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MOTHER-INFANT, FATHER-INFANT RELATIONSHIPS

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

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Soheila Sobhani

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ABSTRACT

Mother-Infant Father-Infant Relationships

by

Soheila Sobhani, Master of Science

Utah State University, 1983

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This study was designed to determine the contributions of mothers and fathers to infant social development. Nine 10-month-olds, 12 fourteen-month-olds, and 12 eighteen-month-olds were observed with their mothers and fathers in a laboratory situation. Parent-infant interactions were videotaped during three different episodes: Mother-infant dyad, father-infant dyad, and mother-father-infant triad. Findings revealed different interaction patterns as a result of the ages of infants and the interaction situation. Older infants and their parents engaged in more verbal behavior (responsive talk, social speech, and story reading) than younger infants and their parents. It was found that parents and infants interacted with each other more when observed in dyads than in triads. However, it is argued that situation may not be a significant factor, if the duration of interactions, is controlled for. There were no significant differences between mothers and fathers in the amount of interaction they engaged in with their infants. Likewise, there were few gender differences across age

groups in parent-infant interaction. The data are discussed with respect to the importance of early interaction patterns and the need to control for interaction time when examining "second-order" effects.

(49 pages)

CHAPTER I

INTRODUCTION

Without question, the infant's early relationships with its parents are important predictors of later social development (see Ainsworth, 1962, 1969; Ainsworth, Bell & Stayton, 1974; Bowlby, 1969, 1973; Erikson, 1950; Freud, 1938/1949; Lamb 1978c; Lamb & Easterbrooks, 1980; Maccoby & Masters, 1970; Schaffer, 1971). Although the importance of these early relationships has been emphasized, there are conspicuously few data on the contingent interactions between parents and infants, especially those involving infants and fathers.

In the sections that follow, I will discuss: a) the development of social relationships during infancy and b) the importance of social relationships for social and personality development. The account of the development and importance of early social relationships has been influenced by the works of Ainsworth (1969; 1972), Bowlby (1969; 1973), Lamb (1978c), and Lamb and Easterbrooks (1980).

The Development of Social Relationships During Infancy

During the first few months of life infants have a primitive cognitive capacity (Piaget, 1954). In the first two months, infants' ability to distinguish one individual from another is either absent or limited (Bowlby, 1969; Lamb, 1978c; Lamb & Campos, 1982). However, they are aware of the presence of individuals around them and can visually track their movements. Infants may stop crying when they hear voices or when they see faces. These behaviors are utilized to

attract parents' attention or to keep informed of parents' whereabouts (Ainsworth, 1969). These behavioral patterns serve to bring the infant and its caretaker in close contact.

By about two months, infants generally behave in a friendly manner to adults but at this stage begin to show preferences for familiar over unfamiliar individuals (Bowlby, 1969). They usually show different response patterns to familiar and unfamiliar voices. This is perhaps due to the fact that infants can distinguish their parents and predict their reactions which might facilitate more social interaction between parents and children (Field & Ignatoff, Note 1; Fogel, 1980).

Around the sixth or seventh month of age, infants are able to move about and explore. They use their parents as secure bases from which to explore the environment, and usually return to them for "emotional refuelling" (Ainsworth, 1969). Because infants' concept of object permanence is immature in the first few months of life (Piaget, 1954), they cannot understand the independent existence of those they interact with. However, they gradually learn to differentiate their parents from significant other individuals. Subsequently, infants form attachments to both parents around 6-8 months of age (Lamb, 1978c). The development of the attachment bond is dependent on the level of cognitive maturity of the infant. When they realize the independent existence of the individuals around them, infants interact less with unfamiliar adults and protest when separated from parents (Bowlby, 1969; Main & Weston, 1982).

Over the next year, the infant's relationships with its parents become more consolidated. Infants become more active participants in

their social interactions. With the onset of locomotion, they are no longer limited to the social affiliative behaviors used earlier to gain the attention of parental figures. Now they can move around and approach parents. At the same time, responsibility for achieving and maintaining proximity shifts gradually from parents to infants. Infants continue to develop social skills as they become more aware of the social styles of their parents (Lamb, 1978c). Meanwhile, through experience and maturation, they become more competent, and "translate" their social skills into "enhanced capacities for social interaction" (Lamb, 1978c). Thus, during late infancy, social interaction with parents and other persons in their environment increases dramatically.

Mother-Infant and Father-Infant Relationships

Until quite recently, the development of social relationships during the first few years of life has been conceptualized within a mother-infant dyadic framework (monotropy). This, fortunately, has changed and researchers are increasingly emphasizing the father's contribution to child development (see Belsky, 1981; Lamb, 1976d). In this section, I will examine those studies that have explicitly dealt with mother-infant and father-infant interaction during infancy and discuss their shortcomings.

While the role of the father in early social development has received increasing attention, the number of empirical studies in this area has remained small. Nonetheless, some data have been presented on the differences in interaction patterns between mothers and infants and fathers and infants. Parke and his colleagues (Parke, O'Leary, &

West, 1972; Parke & O'Leary, 1976) observed mother-infant and father-infant social contacts in hospital settings. They found that fathers were equally as likely to be involved with their infants as mothers were following delivery. In fact, fathers were observed to hold and rock their infants more than mothers, while mothers were observed to feed their infants more than fathers.

Subsequent work (Lamb, 1976b, 1976e, 1977a, 1977c) has revealed marked differences in parental treatment of older infants. Lamb (1977a, 1977c) found that fathers and mothers held their infants for different reasons. While fathers were likely to pick up their infants to play with them, mothers were more likely to pick them up for caretaking purposes. Other work (Spelke, Zelazo, Kagan, & Kotelchuck, 1973; Belsky, 1979) has yielded different findings, however. Belsky (1979), and Kotelchuck and his colleagues (see Kotelchuck, 1976) have reported that infants and toddlers were "equally as likely" to direct social behaviors to mothers and fathers. The discrepancy in findings might be attributed to differences in the ages of the subjects of those studies and the contexts in which children were observed.

In sum, the evidence suggest that infants interact with both mothers and fathers, and that "monotropy" is not as predictable as Bowlby (1958) had suggested. Moreover, father-infant interaction is qualitatively different from mother-infant interaction. This implies that infants share different experiences with each parent and that perhaps infant social development might be influenced independently by the mother and father.

However, few of the above mentioned studies have controlled for second order effects (see next chapter for a discussion of this issue). Moreover, only a small number of the recent studies have observed the contingent (mutual responsiveness) interactions of parents and infants (Belsky, 1979; Clarke-Stewart, 1978). Even these studies have been narrow in focus since Belsky only examined contingent vocalizations and Clarke-Stewart (1978) observed contingent touching and proffering in the father-infant dyad. Clearly, the issue requires more careful attention if we are to understand the early processes of socialization within the familial system.

Importance of Early Social Relationship

A number of investigators (e.g. Ainsworth, 1969; Ainsworth et al., 1974; Bowlby, 1969; Brazelton, Koslowski, & Main, 1974; Erikson, 1950; Lewis & Goldberg, 1969; Gewirtz, 1977; Watson, 1966, 1979) agree that the quality and contingency of parent-child interactions in the first few months of life are critical determinants of infant social development. According to Ainsworth and her colleagues (1974), the predictability and reliability of parent-child interactions are important indicators of later personality development. Infants whose parents are sensitive to their cues and provide adequate care, warmth, and reassurance in their everyday interaction will develop secure relationships. They can depend on the predictability of their parents' responses (Lamb & Easterbrooks, 1980). As a result, these infants might develop a notion of their own influence in the early socialization process. This sense of influence along with expectations regarding other's behaviors are major

aspects of infant social cognition (Lamb & Easterbrooks, 1980). Moreover, infants who have secure and warm relationships with their parents are more likely to explore the environment, thereby maximizing the opportunities for interactions with a diverse group of individuals.

On the other hand, infants whose parents are not sensitive to or respond inadequately to their cues, spend so much time and energy assuring the proximity of parental figures that their exploration and social interactions may be jeopardized (Lamb, 1978c). They minimize the opportunities for interactions with a diverse group of individuals. As a result, they may "miss out" on important experiences that are necessary for personality development. Bowlby (1973), and Ainsworth (1962) also point out that inadequate parenting can have detrimental effects on infant social development, and that infants who lack warm and consistent relationships are generally more prone to "psychological risk."

Finally, children who develop secure and warm relationships with parents may be encouraged to use them as effective models. Studies, involving human and nonhuman subjects who have been separated from parents and raised in isolation or in a nursery, show that the lack of a warm relationship with a parental figure disrupts the course of normative social development in the young (Spitz, 1946, 1950). Moreover, the trust infants build in parents lays the foundation for similar relationships with other persons.

Concluding Remarks

Psychoanalysts (Freud, 1905/1962; Erikson, 1950), learning theorists (Gewirtz, 1977; Lewis & Goldberg, 1969; Watson, 1966, 1979),

organismic theorists (Brazelton et al., 1974), and ethologists (Bowlby, 1969; Ainsworth, 1969; Ainsworth et al., 1974), have all emphasized the importance of sensitivity in parent-infant relationships for infant social and personality development. However, the research to date on this issue has almost exclusively focused on mother-infant reciprocal interaction and very few data are available on father-infant contingent interaction.

Clearly, attempts at understanding the development of early social relationships will depend on appreciating the influences both fathers and mothers exert on infant social development. The goal of the present study is to document the differential influences of mothers and fathers on infant social and personality development.

CHAPTER II

THE PRESENT STUDY

Theoretical Rationale

The study described herein was designed to further aid in the clarification of the role played by mothers and fathers in the process of early socialization. The focus on both mothers and fathers reflects the growing awareness that we must consider the multiple yet interdependent sources of influence on the process of early social and personality development. Moreover, attempts to explain early social development by considering only maternal influences have been incomplete. Thus, in addition to the maternal influences on social development discussed by early theorists, there is a growing literature which emphasizes the role of fathers in social development (see Belsky, 1979; Clarke-Stewart, 1978; Cohen & Campos, 1974; Kotelchuck, 1976; Lamb, 1975, 1976a, 1976c, 1977d, 1978a; Parke et al., 1972; Parke & Sawin, 1976). The father's role in early social development, however, requires more attention.

As is clear from the first chapter, few researchers have examined the mutual responsive behaviors between fathers and infants. Despite the manifest importance of this issue (see Field 1978; Stern, 1971, 1977), it is rather surprising that it has received so little attention since parent-child interaction might be facilitated if caregivers are cognizant of and able to modulate infants' rhythms, response repertoire, and mutual responsivity. Caregivers can enhance the possibility of being effective socialization agents by slowing down their speech

patterns (infantizing), pace of behavioral interaction, and by imitating infant behaviors. The present study will examine this issue by looking at the frequency of contingent and non-contingent responses between infants and parents.

There are two other reasons why I wish to focus on early parent-child relationships. First, few researchers (see Bronfenbrenner, 1974; Lamb 1978b) have addressed the importance of "second order" effects on mother-infant and father-infant interaction. Recent investigations have shown that in the family triad of mother-father-infant many developmentally significant effects might be mediated, not through direct interaction with a focal child, but more subtly through another person (Lamb, 1978b). It is quite reasonable to assume that the presence of a third person will have an effect upon dyadic interaction since the infant's attention will be divided between the two parents. Thus, the amount of interaction between the infant and each parent will be reduced. Likewise, the parent's attention, which is focused on the child in dyadic interaction, will be divided between the child and spouse in a triadic situation permitting less time for interaction with the child. Besides, the presence of the third person might affect the quality of the interaction between the two indirectly, by influencing the spouse and therefore affecting his or her interaction with the infant. This study proposes to assess "second-order" effects by observing infants in interaction with their mothers only, their fathers only, and with both parents present.

Second, there is a dearth of information on age and gender differences on the contingent interactions between infants and fathers during

the first two years of life. Limited evidence (Kotelchuck, 1976; Lamb, 1977c; Lewis, Weinraub & Ban, 1972) suggests the differential treatment of boys and girls by parents during infancy. Yet few comprehensive attempts have been made to assess either cross-sectionally or longitudinally the differential socialization of boys and girls. Presumably, as children get older, sex-typed socialization by parents becomes much more pronounced (see Lamb, 1977b). This suggests that parents may provide more differential responses to older than to the younger infants studied here. It is also highly probable that by late infancy boys and girls are already showing differential patterns of interactions with mothers and fathers.

The current study departs from other conceptions of early social development, in that it focuses on the mutual behavioral responses between parents and infants and at the same time assesses "second-order" effects. The present study was designed to provide answers to the following questions:

- a) Is there a difference between mothers and fathers in the amount of responsive interaction they engage in with their infants?
- b) Do parents respond differently to 10-month-olds, 14-month-olds, and 18-month-olds?
- c) Are there gender differences in the styles of interactions of infants with parents across age groups?
- d) Does the presence of the second parent affect the interaction pattern of the child and the other parent?

CHAPTER III

METHOD

Subjects

Nine 10-month-olds (4 boys), 12 fourteen-month-olds (5 boys), and 12 eighteen-month-olds (6 boys) and their mothers and fathers were participants in this study. The sample was randomly selected from birth announcements in the local newspaper. All of the children were from middle-income backgrounds.¹

A brief description of the study was mailed to the parents. The description contained information about the study's purpose and the participant's role in it, and explained that no foreseeable risks were involved. Subsequently, the parents were telephoned to seek their participation.

Procedure

Each child was observed for 24 minutes in a laboratory playroom at Utah State University: 8 minutes with the mother only, 8 minutes with the father only, and 8 minutes with both parents present. The order of the episodes was randomized. The episodes followed one another immediately with the inter-episode intervals permitting only the entrance and exit of the parents. The families were observed in a large playroom (4.7m x 4.7m) in which were placed a couch, two child-sized

1. Social class was assessed by using the Hollingshead Two-factor index of social position (Hollingshead, Note 2).

chairs and a table, a wooden oven, a wooden slide and 14 smaller toys. The parents were asked to sit on the couch and interact with their infant as they would at home. The interaction episodes were filmed through a window in the observation booth.

Sampling of Behaviors

Frequency counts of the mutually responsive as well as non-mutually responsive behaviors of the families were culled from the video tapes. The behavioral measures, taken from Rubenstein and Howes (1979), are defined in Table 1. These measures have been shown to be empirically representative of the behaviors of families observed in similar interaction situations (Rubenstein & Howes, 1979; Rubenstein, Howes, & Pedersen, 1982). In addition to these measures, frequency counts of infant and adult responsive behaviors within and across modalities were also coded. These behaviors are also defined in Table 1.

Coding of Behavioral Interaction

The behaviors listed and defined in Table 1 were recorded. The behaviors were classified under five larger categories: verbal interaction, categories of adult speech to infant, noncaregiving touching, looking, smiling and playing, and responsive behavior across modality. With the exception of social play, which was coded as a duration measure (in seconds), all other measures were coded every time they occurred.

Table 1
Categories of Parent-Infant Interaction

Behaviors	Definitions
Verbal Interaction	
Adult spontaneous talking	Talking to the infant when infant had not talked to her/him
Adult responsive talking	Responding verbally to infant's vocalization
Infant spontaneous talking	Talking to the parent when she/he had not talked to the infant
Infant responsive talking	Responding vocally to adult's talking to infant
Categories of Adult Speech to the Infant	
Labels, comments	Gives information, names or discusses event
Praises or expresses positive feelings	Voices approval of infant
Social speech	Stock phrases, for example, "hello," or "o.k."
Directions or orders	Tells child what to do
Reprimands, expresses negative feelings	Scolding or expressing negative feelings in an irritated or angry tone
Imitates, expands, or recasts infant's speech	Repeats, uses infant's word in an enlarged sentence, or uses it in different syntax
Story reading	Reads story to infant
Noncaregiving Touching	
Adult initiating touching	Touching infants when feeding, diapering, etc., were not involved and when infant was not touching the parent

Table 1 (continued)

Behaviors	Definitions
Infant initiating touching	Touching parents when she/he was not touching the infant or gesture inviting pickup
Adult responsive touching	Adult touches or picks up infant in response to infant initiation of touch
Hold/hug	Adult holds infant close or in lap.
Looking, Smiling, and Playing	
Mutual visual regard	Eye contact between infant and adult
Infant smiles at adult	Infant smiles while looking at adult's face
Adult smiles at infant	Adult smiles while looking at infant's face
Social play	Gamelike interaction of high intensity, without toys, for example, peek-a-boo, patty-cake, tossing in the air, tickling, and laughing
Responsive Behavior Across Modality	
Adult responsive behavior	Adult response that was not in the same modality as infant initiated behavior. For example, adult smiles in response to infant vocalization.
Infant responsive behavior	Infant response that was not in the same modality as adult initiated behavior. For example, adult touches, infant smiles

Reliability

Two observers shared responsibility for all of the coding. Before the data were culled, the two assistants were trained by coding videotapes of parent-infant interaction until interscorer agreement, calculated in the manner described below, reached a minimum of 80%. Thereafter, interobserver agreements were checked by randomly selecting six videotapes from the corpus and having the two assistants code them independently. Interobserver agreements were calculated by dividing the number of agreements by agreements plus disagreements. Cohen's Kappa was also calculated, since it gives a more conservative estimate of interobserver agreement and controls for chance agreements (see Hollenbeck, 1978). Table 2 displays the reliability coefficients.

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Table 2
Reliability

Behaviors	Coefficients of Reliability
<u>Adult</u>	
Adult spontaneous talk	.81
Adult responsive talk	.73
Adult initiate touching	.78
Adult responsive touching	.69
Hug and hold	.82
Adult smile at infant	.69
Social play	.94
Adult responsive behavior	1.00
Label, comment	.74
Positive praise	.70
Social speech	.70
Direction-order	.83
Negative feeling	1.00
Imitation	.90
Story reading	.94
<u>Infant</u>	
Infant spontaneous talk	.82
Infant responsive talk	.63
Infant initiate touching	.70
Mutual visual regard	.75
Infant smile at adults	.69
Infant responsive behavior	1.00

Overall Kappa calculated for adult and infant behaviors were: .78 and .73 respectively.

CHAPTER IV

RESULTS

For the purpose of analysis a split-plot design was utilized. Analyses were performed on all the behavioral measures listed in Table 1. The results will be discussed for parent behaviors and infant behaviors separately. The bulk of the analyses will concentrate on age and situation main effects. Sex of child and parent main effects will be discussed when appropriate. All higher order interactions are discussed whenever pertinent.

Parental Behavior

The 15 parental behaviors were divided into two categories (general adult behaviors, and categories of adult speech) and each category was subjected to a 2 (parent: mother, father) X 2 (situation: one-parent, two parent) X 2 (sex) X 3 (age: 10-month-olds, 14-month-olds, 18-month-olds) repeated measures multivariate analysis of variance (MANOVA). The parent and situation factors were the repeated measures.

One-parent/two-parent situation differences. The situation main effect was significant on both MANOVAS ($F_1[8, 74] = 13.74$ $p = .000$; $F_2[7, 75] = 11.61$, $p = .000$). With the exception of adult's imitation of infant vocalizations, all of the univariate tests were significant. It was confirmed that mothers and fathers interacted with their infants more when they were alone with them than when the other parent was present (see Table 3).

Age differences. There were significant age MANOVA effects (F_1 [16, 148] = 2.65, $p = .001$; F_2 [14, 50] = 1.90, $p = .03$). The univariate tests were significant for the variables responsive talk, social speech, story reading, and smiling. Post hoc analysis using Scheffe's test showed that parents directed more responsive talk toward older infants ($p < .01$) and used a greater amount of social speech ($p < .05$) and story reading ($p < .05$) with 18-month-olds than with 14- or 10-month-olds. The significant univariate effects for social speech and story reading were qualified by higher order interactions. In both cases, Age X Situation interactions revealed that not only did parents interact more with older infants than younger ones, but the frequency of the interactions were greater in the one-parent situation than in the two-parent situation.

In addition, the results indicate that parents smiled at 10- and 18-month-olds more than to 14-month-old infants ($p < .05$). A significant Age X Sex interaction revealed that parents of 18-month-old girls smiled at them more than parents of 14-month-old girls ($p < .05$). Moreover, an Age X Sex X Parent interaction showed that mothers of 18-month-old girls smiled more than mothers of 14-month-old girls.

Mother/father differences. There was a significant Sex X Situation interaction on social play. Results indicate that parents of boys engaged in social play with their infants more than parents of girls, and they did so more in one-parent situations than in two-parent situations. The Age X Sex X Parent interaction on this variable showed a significantly greater amount of interaction for mothers of 10-

Table 3
 Mean Frequencies of Parental Behavior in One-Parent and Two-Parent
 Situation for the Three Infant Age Groups

Behaviors	SITUATION											
	ONE-PARENT Age of Infant						TWO-PARENT Age of Infant					
	10 months old		14 months old		18 months old		10 months old		14 months old		18 months old	
	M	F	M	F	M	F	M	F	M	F	M	F
Adult Spontaneous talk	65.70	56.53	79.76	64.37	77.08	67.33	37.38	32.60	38.81	39.91	49.50	35.33
Adult Responsive talk	8.35	5.85	19.47	14.44	25.42	17.83	4.55	4.48	9.19	10.44	12.33	9.33
Adult Initiating touch	6.85	4.85	3.96	5.63	5.33	4.33	4.90	3.98	3.30	4.96	2.00	3.00
Adult Responsive touch	1.00	.75	.27	.93	.83	.50	.23	.23	.51	.10	.42	.42
Hug, Hold	.42	1.65	.56	.73	.83	.33	.40	.43	.55	.24	.33	.50
Adult Smile at Infant	7.45	7.38	4.73	3.10	5.33	6.67	4.75	3.13	2.93	2.67	5.83	4.58
Social Play	23.28	8.35	5.01	14.67	2.33	2.67	5.73	4.63	.80	5.64	3.08	5.92
Adult Responsive Behavior	7.70	6.48	7.49	8.36	7.25	6.83	3.55	2.45	3.83	3.94	4.00	3.58
Label, comment	30.05	27.73	40.31	29.66	40.08	35.33	13.65	8.85	16.44	16.30	25.92	15.75
Positive Praise	2.78	2.58	8.07	5.37	8.42	4.17	2.45	3.50	4.39	3.77	3.83	2.17
Social Speech	2.83	2.70	3.27	3.06	6.25	5.50	1.98	.50	1.96	3.14	1.83	1.67
Direction	23.70	20.10	34.26	27.40	33.58	30.67	16.83	17.60	17.57	21.16	21.75	18.58
Negative Feeling	.80	.00	.00	.81	.17	.83	.00	.00	.21	.50	.33	.00
Imitative Response	1.18	1.95	2.56	1.81	2.50	2.58	1.15	1.58	1.40	1.87	1.67	1.67
Story Reading	.10	.00	.27	.24	.33	.58	.00	.00	.00	.00	1.67	.00

Table 3 (continued)

Behaviors	Age ^a	Sex ^b	F ratios				
			Age x Sex ^a	Situation ^c	Age x Situation ^d	Sex x Situation ^c	Age x Sex x Parent ^d
AST				59.24***			
ART	5.50**			24.48***			
AIH			3.06+	9.29**			
ARH				6.21*			
H. H.				5.16*			
ASI	4.08*		3.45*	8.57**			2.60+
SP				5.26*		10.91**	3.33*
ARB				51.73***			
L, C		5.97*		65.48***			
PF				8.83**			
SS	3.63*			20.27***	5.65**		
DO				24.61***			
NF				2.94+			
IR							
SR	4.17*			19.74***	3.24*		

*p < .10
 **p < .05
 ***p < .001

a) df = 2, 27
 b) df = 1, 27
 c) df = 1, 81
 d) df = 2, 81

month-old boys than fathers of those boys or mothers of 14- and 18-month-old boys ($p < .05$).

Gender differences. There was a significant sex of child MANOVA main effect ($F [7, 75] = 7.44, p = .000$). However, only one behavior showed a significant gender difference. For the variable label and comment on objects, parents of girls had a greater frequency of interaction with the infants than parents of boys ($p < .05$).

Infant Behavior

The six infant behaviors were divided into two sets of variables (infant general behavior and infant verbal behavior) and different statistical models were employed in analyzing them. It was necessary to treat the infant verbal behavior independently because in the two-parent situation it was difficult to separate the infant vocalization addressed to each parent. Therefore the two measures of infant verbal behavior were subjected to a 3 (parent; mother alone, father alone, mother and father) X 2 (sex) X 3 (age: 10-month-olds, 14-month-olds, 18-month-olds) repeated measures MANOVA, with parent as the repeated measure factor. The other four infant behaviors were subjected to a 2 (parent: mother, father) X 2 (situation: one-parent, two-parent) X 2 (sex) X 3 (age: 10-month-olds, 14-month-olds, 18-month-olds) repeated measures MANOVA. Parent and situation were the repeated measures factors. The results are discussed in four parts.

Age differences. There were significant multivariate age main effects: ($F_1 [4, 118] = 5.25, p = .001$; $F_2 [8, 156] = 3.33, p = .002$). However, none of the univariate tests on infant general behaviors was

significant, and since the MANOVA is known to be a liberal statistical procedure, it is best not to consider these measures. Nevertheless, univariate tests for infant verbal behavior showed a significant age effect for infant responsive talk ($p < .05$) (see Table 4). Post hoc analysis using Scheffe's test indicated that 18-month-olds had engaged in more responsive talk than 10-month-olds. This finding might be attributed to the greater language ability of the older infants.

Gender differences. The significant sex effect ($F [4, 78] = 4.34$, $p = .003$) was accounted for by the variable infant initiate touching with girls initiating more touching than boys ($p < .05$). There was a significant Age X Sex interaction on both MANOVAS ($F_1 [4, 118] = 8.19$, $p = .000$; $F_2 [8, 156] = 3.28$, $p = .002$). The post hoc tests indicated that 10- and 18-month-old girls initiated more touching with their parents than the same-age boys. Furthermore, 18-month-old girls scored higher on this measure than 14-month-old girls. There was also a significant Age X Sex interaction on the infant responsive talk variable ($p < .05$). The analyses showed that 18-month-old girls engaged in significantly more responsive talk than 10- and 14-month-old girls or 18-month-old boys.

One-parent/two-parent situation differences. There was a significant multivariate situation main effect ($F [4, 78] = 14.37$, $p = .000$). As Table 4 shows, all of the univariate tests were significant ($p < .01$). The data suggest that infants interacted with each parent in the alone situation more than when the other parent was present.

Mother-father differences. The MANOVA for infant verbal behavior showed a significant parent main effect ($F [2, 118] = 3.22$, p

Table 4

Mean Frequencies of Infant Behavior in One-Parent and Two-Parent Situation for Three Age Groups

old Behaviors	ONE-PARENT Age of Infant						SITUATION					
	10 months old		14 months old		18 months old		10 months old		14 months old		18 months	
	M	F	M	F	M	F	M	F	M	F	M	F
Infant initiate touch	1.43	.95	.54	.41	1.08	.92	.43	.33	.34	.10	.50	.42
Mutual visual regard	5.98	7.45	6.07	4.56	5.75	7.42	3.68	3.05	1.86	2.34	3.75	3.58
Infant smile at adult	3.90	3.95	2.21	1.63	2.83	3.50	.78	.58	.66	1.33	2.25	1.67
Infant responsive behavior	9.78	9.93	9.01	7.93	7.58	8.08	5.30	4.95	5.04	5.73	5.25	3.67
Infant spontaneous talk	13.78	21.33	24.58	27.92	27.17	31.50	14.44		24.17		25.92	
Infant responsive talk	5.33	6.78	11.25	8.42	16.17	15.58	6.67		7.92		16.42	

Table 4 (continued)

Behaviors	Age ^b	F ratios		Situation ^a	Parent ^d
		Sex ^c	Age x sex ^b		
IIT		5.20*	2.56+	9.63**	
MVR				22.46***	
ISA				30.47***	
IRB				27.14***	
IST					3.10+
IRT	3.93*		3.52*		

+p < .10
 *p ≤ .05
 **p ≤ .001
 ***p ≤ .001

a) df = 1, 81
 b) df = 2, 27
 c) df = 1, 27
 d) df = 1, 60

= .043). The univariate tests revealed that infants engaged in more spontaneous talking with fathers than mothers in the alone situation ($p < .10$).

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CHAPTER V

DISCUSSION

The findings presented in the previous chapter revealed that parents and infants interacted differently as a result of the age and gender of the infant and whether they were observed in dyads or triads. In the sections that follow, I will discuss the findings for parents and infants separately, in attempting to answer the questions posed in Chapter II.

The Behaviors of Parents Toward Infants

The findings revealed that mothers and fathers interacted very similarly with their infants. The analyses showed no significant differences between mothers and fathers with respect to the amount of responsive (contingent) interaction they engaged in with their infants. In general, the results indicated that similarity between mothers and fathers on all of the parental behaviors far outweigh the differences. Likewise, it was found that the frequency of responsive behaviors exhibited within modality was by far greater than the responsiveness across modality.

As expected, there were some significant differences in the interaction patterns of parents toward different age infants. Parents of older infants engaged in more responsive talk, social speech, and story reading with their babies. This finding suggests that as infants become older and more sophisticated in their language skills, parents seem to vocalize more frequently to them.

There were few differences in parental behaviors displayed toward boys and girls. Parents of 10-month-old girls touched their infants more frequently than parents of the same age boys. This result is congruent with those of other studies (Lamb, 1977b). Further gender differentiation was noticed across age groups in the amount of time parents devote in social play with their infants. The results showed that mothers of 10-month-old boys engaged in longer periods of social play with their infants than fathers of 10-month-old boys. At first glance, this finding appears to be at odds with those of other studies (Clarke-Stewart, 1978; Lamb, 1976e) that found fathers to be more involved in play with their infants than mothers. However, although not significant, a comparison of the interactions of mothers and fathers of 14- and 18-month-old infants revealed that for both age groups, fathers engaged in more social play with infants than mothers. This finding is in accord with Clarke-Stewart's (1978) suggestion that fathers become more involved in playing with their infants and assume the role of playmate as their infants grow older. Unfortunately, we did not measure the amount of time parents spent in toy mediated play with their infants or the types of toys they used during play. This would have yielded additional data on early sex-typed socialization and objects as mediators of social play.

With respect to "second order" effects, the data are in agreement with the findings of Lamb (1976e, 1977c), Clarke-Stewart (1978), and Belsky (1979). The analyses indicated that the presence of the second parent dramatically affected the interaction of the first parent with the infant. In other words, mothers and fathers were more active in their

interactions with infants when they were alone with them than when their spouse was also present. The substantiation of "second order" effects in the present study and others (Belsky, 1979; Lamb, 1976e) further emphasizes the need to examine this issue. As Belsky (1979) noted, there are two possible reasons for these "second order" effects: first, parents may share their social interaction in this manner when they are together; second, it may be that the presence of the second parent affects triadic interaction indirectly.

The Behavior of Infants Toward Parents

With one exception, infant spontaneous talk, infant behaviors directed to mothers were not significantly different from those directed to fathers. The frequency of infant spontaneous talking was found to be significantly greater in the presence of fathers than in the presence of mothers in the alone situation. This result is congruent with the findings of other investigators (Belsky, 1979; Lamb, 1976e, 1977c). The observed differences might be due to the amount of verbal behavior parents engaged in with their infant. Mothers were found to be more vocal to their babies in dyads than fathers were.

This study produced results similar to Lamb's (1976e) findings regarding distal affiliative behaviors between fathers and infants. Although not significant, infants directed slightly more "distal" interaction (smile and mutual visual regard) toward their fathers than their mothers in dyadic situations.

The finding regarding infant responsive talk for 18-month-olds further confirms that as infants grow older, their understanding of

language increases, and as a result, they tend to engage their parents in more verbal interactions than at earlier ages.

Gender differences across age groups were also noted in the style of infants' interactions with their parents. Eighteen-month-old girls were more verbally responsive than the same-age boys or younger girls. Ten- and 18-month-old girls initiated more touching with their parents than their male counterparts. This finding is congruent with those of other studies (Lamb, 1977b) in that it suggests that parents of young girls touch their infants more than parents of the same-age boys. Baby girls may be reciprocating to the touching received from mothers.

Finally, the findings on infant behaviors and "second order" effects are consistent with those of Belsky (1979) and Lamb (1976e, 1977c). Infants, like their parents, are more socially interactive in dyads than in triads. The situation differences further exacerbate the need to consider "second order" effects in infant social development.

A Methodological Consideration

The opportunity for interaction is an important factor that might be considered in assessing "second order" effects. Common sense dictates that each parent might interact more with his/her infant in a dyadic than in a triadic situation. Thus, research dealing with "second order" effects and interaction sequences will need to statistically control for the availability of parents in the one-parent and two-parent situation.

In order to control for situation "effects" that might be due to opportunities for interaction, the raw data for dyadic interactions were multiplied by .5, and the analyses reported earlier were recomputed. Findings are presented in Appendix A. The analyses showed that for the most part the effects due to situation were "washed out", and the small number of univariate tests that were significant could be due to chance alone. This implies that the situation effects might be an artifact of the availability of parents during interaction sequences. Perhaps researchers should pay more careful attention to the artifact of availability during interaction when assessing "second order" effects.

Summary

This study revealed that there were no significant differences between mothers and fathers in the frequency of interaction they engaged in with their infants. Infants, likewise, behaved similarly toward both parents except in spontaneous vocalization in which they showed a preference for fathers. The higher frequency of responsive talk for infants and parents was a function of the infants' age. The comparison of infant and adult behaviors in dyads versus triads confirmed that as the social environment becomes more complex the pattern of interactions changes, permitting less time and opportunities for dyadic interactions.

Certainly, more investigations are needed in order to verify the role played by fathers in infant social development. Future studies need to clarify in more detail the qualitative differences of mother-

infant and father-infant relationships and the contribution of each to infant socialization. For example, longitudinal studies are needed to show how the reciprocal relationship between parent and infant develops during first two years of life. Moreover, future research might concentrate on interaction patterns in the familial system. Since the interaction patterns in family settings might be different depending on the number of siblings, a comparison of different sets of families with different demographic characteristics might give a clearer picture of the mother-infant, father-infant relationships, and the contribution of siblings to infant social development.

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APPENDIXES

Appendix A. Table 5

Mean Frequencies of Behaviors in One-Parent and Two-Parent Situations
Controlling for Opportunities for Interaction

Behaviors	One-Parent Situation	Two-Parent Situation	F ratios
<u>Adult</u>			
Spontaneous talk	34.18	38.92	
Responsive talk	7.91	8.16	
Initiating touch	2.76	3.67	6.18*
Responsive touch	.47	.31	
Hug, Hold	.52	.41	
Smiling at infant	3.15	3.98	
Social play	4.82	4.30	
Responsive behavior	3.67	3.56	
Label, comment	17.15	16.15	
Positive/praise	2.81	3.35	
Social speech	2.13	1.85	
Direction	14.44	18.91	9.88**
Negative feeling	.30	.17	
Imitative response	1.26	1.55	
Story reading	.25	.03	19.74***
<u>Infant</u>			
Initiating touch	.61	.35	5.06*
Mutual visual regard	3.44	3.01	
Smiling at adult	1.77	1.19	5.37*
Responsive behavior	4.36	4.99	

Note: Blanks indicate F's are not significant at .05 level.

* $p \leq .05$
 ** $p \leq .01$
 *** $p \leq .001$
 $df = 1, 81$

Appendix B. Outline of Study

We are seeking your participation in a study of infants' interactions with their mothers and fathers. Our goal is to find out how infants and parents interact with one another during the early socialization process. Thus we will need to observe parents and infants in our laboratory playroom for about 30 minutes.

We are interested in observing interaction patterns when both parents are present, when the mother is present only, and when the father is present only. The laboratory situation is relatively stress free, and contains a number of toys most children enjoy. Thus, there are no foreseeable risks involved. However, you are free to withdraw from the study at any time for any reason.

We believe the study will yield valuable data on how parents and infants relate to one another during the early years of social development. We are prepared to answer any questions you may have about the study, and will be happy to send you a summary of the results when the study is finished. In any discussion of results, whether for scientific journals or for parents, we will present data dealing with groups of children, never with individuals.

Consent

I have read the above and agree to participate in this study.

_____ Name

_____ Date

Address to which summary should
be sent:

_____ Child's Name

Appendix C. Sample Letter Sent to Parents

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UTAH STATE UNIVERSITY · LOGAN, UTAH 84322
COLLEGE OF FAMILY LIFE

DEPARTMENT OF
FAMILY AND
HUMAN DEVELOPMENT
UMC 29

May 20, 1982

Dear Parent:

I am a graduate student conducting Master's research in the Department of Family and Human Development at Utah State University under the supervision of Professor Jaipaul L. Roopnarine. We are interested in how infants interact with both mothers and fathers. The study will take place in our Laboratory at Utah State University. We will videotape children's interactions with their mothers and fathers for approximately 30 minutes--10 minutes with both parents present, 10 minutes with mothers present, and 10 minutes with fathers present. The laboratory setting is relatively stress free, and contains a number of toys most children enjoy. Thus, there are no foreseeable risks involved. However you are free to withdraw from the study at any time for any reason.

We believe the study will yield valuable data on how mothers and fathers relate to their infants during the early socialization process. We are prepared to answer any questions you may have about the study, and will be happy to send you a summary of the results when the study is finished. In any discussions of results, whether for scientific journals or for parents, we will present data dealing with groups of children, never with individuals.

We are kindly requesting your participation in this study. We will be contacting you shortly via telephone to ask your participation.

Thank you for your consideration.

Sincerely,

Soheila Sobhani

Soheila Sobhani, B.S.
Graduate Student

Jaipaul L. Roopnarine

Jaipaul L. Roopnarine, Ph.D.
Assistant Professor of
Human Development
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