex and temperament on the amount of talking the fathers engaged in with their infants. Fathers talked more to easy female infants than easy males and more to difficult males than difficult females. While developmental status appeared to affect sounds made to the infant, this was modified by temperament. There was a significant interaction effect of developmental status and temperament on sounds fathers made. Fathers were involved with young difficult infants for the greatest amount of time.

Implications

The finding that fathers were involved in social activities to a greater extent than in caring for the physical needs of their infants when the mothers were also available suggests that present day fathers are still influenced by the cultural role expectation that the mother takes major responsibility for feeding and diapering the infant. The father, in using his available time at home to engage in social activities, particularly play and physical contact with the infant, is providing important stimulating experiences for the child's growth and development.

Other research has related variations in intellectual and personality development of older children to absent or low father availability in early childhood. Since fathers were observed to spend the greatest amount of time in social activities with their infants this aspect of father participation may be the relevant factor. If mothers are primarily involved in caring for physical needs and have little time to participate
in social activities, children reared in homes without actively participating fathers may lack experiences necessary for their maximum development. Single-parent mothers are particularly challenged to find ways to include in infant care the kind of social involvement fathers contribute.

The predominant area of father involvement with infants has implications for women seeking egalitarian participation from their husbands including the physical care of the infant. If the activities in which fathers engage are expanded to include more physical caretaking it is possible that social interaction will decrease. Such a decrease in father-infant interaction could be detrimental to the infants' growth and development. Mothers' roles, in such instances, may need expansion to include a portion of the social interaction formerly provided by fathers.

The finding that the infant characteristics had little effect on the fathers' participation implies that the large range in fathers' involvement was related to other factors.

Further Research

Experiences and findings of this study generated the following ideas for further research:

1) Controlling intervening variables of father and mother characteristics through longitudinal studies of the same father-infant pairs at succeeding phases in the infant's development.

2) Exploring other variables that influence father involvement with infants. These include: a) matched samples of fathers with and without prenatal classes and childbirth experiences, b) maternal attitudes and behavior toward various aspects of father involvement with infants, c) fathers previous exposure to infants and young children, and d) the
influence on the father of his father's involvement with infants.

3) Investigating the effect of the father's involvement on the infant's cognitive and social development.

4) Observing contingent responses of the father to the infant and the infant to the father to gain a deeper understanding of the bi-directional nature of the interaction.
APPENDIX A

Operational Definition of Each Coded Behavior on the Checklist
Operational Definition of Each Coded Behavior on the Checklist

1. Feed bottle. The father feeds the infant a bottle containing milk, juice, or water. The father offers liquids from a glass.

2. Feed solids. The father feeds or in other ways assists the infant with solid food.

3. Diaper. The father changes the infant's diaper or training pants.

4. Toileting. The father assists the child in using the potty.

5. Dress. The father undresses or dresses the infant.

6. Bathe. The father gives the infant a bath. The father wipes or washes the infant's hands and/or face.

7. Put bed. The father puts the infant in the crib or carriage or pen to sleep.

8. Put pen/other. The father puts the infant in a playpen, carriage, high chair, swing, on the floor in order to play or eat but not to sleep.

9. Watch. The father watches the infant as it plays or eats.

10. Follow. The father follows the infant by walking with it or after it when the infant is locomoting.

11. Lift. The father picks the infant up in response to crying or lifting of arms by the infant.

12. Pat. The father pats or strokes the infant in response to crying, complaining, or to comfort and reassure the infant.

13. Hold-lap. The father holds the infant on his lap.

14. Hold-arms. The father holds the infant in his arms while standing.

15. Cuddle. The father holds infant close in his arms whether sitting or standing.

16. Rock. The father, while sitting in a rocking chair holds and rocks the infant.

17. Walk-holding. The father holds the infant and walks with it, in his arms.
18. Hug. The father hugs the infant wherever the infant happens to be.

19. Kiss. The father kisses the infant wherever the infant happens to be.

20. Eye-to-eye. The father exchanges looks with the infant. The infant looks at the father while the father is looking at the infant.

21. Faces. The father makes faces at the infant to evoke a response.

22. Smile. The father smiles at the infant, whether or not the infant smiles back.

23. Laugh. The father laughs at what the infant is doing or when the infant laughs.

24. Sounds. The father makes vocal sounds at the infant.

25. Talk-converse. The father talks about what the infant is doing or how the infant looks.

26. Talk-approve. The father talks to the infant in an approving way, such as, "That's a good girl."

27. Talk-restrict. The father makes negative remarks such as, "No, don't do that, come away from there" or "bad girl."

28. Sing. The father hums or sings to the infant.

29. Show book. The father reads to or shows pictures in a book to the infant.

30. Play-toss. The father throws the infant in the air and catches the child.

31. Play-tickle. The father tickles the infant.

32. Play-bounce. The father bounces the infant on his knee, lap or foot, or holds the infant to stress musculature development.

33. Play-contact. The father plays physically with the infant such as wrestling on the floor or rough-housing.

34. Game-peek. The father plays peek-a-boo with the infant with hands, cloth, or hides until infant finds him.

Game-other. The father plays clap hands or some other game.

35. Present toy. The father gives a toy to the infant.

36. Play-toy. The father and infant play with a toy.
37. Restrict-physical. The father physically removes the infant from a situation or hits or spanks the child.

38. Other. Any caretaking activities by the father not coded.

39. Other. Any affective proximal activities by the father with the infant not coded.

40. Other. Any social activities by the father with the infant not coded.
APPENDIX B

Father Involvement Checklist
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Time: ____________________________  Infant Location______________________
Setting (room)_________________  Infant Mood_______________________
Mother Activity_________________  Incidents/feelings noticed__________
Father Activity_________________  _________________________________
APPENDIX C

Carey Survey of Temperamental Characteristics
Subject no.

Sleep

1. a) Generally goes to sleep at about same time (within half an hour) night and naps.
   b) Partly the same times, partly not.
   c) No regular pattern at all. Times vary 1-2 hours or more.

2. a) Generally wakes up at about same time, night and naps.
   b) Partly the same times, partly not.
   c) No regular pattern at all. Times vary 1-2 hours or more.

3. a) Generally happy (smiling, etc.) on waking up and going to sleep.
   b) Variable mood at these times.
   c) Generally fussy on waking up and going to sleep.

4. a) Moves about crib much (such as from one end to other) during sleep.
   b) Moves a little (a few inches).
   c) Lies fairly still. Usually in same position when awakens.

5. With change in time, place or state of health:
   a) Adjusts easily and sleeps fairly well within 1-2 days.
   b) Variable pattern.
   c) Bothered considerably. Takes at least 3 days to readjust sleeping routine.

Feeding

6. a) Generally takes milk at about same time. Not over 1 hour variation.
   b) Sometimes same, sometimes different times.
   c) Hungry times quite unpredictable.

7. a) Generally takes about same amount of milk, not over 2 oz. difference.
   b) Sometimes same, sometimes different amounts.
   c) Amounts taken quite unpredictable.

8. a) Easily distracted from milk feedings by noises, changes in place or routine.
   b) Sometimes distracted, sometimes not.
   c) Usually goes right on sucking in spite of distractions.

9. a) Easily adjusts to parents' efforts to change feeding schedule within 1-2 tries.
   b) Slowly (after several tries) or variable.
   c) Adjusts not at all to such changes after several tries.

10. a) If hungry and wants milk, will keep refusing substitutes (solids, water, pacifier) for many minutes.
    b) Intermediate or variable.
    c) Gives up within a few minutes and takes what is offered.
11. a) With interruptions of milk or solid feedings, as for burping, is generally happy, smiles.
   b) Variable response.
   c) Generally cries with these interruptions.

12. a) Always notices (and reacts to) change in temperature or type of milk or substitution of juice or water.
   b) Variable.
   c) Rarely seems to notice (and react to) such changes.

13. a) Suck generally vigorous.
   b) Intermediate.
   c) Suck generally mild and intermittent.

14. a) Activity during feedings - constant squirming, kicking, etc.
   b) Some motion: Intermediate.
   c) Lies quietly throughout.

15. a) Always cries loudly when hungry.
   b) Cries somewhat but only occasionally hard or for many minutes.
   c) Usually just whimpers when hungry, but doesn't cry loudly.

16. a) Hunger cry usually stopped for at least a minute by picking up, pacifier, putting on bib, etc.
   b) Sometimes can be distracted when hungry.
   c) Nothing stops hunger cry.

17. a) After feeding baby smiles and laughs.
   b) Content but not usually happy (smiles, etc.) or fussy.
   c) Fussy and wants to be left alone.

18. a) When full, clamps mouth closed, spits out food or milk, bats at spoon, etc.
   b) Variable.
   c) Just turns head away or lets food drool out of mouth.

19. a) Initial reaction to new foods (solids, juices, vitamins) acceptance. Swallows them promptly without fussing.
   b) Variable response.
   c) Usually rejects new foods. Makes face, spits out, etc.

20. a) Initial reaction to new foods pleasant (smiles, etc.), whether accepts or not.
   b) Variable or intermediate.
   c) Response unpleasant (cries, etc.), whether accepts or not.

21. a) This response is dramatic whether accepting (smacks lips, laughs, squeals) or not (cries).
   b) Variable.
   c) This response mild whether accepting or not. Just smiles, makes face or nothing.
22. a) After several feedings of any new food, accepts it. 
b) Accepts some, not others. 
c) Continues to reject most new foods after several tries.

23. a) With changes in amounts, kinds, timing of solids, does not seem to mind. 
b) Variable response. Sometimes accepts, sometimes not. 
c) Does not accept these changes readily.

24. a) Easily notices and reacts to difference in taste and consistency. 
b) Variable. 
c) Seems seldom to notice or react to these differences.

25. a) If does not get type of solid food desired, keeps crying till gets it. 
b) Variable. 
c) May fuss briefly but soon gives up and takes what offered.

Soiling and Wetting

26. a) When having bowel movement, generally cries. 
b) Sometimes cries. 
c) Rarely cries though may get red in face. Generally happy (smiles, etc.) in spite of having b.m.

27. a) Bowel movements generally at same time of day (usually within 1 hour of same time). 
b) Sometimes at same time, sometimes not. 
c) No real pattern. Usually not same time.

28. a) Generally indicates somehow that is soiled with b.m. 
b) Sometimes indicates. 
c) Seldom or never indicates.

29. a) Usually fusses when diaper soiled with b.m. 
b) Sometimes fusses. 
c) Usually does not fuss.

30. a) Generally indicates somehow that is wet (no b.m.) 
b) Sometimes indicates. 
c) Seldom or never indicates.

31. a) Usually fusses when diaper wet (no b.m.) 
b) Sometimes fusses. 
c) Usually does not fuss.

32. a) When fussing about diaper, does so loudly. A real cry. 
b) Variable. 
c) Usually just a little whimpering.
33. a) If fussing about diaper, can easily be distracted for at least a few minutes by being picked up, etc.
   b) Variable.
   c) Nothing distracts baby from fussing.

Diapering and dressing
34. a) Squirms and kicks much at these times.
   b) Moves some.
   c) Generally lies still during these procedures.

35. a) Generally pleasant (smiles, etc.) during diapering and dressing.
   b) Varied.
   c) Generally fussy during these times.

36. a) These feelings usually intense: Vigorous laughing or crying.
   b) Varied.
   c) Mildly expressed usually. Little smiling or fussing.

Bathing
37. a) Usual reaction to bath - smiles or laughs.
   b) Variable or neutral.
   c) Usually cries or fusses.

38. a) Like or dislike of bath is intense. Excited.
   b) Variable or intermediate.
   c) Like or dislike is mild. Not very excited.

39. a) Kicks, splashes and wiggles throughout.
   b) Intermediate - moves moderate amount.
   c) Lies quietly or moves little.

40. a) Reaction to very first tub (or basin) bath. Seemed to accept it right away.
   c) At first protested against bath.

41. a) If protested at first, accepted it after 2 or 3 times.
   b) Sometimes accepted, sometimes not.
   c) Continued to object even after two weeks.

42. a) If bath by different person or in different place, readily accepts change first or second time.
   b) May or may not accept.
   c) Objects consistently to such changes.

Procedures - nail cutting, hair brushing, washing face and hair, medicines.
43. a) Initial reaction to any new procedure—generally acceptance.
   b) Variable
   c) Generally objects; fusses or cries.
44. a) If initial objection, accepts after 2 or 3 times.
   b) Variable acceptance. Sometimes does, sometimes does not.
   c) Continues to object even after several times.

45. a) Generally pleasant during procedures once established—smiles, etc.
   b) Neutral or variable.
   c) Generally fussy or crying during procedures.

46. a) If fussy with procedures, easily distracted by game, toy, singing, etc. — and stops fussing.
   b) Variable response to distractions.
   c) Not distracted. Goes on fussing.

Visits to Doctor

47. a) With physical exam, when well, generally friendly and smiles.
   b) Both smiles and fusses; variable.
   c) Fusses most of time.

48. a) With shots cries loudly for several minutes or more.
   b) Variable.
   c) Cry over in less than a minute.

49. a) When crying from shot, easily distracted by milk, pacifier, etc.
   b) Sometimes distracted, sometimes not.
   c) Goes right on crying no matter what is done.

Response to illness

50. a) With any kind of illness much crying and fussing.
   b) Variable.

Sensory — reactions to sounds, light, touch.

51. a) Reacts little or not at all to unusual loud sound or bright light.
   b) Intermediate or variable.
   c) Reacts to almost any change in sound or light.

52. a) This reaction to light or sound is intense — startles or cries loudly.
   b) Intermediate — sometimes does, sometimes not.
   c) Mild reaction — little or no crying.

53. a) On repeated exposure to these same lights or sounds, does not react so much any more.
   b) Variable.
   c) No change from initial negative reaction.

54. a) If already crying about something else, light or sound makes crying stop briefly at least.
   b) Variable response.
   c) Makes no difference.
Responses to people

55. a) Definitely notices and reacts to differences in people: age, sex, glasses, hats, other physical differences.
   b) Variable reaction to differences.
   c) Similar reactions to most people unless strangers.

56. a) Initial reaction to approach by strangers positive, friendly (smiles, etc.).
   b) Variable reaction.
   c) Initial rejection or withdrawal.

57. a) This initial reaction to strangers is intense: crying or laughing.
   b) Variable.
   c) Mild - frown or smile.

58. a) General reaction to familiar people is friendly - smiles, laughs.
   b) Variable reaction.
   c) Generally glum or unfriendly. Little smiling.

59. a) This reaction to familiar people is intense - crying or laughing.
   b) Variable.
   c) Mild - frown or smile.

Reaction to new places and situations

60. a) Initial reaction acceptance - tolerates or enjoys them within a few minutes.
   b) Variable.
   c) Initial reaction rejection - does not tolerate or enjoy them within a few minutes.

61. a) After continued exposure (several minutes) accepts these changes easily.
   b) Variable.
   C) Even after continued exposure, accepts changes poorly.

Play

62. a) In crib or play pen can amuse self for half hour or more looking at mobile, hands, etc.
   b) Amuses self for variable length of time.
   c) Indicates need for attention or new occupation after several minutes.

63. a) Takes new toy right away and plays with it.
   b) Variable.
   c) Rejects new toy when first presented (won't grasp it or drops it right away.

64. a) If rejects at first, after short while (several minutes) accepts new toy.
   b) Variable.
   c) Adjusts slowly to new toy.
65. a) Play activity involves much movement - kicking, waving arms, etc. Much exploring.
   b) Intermediate.
   c) Generally lies quietly while playing. Explores little.

66. a) If reaching for toy out of reach, keeps trying at it for 2 minutes or more.
   b) Variable.
   c) Stops trying in less than 1/2 minute.

67. a) When given a toy, plays with it for many minutes.
   b) Variable.
   c) Plays with one toy for only short time (only 1-2 minutes).

68. a) When playing with one toy, easily distracted by another.
   b) Variable.
   c) Not easily distracted by another toy.

69. a) Play usually accompanied by laughing, smiling, etc.
   b) Variable or intermediate.
   c) Generally fussy during play.

70. a) Play is intense: much activity, vocalization or laughing.
   b) Variable or intermediate.
   c) Plays quietly and calmly.
APPENDIX D

Temperament Questionnaire - Scoring Sheet
## Temperament Questionnaire - Scoring Sheet

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rhythmicity</th>
<th>Adaptability</th>
<th>Approach</th>
<th>Threshold</th>
<th>Intensity</th>
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<th>Distractability</th>
<th>Persistence</th>
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x = no score
* = score in 2 categories
APPENDIX E

Father Interview
Subject number

Date

1. Has this been a typical afternoon (evening) for you and your family?

2. Are there any other things you do with your infant that you haven't done this evening (afternoon)?

How about when you are outside?

3. Do you ever the baby?
   a. feed bottle
   b. feed solids
   c. diaper
   d. dress
   e. bathe
   f. put to bed

4. How often do you do this?

5. Who goes to the infant at night if he/she awakens after you and your wife have gone to bed?

6. Was this your first experience with an infant?

7. Did you attend any classes about childbirth or childcare?

8. Did you observe the birth of the baby?
APPENDIX F

Background Information
Subject number

Date

Background Information

1. Infant's date of birth

2. Sex of infant

3. Age when walking alone

4. Age when two words spoken

5. Any abnormalities of infant at birth or during first year

6. Mother's date of birth

7. Father's date of birth

8. Occupation of mother

9. Occupation of father

10. Education of mother

11. Education of father
APPENDIX G

Agreement to Participate in Study
We understand the nature of this study and have agreed to participate voluntarily. The information obtained shall be held in confidence and no names shall be used in discussing the results of the study.

Signed:

Mr.________________________________________

Mrs.________________________________________
APPENDIX H

Letter to Fathers in Pilot Study

Pilot Study Information Sheet

Pilot Study Checklist
Dear Mr.____________________

Your participation in the prenatal classes at Wood County Hospital and your interest in infant development has encouraged us to contact you. We would like your assistance in a study about infants and fathers that is being done by a graduate student at The Ohio State University. Since very little is known about the relationship between fathers and infants, your cooperation will be most welcome and valuable.

We would like you to keep a diary of all the activities you do with and for your baby for a period of twenty-four hours. We would like to know the amount of time you spend doing each thing, what your baby was doing at the time and what you did. This would include everything from feeding to playing with or talking to or hugging the baby. It would be helpful to have your description as detailed as possible.

We have included a return envelope for your convenience and hope that you can complete this within the next few weeks. Since we are interested in the variety of activities you engage in, it might be good to choose a day for record keeping when you have the most time to spend at home with your baby.

Thank you very much. 

Sincerely,
**Pilot Study Information Sheet**

birthdate of infant: __________________________________________

sex of infant: ________________________________________________

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<tr>
<th>Time</th>
<th>Father Activity</th>
<th>Infant Activity</th>
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<tr>
<td>Number of minutes in activity</td>
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Note: This information was requested in the booklet.
Pilot Study Checklist

Day of Week

Number of minutes

1. feed bottle
2. feed solid
3. change diaper
4. dress or undress
5. bathe
6. put to bed
7. push in stroller
8. watch while baby plays
9. take baby for walk
10. pat baby
11. pick up baby to comfort
12. hold baby
13. carry in arms
14. rock baby
15. go to baby during night

16. hug baby
17. kiss baby

18. look at each other
19. make faces at baby
20. smile at baby
21. laugh
22. make sounds at baby
23. talk to baby
24. sing to baby
25. read to baby
26. toss in air
27. tickle
28. play with toy
29. play game as peek-a-boo
30. play physical game
31. play other game (please list)
32. other (list)
APPENDIX I

Table 28 Mean Proportion of Time Involved in Components of Social Activities by Infants' Sex, Developmental Status, and Temperament
TABLE 28

MEAN PROPORTION OF TIME INVOLVED IN COMPONENTS OF SOCIAL ACTIVITIES
BY INFANTS' SEX, DEVELOPMENTAL STATUS, AND TEMPERAMENT

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<th>Temperament 1</th>
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*Time in seconds
APPENDIX J

Table 29 Number and Percent of Fathers with 20 Lowest and 20 Highest Scores of Involvement by Age Group

Table 30 Number and Percent of Fathers with 20 Lowest and 20 Highest Scores of Involvement by Highest Grade Completed

Table 31 Number and Percent of Fathers with 20 Lowest and 20 Highest Scores of Involvement by Prenatal Participation

Table 32 Number and Percent of Fathers with 20 Lowest and 20 Highest Scores of Involvement by Employment Status of Wife
### TABLE 29

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### TABLE 32

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