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The Role of the Father in the Development of the Young Child's Sociability with Unfamiliar Adults and Peers

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THE ROLE OF THE FATHER
IN THE DEVELOPMENT OF THE YOUNG CHILD'S SOCIABILITY
WITH UNFAMILIAR ADULTS AND PEERS

by

Susan Dale Kromelow

A Dissertation Submitted to
the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

November

1985

DEDICATION

This dissertation is dedicated to my grandmother,
Mrs. Bertha (Kaplan) Tarre (1889-1985).

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To my own family, I owe an immeasurable debt. My husband, William Spiro, lent moral support and enthusiasm for the adventure of research and my parents, Theodore and Lillian Kromelow, have always provided models of patience and commitment to a worthy objective.

VITA

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CHAPTER I

INTRODUCTION

Only a decade ago, fathers were termed "the forgotten contributors to child development", particularly in terms of their role during the child's infancy and toddlerhood (Lamb, 1975). Since that time, a considerable number of studies concerning father-infant interaction have been undertaken describing fathers' interest, competence, and sensitivity in interaction with their young children.

Several studies have provided evidence that fathers become attachment figures to their infants at about the same time mothers do (Kotelchuck, 1976; Lamb, 1976b, 1977b). Recently, the relation of paternal involvement in caregiving and play to the development of infant-father attachment has been described by investigators who have undertaken multi-dimensional studies (Easterbrooks and Goldberg, 1984). However, following the classical psychoanalytic framework emphasizing the mother's role during infancy, contemporary reformulations of psychoanalytic theory (Bowlby, 1958, 1969) remain focused on the mother's influence on personality development. Thus most of the literature devoted to early social development has focused

on the relation between infant-mother attachment and later competencies (sociability with adult strangers, social competence with peers, resiliency in the face of challenge or frustration). To date there appears to be only minimal understanding of the ways in which infant-father interaction influences early social development.

The purpose of the present study was to investigate the father's role in the child's development of sociability with unfamiliar adults and peers. A principal hypothesis guiding the present study is that the origins of toddler sociability may be better investigated through the inclusion of data reflective of infant-father interaction, as opposed to the typical unilateral focus on the mother's influence. The study was organized into two parts. Part I compared the effects of the presence of the infant's mother with the presence of the father on the infant's willingness to engage in social interaction with an unfamiliar adult. Part II involved a similar comparison of mother-present and father-present situations, but relates their effects to the child's willingness to engage in social interaction with an unfamiliar same-age peer.

Following Bretherton and Ainsworth (1974), Lamb (1976a, 1976b, 1977a) distinguished between "attachment" and "affiliative" behaviors that the infant directs towards his or her mother, father, and others. Attachment behaviors such as wanting to be held, seeking comfort when stressed,

and resisting release are directed almost solely to attachment figures (e.g., parents and primary caregivers) and share the common goal of proximity or contact with the attachment figure. Affiliative behaviors are those sociable behaviors that the infant directs both to attachment figures and to friendly strangers: smiling, offering and accepting of toys, and vocalizing.

Initial research (Lamb, 1977a, 1977b) comparing mother-infant and father-infant attachment provided evidence that while infants generally direct attachment behaviors equally to their fathers and mothers, they direct affiliative, or sociable, behaviors to their fathers significantly more often. An equally salient finding is that differences exist between mother-infant and father-infant play patterns. The young child's willingness to engage in play with adults and peers has often been considered a measure of his sociability (Bretherton and Ainsworth, 1974; Lieberman, 1977; Pastor, 1981). Thus both important findings (i.e., that (1) infants direct affiliative behavior more often to fathers than to mothers and (2) father-infant play differs from mother-infant play both qualitatively and quantitatively) may be particularly significant for the study of the father's role in the development of affiliative, or social, behavior.

Fathers spend a greater percentage of their time with their infants engaged in play than do mothers

(Kotelchuck, 1976). Fathers' play has been described as more tactile (Clarke-Stewart, 1977; Yogman et.al., 1977), and "rough-and-tumble" and "idiosyncratic" as opposed to the more conventional toy-mediated play of mothers (Lamb, 1976b). Fathers' individualistic or idiosyncratic play patterns bear resemblance to early peer interactive patterns in that they both are often categorized as rough-and-tumble, which is highly affect-laden, as compared to infant-mother play which, although affect-laden, is often less boisterously so. Highly relevant were Clarke-Stewart's findings (1977) that 20-month-olds were more responsive to father-initiated as compared to mother-initiated play and at 30 months were more cooperative, close, involved, excited, and interested in play with their fathers than with their mothers.

Thus a possible link between father as elicitor and recipient of affiliative and playful behavior and father as elicitor of affiliative behavior directed toward unfamiliar adults and peers is intriguing. The present study was designed to clarify the role of the father in the development of the child's affiliative (social) behavioral system by comparing the infant's willingness to interact with unfamiliar peers and adults when in the presence of father as compared to mother. The specific research questions addressed were:

1. What are the effects of the father's presence, as

opposed to that of the mother, on the 18 to 21-month-old's willingness to engage in affiliative behavior with a strange adult?

2. During a "free play" situation, to what extent does the father's presence, as compared to that of the mother, influence the degree of the two- and three-year old's sociability with an unacquainted peer? What is the difference between these two contexts in expression of affect and frequency of affiliative behaviors directed toward the unacquainted peer?

CHAPTER II

REVIEW OF RELATED LITERATURE

The literature review is presented in three sections. The first section provides a general review of relevant father-infant research. The second section specifically addresses attachment theory as formulated by Bowlby (1969), extrapolated to an experimental setting by Ainsworth (1978), and applied to the father-infant relationship (Lamb, 1977a, 1977b). Within this section the relationship between the attachment and affiliative systems (Bretherton and Ainsworth, 1974; Bishoff, 1975; Greenberg and Marvin, 1982; Sroufe, 1979) is discussed and highlighted within a review of research on infant stranger sociability. The third section provides background relevant to the relationship between parent-infant interaction and the child's subsequent toddler competencies within the peer social system.

Background of father-infant research

While fathers were termed the "forgotten contributors to child development" (Lamb, 1975) only a decade ago, considerable research since that time has focused on father-infant interaction (see Lamb, 1981b; Parke, 1979;

Pedersen, 1980 for reviews). However, many of the studies to date have been descriptive in nature and relatively little is known regarding the father's role in early social development.

The source of previous scholarly neglect of infant-father research has been traced to highly delineated sex roles since the Industrial Revolution, adherence to a "rodent model" vis-a-vis the effects of hormones on "maternal instincts", and psychoanalytic theory's emphasis on the feeding situation as the critical context for the development of social responsiveness (cf. Parke, 1979; Pederson, 1980). As it generally was the mother who fed the infant (particularly before the advent of the baby bottle), the mother was seen as the primary object of infant attachment by psychoanalysts. Learning theory extended this assumption: the mother, as a result of being paired with drive-reducing feeding activity, acquires positive secondary reinforcement properties. Since the father was less involved in feeding activities, his role in infant development was minimized.

Harlow's (1958) studies demonstrating that the feeding situation was not the critical context for early social development were instrumental in providing receptive scholarly interest in the father-infant relationship. A second breakthrough occurred with Schaffer and Emerson's now classic work (1964) suggesting that infants become attached to

fathers, even to those who never participated in routine caregiving activities. However, Kotelchuck's study at Harvard (1972) was the first to actually observe fathers, as Schaffer and Emerson and other early investigators (Pedersen and Robson, 1969) derived their data from maternal reports.

The first relevant group of studies documented the interest, competence, and sensitivity of fathers in interaction with their children from the newborn through the toddler period. Research established that fathers begin to develop a bond to their infants very early in the newborn period (Greenberg and Morris, 1974) and that even fathers who never attended childbirth classes or delivery were more likely to hold the newborn and visually attend to him than was the mother during the first few days after birth (Parke and O'Leary, 1976). In a study designed to investigate fathers' sensitivity and competence within the feeding context (Parke and Sawin, 1975), bottle-fed infants were observed with mothers and fathers. Fathers were found to sensitively modify their behaviors in response to infant cues, e.g., momentarily stopping feeding activity in response to a sneeze or a cough, looking closely to check on the infant, and vocalizing to the infant. Fathers were also found to be competent feeders: the amount of milk consumed by the infant when fed by fathers (1.2 oz.) was highly similar to the amount when fed by mothers (1.3 oz.).

While such similarities between mother and fathers' behaviors with their infants have been documented, so have differences. Perhaps the most salient difference substantiated in the literature involves the nature of play behavior of mothers and fathers. One of Kotelchuck's findings (1976) was that while mothers spend more absolute time in playing with their infants than do fathers (2.3 as compared to 1.2 hours daily), fathers spend a greater percentage of their time in play activities than do mothers (37.5 percent as compared to 25.8 percent). Lamb (1976b; 1977b) observed infants of 7 and 8 months in the home and followed up at 12 and 13 months and reported marked differences in the reasons that fathers and mothers picked up their infants. While mothers were more likely to pick them up for caregiving purposes, fathers were more likely to hold babies simply to play with them.

The play context is highly distinctive in qualitative as well as quantitative aspects. Yogman et.al. (1977) compared mothers, fathers, and strangers in their interaction with infants in a face-to-face play context. Babies were video-taped from two weeks to six months while in high chairs with no toys present.

These adult behaviors were often part of an interactive "game" in the sense defined by Stern (1974): a series of episodes of mutual attention in which the adult uses a repeating set of behaviors with only minor variations during each episode of mutual attention. While mother's repetitive activities or games were more often verbal than tactile, fathers touched their infants with rhythmic tapping patterns more often than either

mothers or strangers (44% to 28% to 29%).

Fathers' play has been described as more "rough-and-tumble" and "idiosyncratic" as opposed to the more conventional toy-mediated play of mothers (Lamb, 1976b). Highly noteworthy are Clarke-Stewart's findings (1977) that 20-month-olds were more responsive to father-initiated as compared to mother-initiated play and at 30 months were more cooperative, close, involved, excited, and interested in play with their fathers than with their mothers.

A recent study with seven-, ten-, and 13-month-old infants corroborated these results (Crawley and Sherrod, 1984) and extend previous research by providing evidence that although fathers engage in more physical play than do mothers, they are sensitive to developmental changes in their infants and adjust their play interactions accordingly. However, Power and Parke's study of patterns of mother and father play with eight-month-olds (1983) suggested that mothers demonstrate greater responsiveness than do fathers to changes in their infant's looking behavior. Mothers were found to more often follow their infants' gaze and to shift their toy play patterns accordingly. Consistent with previous research, differences existed in parental response to infants' signals of waning interest in the play activity. While mothers tended to respond to cues of infant disinterest with showing or giving a new toy, fathers tended to engage the child in physical play. Clarke-Stewart's

study (1977) substantiated Lamb's findings that toddlers are significantly more responsive to playful social interaction initiated by fathers, as did that of Lynn and Cross (1974) which provided evidence that two-year-old boys prefer to play with their fathers than their mothers. Between the ages of two and four years, however, girls tended to show a shift toward preference for the mother as playmate.

In summary, interest, competence, and sensitivity on the part of the father in his interaction with his infant have been established and there is considerable evidence that the father is particularly salient as a stimulating and often preferred playmate. A second major line of inquiry, that of infant-father attachment and subsequent social responsiveness is addressed below.

Attachment theory and relevant studies

Perhaps the most significant contribution to the theoretical study of infant socio-emotional development has been the conceptualization of development within a "behavioral systems framework" (Bowlby, 1969; Sroufe, 1979; Sroufe and Waters, 1977). The four major behavioral systems that have been delineated in the literature are the attachment, affiliative, exploratory, and fear/wariness systems, the attachment being considered the most fundamental and receiving the greatest degree of attention. Rather than viewing attachment as a trait construct, measurable by the

sum of discrete behaviors, it is conceptualized as an organizational construct, referring to an "affective tie between infant and caregiver and as a behavioral system, flexibly operating in terms of set goals, mediated by feeling, and in interaction with other behavioral systems" (Sroufe and Waters, 1977). Emphasis is not placed on individual behaviors, as several behaviors sharing a common goal may serve one system, and the same behavior may serve more than one system, depending on context and goal. A particular behavior such as "touch" and "approach" may serve both the attachment and affiliative systems, depending upon the context in which it occurs (Tracy et. al., 1976). For example, object-oriented approaches were found to be directed more to stranger than to mother, whereas approaches accompanied by crying and terminating in a pick-up appeal were found to be directed almost solely to the mother.

John Bowlby's attachment theory (1958, 1969) integrated several important paradigms in the biological and social sciences. A fundamentally psychoanalytic framework was enriched by ethological, control-systems, information-processing, and cognitive theories. Viewing behavior within an evolutionary context, Bowlby emphasized that patterns of infant-mother attachment are evolved, species-specific behavioral adaptations. As the human species evolved within wild and hostile environments ("the environment of evolutionary adaptedness"), the primary adaptive advantage

of the infant maintaining proximity to his mother was in the subsequent facilitation of protection of the infant against predation. Infant attachment behaviors such as proximity and contact seeking and maintaining are viewed as contributing to the survival of the infant and consequently (and more importantly) to the species as a whole. Behaviors such as proximity-avoiding and resistance to the mother are viewed as counterproductive to maternal protection against predation. Attachment theory further emphasizes the use of the mother as a secure base from which to explore the social and non-social environment. Thus an appropriate attachment to mother promotes not mere survival, but through the infant's facilitated exploration of the environment, cognitive and social development as well (Bell, 1970; Schneider-Rosen and Cicchetti, 1984).

Before the infant is sufficiently motorically developed to seek and maintain proximity and contact with the mother, infant signalling mechanisms assume primary importance. Signals such as crying cause adults to approach and tend to the needs of the infant, and signals such as smiling and cooing attract the mother sufficiently for her to stay in proximity. Attachment to specific individuals is not thought possible until the infant has reached the cognitive milestone of object and person permanence (Bell, 1970; Piaget, 1952).

The most substantial amount of research in infant

social and emotional development of this and the previous decade finds its source in the attachment paradigm.

Conclusions derived from this research through 1978 were summarized in Patterns of Attachment (Ainsworth, et.al., 1978) in which the authors describe in detail the experimental procedure, the Strange Situation, developed to clarify the questions proposed by Bowlby vis-a-vis (1) individual differences in quality of mother-infant attachment; (2) differences in mother-infant dyadic interaction during the first year of life that may lead to these qualitative differences in mother and infant attachment; and (3) the effects of qualitatively different attachment patterns on subsequent development.

The Strange Situation (see Procedure section and Appendices I and II for details) was specifically designed to assess the quality of the infant's attachment to his mother. While Bowlby developed the more general attachment theory within an evolutionary context, it was Ainsworth and her colleagues who focused on individual differences among infants relative to the quality of attachment to the mother. Research involving quality of attachment as the dependent variable (as measured by the Strange Situation at one year) generally established that infants who were securely attached had mothers who responded to them sensitively, appropriately, and contingently during repeated home visits made by members of the research teams during

the first year of life. Infants who were insecurely attached (avoidant pattern) generally had mothers who did not appear to enjoy physical contact with them. Mothers of insecurely attached infants (ambivalent pattern) were generally inconsistent in their interaction with their child. However, see Lamb et.al. (1985) for a recent critique of the methodologies of studies leading to these generalizations.

Research involving the quality of attachment as the independent variable was designed to support the notion that the securely attached infant, benefiting from a positive relationship with his mother and able to utilize her as a safe base from which to explore the environment, consequently exhibits during toddlerhood and beyond advanced social and cognitive development when compared to those children having had insecure attachments to the mother (Arend, et.al., 1979; Lieberman, 1977; Pastor, 1981; Shill et al., 1984; Sroufe, 1985; Waters, et.al., 1979).

Father-infant attachment

A series of investigations, most notably by Kotelchuck and Lamb, were designed to clarify the nature of infant-father attachment. By comparing infant-father to infant-mother attachment within the context of the Strange Situation and during home observations, a focus on infant behaviors, as opposed to parental behaviors could clarify

the nature and degree of infant responsiveness to paternal investment. Central questions to be answered by this series of studies were (1) do infants become attached to their fathers as well as to their mothers, (2) if infants become attached to both parents, do they become attached to mothers first; and (3) are mothers preferred over fathers as attachment figures when the attachment system is activated by a stressful situation. With infants from 6 to 21 months of age, Kotelchuck found that infants protest the departure of not just the mother, but of both parents. Play was depressed and crying increased after departure of either mother or father. Using a modified version of the Strange Situation, Kotelchuck was able to determine preference for mother versus father by examining the episodes in which both parents were present in the playroom. It was found by Kotelchuck that approximately 55% of the 12 to 21-month-olds showed maternal preferences, 20% joint preferences, and 25% paternal preferences. He concluded that a "monotropic, matricentric model of early infant interpersonal preference is simplistic". This phraseology denotes a criticism of Bowlby's initial emphasis (1958) on a unilateral focus on the mother as attachment figure. Although attachment behaviors are directed to both mother and father in a naturalistic setting, Lamb found that when infants are under stress, a situation that would arouse the attachment system, mother is generally preferred

as the primary attachment figure when both parents are available. Lamb concluded that when infants are stressed, they will organize their attachment behavior around whichever parent is available. When both parents are available, distressed infants tend to seek comfort from their mothers. However, at eight months, and by 24 months, preferences for mother were not observed (Lamb, 1976a, 1980). A recent study (Shill et. al., 1984) of 15-month-olds' attachment behavior in a modified Strange Situation procedure included episodes in which both the mother and father were present. Results corroborated those of Lamb in that "proximity-seeking behavior clearly differentiated mother preference over father at times of greater stress".

A study by Lamb (1978) comparing infant behavior in Strange Situations with mother and father showed a low positive association in category placement. That is, insecure attachment to mother does not preclude a secure attachment to father, nor does a secure attachment to mother necessarily indicate that the infant's attachment to the father will be a secure one. These findings were a direct refutation of the Freudian postulate that "the mother-infant relationship is the prototype of all later love relationships".

A study by Main and Weston (1981) corroborated Lamb's findings regarding the low positive association between infant-mother and infant-father attachment

classification and attempted to extend them. Investigating the relation between the attachment and affiliative systems, their study provided evidence that the relationship to father, as well as to mother, affected infant social responsiveness to an adult actor dressed as a clown. Results of their study indicated that infants securely attached to mother, but not to father, were more socially responsive to the clown than those securely attached to father, but not to mother. While the researchers interpreted these results to suggest the primacy of the mother-infant relationship vis-a-vis subsequent social development, these conclusions may be ill-founded. Because all children were exposed to the clown when accompanied by the mother, those children who were securely attached to father but not to mother were without their "secure base" from which to explore the social environment. In addition, measures of sociability with the clown were taken at 12 months of age and most measures of infant-father attachment were taken at 18 months (75 percent), while most measures of infant-mother attachment were taken at 12-months (75 percent). A more appropriate measure of prediction and/or correlation would have been achieved if sociability and attachment had been assessed more contemporaneously.

Shill et. al. (1984), compared the influences of mother-infant and father-infant attachment on the exploratory system. They compared the impact of separation from

the mother (while father and stranger are in the room) to the impact of separation from the father (while the mother and stranger are still in the room) on attachment and exploratory behavior of 15-month olds in a modified Strange Situation procedure. Results indicated that exploratory locomotion significantly decreased when mother left the room, although father remained present. There was actually a nonsignificant tendency for exploratory manipulation and visual exploration to increase after father's exit, but to decrease after mother's exit. They concluded that the mother has greater importance as a secure base for exploration than the father. However, one of their reported findings was that once the stranger entered the room, (Episode 2) there was greater avoidance ($p < .05$ for both parents) as well as greater distance interaction (mother: Sign test $p < .01$; father: Sign test $p < .0002$) with the stranger than with either parent. The authors interpreted this as suggestive of an ambivalent curiosity toward the stranger. However, for purposes of this study, the father-present context appears remarkable in its elicitation of visual regard of the stranger, a behavior that may reflect combined wariness and sociability. Thus Shill et. al.'s study may have supported the relative importance of the mother as a secure base from which to explore the inanimate environment, but also suggested an important role for the father as elicitor of distal social interaction. This is

an intriguing finding in light of Thompson and Lamb's (1983) study (to be discussed more fully in the following section on stranger sociability) indicating that the infants most sociable with a stranger appeared to be those who preferred a distal mode of interaction.

A recent multi-dimensional study of slightly older children by Easterbrooks and Goldberg (1984) focused on the relationship between the independent variables of paternal involvement and parenting characteristics and dependent variables of toddlers' attachment, affect during a task, and orientation to the task. One of the few studies relating variables associated with fathering and subsequent toddler socio-emotional development, the hypotheses of the investigators were generally confirmed. High paternal sensitivity and low aggravation were associated with positive child affect and orientation in problem solving. Father involvement, as measured by amount of time spent with the child alone, amount of time spent in play, and amount of time spent in caregiving activities, was significantly associated with toddler development when the children were observed in a problem solving activity with their mothers as well as with their fathers. Interestingly, effects were even greater when children were observed with mothers. As one of the main components of "father involvement" as measured in this study was amount of time spent in play with the toddler, this study underscores the importance of

continued research focusing on dimensions of early father-child play interaction.

In summary, previous studies have indicated that fathers become attachment figures to infants at approximately the same time that mothers do and that in naturalistic settings, infants direct attachment behaviors to their fathers at least as frequently as they do to their mothers during the first year of life. In naturalistic observations during the second year of life, it appears that more attachment behaviors are directed to fathers than to mothers. Affiliative behaviors, such as looks, smiles, laughs, and vocalizations appear to be directed significantly more to father during the first and second year of life. When the infant is under stress, however, mothers appear to be the preferred attachment figure (at least between approximately 9 and 24 months of age). These findings have led to the conclusion that during this time period, mothers are the "primary attachment figure" while fathers are both attachment figures and salient as the recipient of affiliative behavior.

Several studies have provided evidence refuting the classic Freudian postulate that the infant's relationship with his/her mother is the prototype of all future relationships. That is to say, a secure attachment with the mother does not necessarily lead to a secure attachment to the father, nor does an insecure attachment to the mother

preclude a secure attachment to the father. Evidence has been provided that a secure attachment to the father does not compensate for an insecure attachment to the mother vis-a-vis exploratory competence. However, due to methodological difficulties of previous studies, evidence is less clear regarding the compensatory effects of the paternal relationship vis-a-vis sociability (affiliative behavior).

Stranger sociability

Stranger sociability, or the infant's positive social interaction with an unacquainted adult, has been an area of investigation fairly recently. "Stranger anxiety" (Spitz, 1950), or the infant's fearful reaction to strangers, has long been an area of investigation by clinical and developmental psychologists because of what initially appeared to be its inextricable link with separation anxiety from the mother. The focus on negative reactions to strangers observed at approximately eight months of age is a phenomenon of interest to cognitive theorists and researchers interested in pursuing the relationship of cognitive and affective development (Schaffer, 1974). Other studies, however, have emphasized the robust degree of social or "affiliative" responses to strangers (Sroufe, et.al., 1974; Bretherton, 1978; Bretherton and Ainsworth, 1974; Stevenson and Lamb, 1979; Thompson and Lamb, 1983) and consensus appears to be that the initial emphasis on

fear of the stranger was misleading (Clarke-Stewart, 1978; Kaltenbach, et al., 1980).

Current investigations seek to clarify the effects of previous affective experience with mothers (Thompson and Lamb, 1983) as well as social context (Sroufe et.al., 1974; Feiring, et.al., 1984) on infant response to a stranger's entrance and approach, and emphasize the infant's combination (Bretherton and Ainsworth, 1974; Clarke-Stewart, 1978; Greenberg and Marvin, 1982; Rheingold and Eckerman, 1974) of wary (gaze aversion, crying, approach toward mother) and affiliative behaviors (smiling, vocalizing, toy offering).

Individual differences in infant sociability and shyness with strangers, however, have been documented (Scarr, 1969; Schaffer, 1966) and several studies have investigated the role of heredity and temperament on stranger sociability. Thompson and Lamb (1982) correlated maternal reports of infant temperament with sociability with an adult stranger at 12.5 and 19.5 months of age. Sociability correlated negatively with the dimensions of fearfulness and anger/frustration and positively with the dimensions of positive emotionality and activity level. The authors concluded that individual differences in stranger sociability appeared to be more strongly related to variation in temperament--especially fear--than to certain dimensions of prior social experience such as caregiving arrangements and family circumstances.

Other investigations of biogenetic influences on sociability have involved large samples of twins (Goldsmith and Gottesman, 1981; Matheny, 1980; Plomin and Rowe, 1979). While results of the studies suggest the existence of genetic influences, these influences appear to account for only a small degree of the variance of observed sociable behavior. A more recent study (Daniels and Plomin, 1985) using a "full adoption design" was undertaken to compare the relative contribution of genetics and environment to infant shyness. Assessing shyness of infants and sociability (e.g., introversion-extroversion) of both adoptive and biological parents, the investigators included that "there are salient individual differences in infant shyness whose origins appear to be both genetically and environmentally influenced".

The Strange Situation procedure provides an opportunity for investigation of the infant's affiliative, as well as attachment behavior in that the second episode focuses upon the child's reaction to the entrance of an unfamiliar female adult and her subsequent attempt to engage him in playful interaction. Bretherton and Ainsworth (1974) analyzed 106 infants' responses during Episode 2 and concluded that 12 month old infants show conflict between behavioral systems activated simultaneously by the stranger--a fear/wariness system competing with an affiliative system. In addition, the fear/wariness system activates the attachment

system. Attachment theory dictates that individual differences among infants vis-a-vis the quality of attachment to the caregiver would result in individual differences in the use of the caregiver as a secure base from which to explore (and affiliate with) the object and social environment. While the infant may avoid contact with an unfamiliar person when under stress, the securely attached infant, in the presence of an attachment figure, should be able to respond positively (perhaps with some "warm up time") to a novel person (Sroufe, 1979).

Some of the earlier attachment studies of the last decade focused upon the degree of the child's separation protest when left with the female stranger during the third episode of the Strange Situation. While separation protest has been criticized as a poor measure of quality of attachment, there is a subtle relation between the child's social or "affiliative" responses to the stranger in Episode 3 and the stranger's subsequent potential to act as a distractor during the separation episodes, thus lessening the separation distress of the child (Thompson and Lamb, 1983). A study by Spelke et.al. (1973) examined the effects of paternal involvement in the home on the degree of separation protest of the child while left with a stranger in the laboratory. The most separation distress occurred in infants with the lowest paternal involvement, an intermediate amount of distress occurred in infants with medium paternal

involvement, and least distress in infants with the highest amount of paternal involvement in the home. It appears from this data that children benefiting from paternal involvement in the home are more sociable with an adult stranger insofar as they can be comforted and distracted by her when the parent leaves the room.

In another study investigating the father's influence on early social responsiveness, Pedersen, et.al. (1979) found that 5-month-old male infants who experienced greater amounts of father interaction were more socially responsive as indexed by a cluster of Bayley scores for items such as vocalizing to a social stimulus, making an anticipatory adjustment to being lifted, and enjoying frolic play. Social responsiveness of the male infants was lower in father-absent than in father-present homes.

Exploring the relationship between quality of infant-mother attachment and affiliative behavior directed toward an adult stranger, Thompson and Lamb (1983) found that securely attached 12 1/2- and 19 1/2-month-old infants, particularly those who used a distal, as opposed to proximal interactive style with mother (subgroups B1 and B2) received higher scores of sociability. The authors reasoned that when confronted with a situation potentially resulting in activation of the wariness and attachment systems (the entrance of a stanger), infants who have demonstrated a distal interaction pattern with mother can

be reassured by visually checking back with her without having to establish physical contact. Discussing their findings of an inverse relationship between contact-maintaining with mother and sociability with the stranger, Thompson and Lamb concluded that a distal interactive style facilitates interaction with the stranger because reliance on physical contact with mother for reassurance potentially decreases time spent in interaction with the stranger. They also argue that "an infant who is accustomed to interacting across a distance can more readily engage a stranger than an infant who is accustomed to more proximal interactive modes". Their findings of greater sociability of B1 and B2 infants corroborates Easterbrooks and Lamb's (1979) results of B1 and B2 infants demonstrating greater sociability than did B3 and B4 infants when observed in a free play situation with an unfamiliar peer with mothers present.

In a cross-cultural study undertaken in Sweden, Lamb et.al (1982) were not able to replicate Thompson and Lamb's findings that secure attachment to the mother (specifically B1 and B2 classifications) was associated with higher stranger sociability. The study did indicate, however, that security of attachment to the father was more related to sociability with an adult stranger than was security of attachment to the mother. Swedish infants categorized as B1 and B2 in the Strange Situation at 12 months with father were found to be most sociable with the stranger. This was

true for traditional families as well as for families in which the father had undertaken a greater degree of care-giving responsibility. Lamb (1982) reported that Owen et.al. (1981) found a relationship between security of mother-infant attachment, but not for infant-father attachment, and stranger sociability in an American sample of 12-month-olds. In addressing the disparity of results between this and the cross-national study in Sweden, Lamb concluded that the Strange Situation may not adequately assess the security of infant-parent attachment in other than the American culture. In fact, there is considerable evidence that the distribution of patterns of infant behavior during the Strange Situation vary from culture to culture. For example, Grossmann and Grossmann (1981), utilizing the Strange Situation procedure to compare infant-mother attachment at 12 months with infant-father attachment at 18 months, reported a significantly greater number of insecure (avoidant) attachments than generally found in American samples (60 percent insecurely attached as compared with 20 to 25 percent in an American sample. While Lamb et.al's Swedish sample were distributed more similarly to American than the German sample reported vis-a-vis the avoidant insecure pattern (with 24 percent avoidant), the Swedish sample contained relatively few children of the resistantly insecure attachment pattern (4 percent as opposed to 10 to 15 percent) and somewhat fewer

of the high-contact seeking securely attached pattern (B3 and B4). For this group, "B3" type of responses may not be truly analogous to "B3" responses in an American sample in that they are apparently less typical in Sweden (in the United States the "B3" attachment pattern has been found to be the mode.) Again, the findings that B1 and B2 Swedish infants are the most sociable may be spurious in that the attachment subcategories may not be analogous. Thus the relation of father-infant attachment to stranger sociability remains ambiguous with cross-cultural confounds and has been explored only at 12 months.

In summary, individual differences in infant responses to unfamiliar adults have been noted (Scarr, 1969; Schaffer, 1966) and possible origins of individual differences have been investigated in studies focusing on the effects of heredity, environment, context of situation, and parent-infant attachment. While some evidence has been provided regarding the father's role in the development of stranger sociability, these studies have been limited to the first year of life. A highly interesting finding relating father-infant attachment to stranger sociability (Lamb et.al., 1982) is difficult to generalize due to ambiguities inherent in cross-cultural research utilizing the strange situation. The value of additional research of the role of the father in the development of sociability is clearly indicated, particularly for American children in their

second year.

Toddler Peer Interaction

This section provides a general overview of research in early peer interaction and an in-depth treatment of the findings relevant to the principle theme of this study: the origins of the development of social interaction with peers.

General background

Several important studies exploring and describing the existence and developmental progression of early peer interaction appeared in the 1920's and 1930's (Buhler, 1933; Bridges, 1933; Maudry and Nekula, 1939; Parten, 1932). The approximate 40-year hiatus on this line of inquiry since that time and the 1970's is perhaps explained by similar reasons for previous scholarly neglect of infant-father interaction: psychoanalytic theory's emphasis on the mother-infant relationship to the virtual exclusion of all other aspects of the infant's social world and social learning theory's reinterpretation of the mother-infant relationship according to the principles of the "secondary drive" hypothesis. In addition, Piaget's now classic hypothesis regarding the young child's egocentricity, or cognitive inability to view the world from the perspective of another person, served to limit the earliest

investigation of peer interaction to the age at which egocentricity has been replaced by more cognitively advanced abilities related to the understanding of reciprocal operations (generally 7 or 8 years of age). However, in light of Harlow's work (1958) calling into question basic tenets of drive reduction and secondary drive theory, Caldwell's review (1964) strongly questioning a classical Freudian explanation of determinants of infant behavior, and Shatz and Gelman's investigation (1973) calling into question the extent of the young child's egocentricity, the ground work was laid for a renewed interest in peer-interaction during the first and second years of life.

Daycare centers (Kagan, Kearsley, and Zelazo, 1980) and children's houses in kibbutzim afforded opportunities for the observation and documentation of social behavior among infant peers and even the development of friendships among familiar toddlers (Zaslow, 1980). Experimental playgroups were formed to investigate the developmental progression of peer-interaction in children reared primarily by their mother in traditional settings (Mueller and Brenner, 1977; Mueller and Rich, 1976) indicating systematic increases between the ages of 12 and 24 months in the number and complexity of social behaviors directed towards peers.

In studies focusing upon infant preferences for peer versus mother, several investigators have indicated that

infants and toddlers, when given the choice, would rather interact with a peer. Lenssen (1975) found that 10-month-old infants direct more "looks", "touches", and "proximity-seeking" behavior to the peer than to the mother and Rubenstein and Howes's study (1976) indicated that similar peer-preference exists for toddlers as well. Lewis et. al. (1975) found that while distal social behaviors, most notably "looking", and the proximal behavior of taking of toys were directed more often toward the peer, proximal behaviors such as touching, proximity-seeking, and object offers were directed more often to the mother. However, an alternative perspective is provided by Bronson, who has been critical of what she interprets as an overestimation of social competence between toddler peers (1981). In her review of the literature, she claimed that when excluding the behavioral category of "looking" (1974, 1975), peers were only infrequently the targets of social interaction, with toys and mothers the most frequent targets.

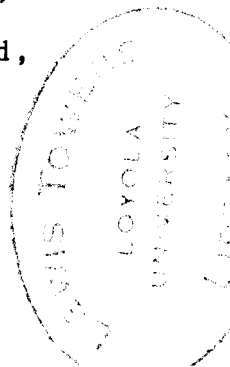
Antecedents of individual differences in sociability with peers: The relationship between the infant-parent and toddler-peer social systems

The appearance of early peer interaction has been described in the literature as have been the effects of familiarity (Lewis et al., 1975), degree of previous experience with peer encounters (Mueller and Brenner,

1977), and presence of toys (DeStefano and Mueller, 1982). However, the major theoretical issues have focused on the origins of social peer interactions and antecedents of individual differences in early sociability with a peer, with differences among hypotheses remain unresolved.

In an article exploring the processes by which infants establish new social relations, Ross and Goldman (1977) touch upon the most salient of these hypotheses in their discussion of the ways in which the infant's relationship to his mother potentially interfaces with his relationship with others, particularly infant and toddler peers. For example, within the context of attachment theory, the securely attached child can utilize the mother as a secure base from which to explore the environment. Thus the child who is secure in his attachment may more readily establish new relationships in that he is more exploratory and has a history of positive interaction from which he may generalize. Several studies have, in fact, provided evidence supportive of this hypothesis by relating individual differences in mother-infant attachment to individual differences in social competence with peers during toddlerhood (Easterbrooks and Lamb, 1979; Pastor, 1981) as well as preschool and kindergarten years (Arend, Gove, and Sroufe, 1979; LaFreniere and Sroufe, 1985; Sroufe, 1983; Waters, et al., 1979).

This perspective has been criticized (Lewis and



Schaeffer, 1981; Weinraub et.al., 1977) because of an important difficulty in interpreting a linear relationship: mothers who engender secure relationships between their infant and themselves may be better adjusted as individuals and consequently may provide more early peer experiences for their child because of their own greater network of friends and greater sensitivity to their child's need for diversity. This notion was also developed by Ross and Goldman as an alternative hypothesis to the linear attachment model of the relationship between the mother-child and child-peer social systems. They posit that the presence of the mother and her attitudes, actions, and reactions to the new peer may "set the tone" for the infant's interactions. Evidence in support of this hypothesis was provided by Lieberman's study (1977) in which she found security of attachment and competence with a peer to be confounded because mothers of securely attached infants tended to facilitate peer interaction. Compatible with Lieberman's findings is Ross and Goldman's argument that mothers may facilitate peer interaction by serving as an interpreter for her child of the other child's actions. That is to say, by clarifying the children's signals to each other, mothers may facilitate the establishment of more mutually satisfying interaction patterns between the two children.

This argument is compatible with the "social network" perspective: Peer interaction and mother-infant

interaction are autonomous and complementary systems which can mutually influence each other. This theoretical argument has been developed most notably by Lewis and his colleagues (Weinraub, et.al, 1977; Lewis, 1984) in their attempt to reveal possible limitations to the linear effects associated with the psychoanalytic-ethological model of Ainsworth and her colleagues. Lewis and his colleagues' strongest statements focus on the autonomy of the early peer social system. For example, one study (Lewis and Schaeffer, 1981) provided evidence that even children who have been abused by their mothers are capable of appropriate peer interaction throughout infancy and toddlerhood (their sample included children from 8 to 32 months) if provided with sufficient exposure to a peer group. This line of argument is analogous to that of Suomi and Harlow's (1972) comparative studies with rhesus monkeys indicating that rehabilitation of juvenile monkeys who had been separated from their mother during infancy was not possible by subsequently reuniting them, while rehabilitation was possible through their pairing in cages with slightly younger rhesus peers. Similar work with withdrawn kindergarten children (Furman, et.al., 1979) in which they were paired with slightly younger peers provided additional support to the social network position of Lewis and his colleagues: the peer affectional system could provide therapeutic intervention that was difficult to elicit from parents.

Perhaps the most memorable work indicating the potential of the peer group as therapeutic "mother substitute" is Freud and Dann's (1951) longitudinal study of six orphans who, born in concentration camps during World War II, had minimal contact with their biological mothers. Cared for by one refugee after another during the first year of life, they arrived individually between six and 12 months of age at a ward for motherless children in the concentration camp at Tereszin. Approximately two to three years after arrival, they were liberated and eventually flown to England, where they received care and therapy at a nursery. Freud described the cohesiveness of the group, the children's unusual emotional dependence on each other, and the almost complete lack of jealousy, rivalry, or competition. Freud found that their maternal deprivation resulted in hypersensitivity, restlessness, aggression, heightened autoeroticism, and for some, the beginnings of neurotic symptoms. She concluded, however, that their cohesiveness and mutual emotional support substantially mitigated their maternal deprivation and the instability of adult caregiving, and that they were "neither deficient, delinquent, nor psychotic".

A third hypothesis posited by Ross and Goldman was within a Piagetian framework: the possibility of the direct transfer of interactional patterns from one realm to another. That is, the infant may attempt with a new person

schemas which are well established with the mother. However, others have utilized a Piagetian framework (see Mueller and Vandell, 1979 for a review) in emphasizing the object-orientation of early peer interaction and exploring the notion that the peer system is an autonomous one (Mueller, 1979) that develops independently of the parent-infant relationship and is modifiable most importantly through experience within the peer group (Mueller and Brenner, 1977). Vandell's (1979) study of the effects of a playgroup experience on mother-toddler and father-toddler interaction indicated that influences between very young children and their parents are bidirectional (for a review of this perspective, see Bell, 1968; Lewis and Rosenblum, 1974). Male toddlers' interaction with their mothers and fathers was observed before and three and six months after their participation in a playgroup. It was found that after participation, the toddlers' became proportionally more active in their parent-interaction than a control group, as well as more responsive to the interaction initiations of their parents. In addition, parents of the playgroup toddlers became significantly less dominant in their interaction.

In comparison with the substantial attention of developmentalists to the relationship between the mother-infant relationship and the subsequent development of social competence with peers, there is a dearth of informa-

tion relevant to the relationship between early father-infant interaction and subsequent social competence with a peer. Those studies which have included the father have been conducted by researchers who have emphasized the "autonomy" of the peer social system (Mueller, 1979; Vandell, 1977) or the influence of the peer system on child-parent interaction (Vandell, 1979). The current lack of knowledge of father's role in the development of sociability with peers is unfortunate. Ross and Goldman's discussion of the possible relationships between the mother-infant and toddler-peer social systems may also be applied to explain the possible relationship between the father-infant and toddler-peer systems. In addition to possible similarities, differences have yet to be adequately explored among the ways mothers and fathers may differentially influence their children's development of social competence within the peer group.

A rare study focusing on the father's role in the development of social competence in the peer group was undertaken by MacDonald and Parke (1984) in an investigation of parent-child play interaction and peer interactive competence at three-and four-years of age. Results of this study indicated that different patterns of maternal and paternal behavior were associated with social competence for sons and daughters, with paternal directiveness negatively correlated with popularity of the children and

paternal physical play and engagement positively correlated with social competence (particularly for sons). The continuation of this line of inquiry is clearly indicated.

In summary, after an approximate 40-year hiatus, recent research in the area of infant- and toddler-peer interaction has provided evidence that peers become increasingly attractive targets for socially directed behaviors during the first two-years of life. The appearance of early peer interaction has been described in the literature as have been the effects of familiarity (Lewis et. al., 1975), degree of previous experience with peer encounters (Mueller and Brenner, 1977), and presence of toys (DeStefano and Mueller, 1982). However, the major theoretical issues have focused on the origins of social peer interactions and antecedents of individual differences in early sociability with peers, with differences among hypotheses remaining unresolved. The most salient of these hypotheses include the following: (1) the ethological psychoanalytic perspective relating individual differences in social competence with peers to individual differences in mother-infant attachment; (2) various formulations of the "the social network" perspective positing that peer interaction and mother-infant interaction are autonomous and complementary systems which can mutually influence each other; (3) a Piagetian hypothesis which emphasized the autonomy and object-orientation of the peer social system.

Several studies have indicated that the father, in addition to being an attachment figure, is rather consistently the more frequent recipient of affiliative social behavior when compared to the mother in naturalistic settings. In addition, the father's role as preferred playmate, particularly for sons, is a salient aspect of the literature. The relationship between father as playmate and recipient of affiliative behavior and his role in the development of the affiliative system is intriguing. However, it is clear that in comparison to the substantial attention devoted to the relationship between the mother-infant relationship and the subsequent development of social competence with peers, there is a dearth of information relevant to the relationship between early father-infant interaction and subsequent social competence with a peer.

General summary and integration of literature review:

In summary, interest, competence, and sensitivity on the part of the father in his interaction with his infant have been established and there is considerable evidence that the father is particularly salient as a stimulating and often preferred playmate. Previous studies have indicated that fathers become attachment figures to infants at approximately the same time that mothers do and that in naturalistic settings, infants direct attachment behaviors

to their fathers at least as frequently as they do to their mothers during the first year of life. In naturalistic observations during the second year of life, it appears that more attachment behaviors are directed to fathers than to mothers. Affiliative behaviors, such as looks, smiles, laughs, and vocalizations appear to be directed significantly more to father during the first and second year of life. When the infant is under stress, however, mothers appear to be the preferred attachment figure (at least between approximately 9 and 24 months of age). These findings have led to the conclusion that during this time period, mothers are the "primary attachment figure" while fathers are both attachment figures and salient as the recipient of affiliative behavior.

Several studies have provided evidence refuting the classic Freudian postulate that the infant's relationship with his/her mother is the prototype of all future relationships. That is to say, a secure attachment with the mother does not necessarily lead to a secure attachment to the father, nor does an insecure attachment to the mother preclude a secure attachment to the father. Evidence has suggested that a secure attachment to the father does not compensate for an insecure attachment to the mother vis-a-vis exploratory competence. However, due to methodological difficulties of previous studies, evidence is less clear regarding the compensatory effects of the

paternal relationship vis-a-vis sociability (affiliative behavior).

Individual differences in infant responses to unfamiliar adults have been noted (Scarr, 1969; Schaffer, 1966) and possible origins of individual differences have been investigated in studies focusing on the effects of heredity, environment, context of situation, and parent-infant attachment. While some evidence has been provided regarding the father's role in the development of stranger sociability, these studies have been limited to the first year of life. A highly interesting study undertaken in Sweden related quality of father-infant attachment to stranger sociability (Lamb et.al., 1982). However, this finding is difficult to generalize due to ambiguities inherent in cross-cultural research utilizing the strange situation. The value of additional research of the role of the father in the development of sociability is clearly indicated, particularly for American children in their second year.

Since an approximate 40-year hiatus on the investigation of infant and toddler peer-interaction, research in this area has provided evidence that peers become increasingly attractive targets for socially directed behaviors during the first two-years of life. The appearance of early peer interaction has been described in the literature as have been the effects of familiarity (Lewis et. al., 1975), degree of previous experience with peer encounters (Mueller

and Brenner, 1977), and presence of toys (DeStefano and Mueller, 1982). However, the major theoretical issues have focused on the origins of social peer interactions and antecedents of individual differences in early sociability with peers, with differences among hypotheses remaining unresolved. The most salient of these hypotheses include the following: (1) the ethological psychoanalytic perspective relating individual differences in social competence with peers to individual differences in mother-infant attachment; (2) various formulations of the "the social network" perspective positing that peer interaction and mother-infant interaction are autonomous and complementary systems which can mutually influence each other; (3) a Piagetian hypothesis which emphasized the autonomy and object-orientation of the peer social system.

Several studies have indicated that the father, in addition to being an attachment figure, is rather consistently the more frequent recipient of affiliative social behavior when compared to the mother in naturalistic settings. In addition, the father's role as preferred playmate, particularly for sons, is a salient aspect of the literature. The relationship between father as playmate and recipient of affiliative behavior and his role in the development of the affiliative system is intriguing. However, it is clear that in comparison to the substantial attention devoted to the relationship between the mother-

infant relationship and the subsequent development of social competence with peers, there is a lack of information relevant to the relationship between early father-infant interaction and subsequent social competence with a peer.

CHAPTER III

METHODOLOGY

The methodology section is presented in two parts. Part I describes the hypotheses, subjects, procedure, and analyses for the first part of the study regarding differential parent effects on early sociability with unfamiliar adults. Part II describes the methodology for the second part of the study which focuses on differential parent effects on sociability with unfamiliar peers.

Part I:

Hypotheses (stated in the null form):

1. There will be no significant difference between mother- and father-present situations in the degree of the infant's direction of sociable behaviors to an adult (female) stranger.
2. There will be no significant difference between mother- and father-present situations in the relationship between stranger sociability and quality of infant-parent attachment.

Subjects:

Subjects were 40 white middle- and upper middle-class infants from intact families. Two boys were sufficiently distressed during episodes of separation from the parent to warrant curtailing their participation in the study, so the final data analyses included 38 subjects (27 males and 11 females). For one of the male subjects, it was necessary to curtail the last separation episode. However, it appeared that sufficient evidence was available to appropriately code and classify his behavior (see Sagi et.al., 1985 for a discussion of classifying subjects for whom the Strange Situation must be curtailed). Table 1 displays the ages of all children at the time of the first and second observations and sex of accompanying parent at each observation. The children were 18 months of age at the time of their first session of participation (range: 1.5.17 to 1.6.27; $X = 1.6.3$) in the study and 21 months of age at the time of the second session (range: 1.8.24 to 1.10.24; $X = 1.9.14$). All subjects were healthy, normally developing infants born full-term and with no unusual incidents in their medical histories. All of the girls and 17 of the boys were first borns.

Subjects were recruited through two procedures: Seventy-five percent of potential participants were contacted through "moms and tots" groups and YMCA groups. It is not possible to ascertain the percentage of parents contacted

Table 1Ages of Subjects at First and Second Observation
in the Strange Situation Procedure

	1st Observation*	2nd Observation**
Subject 1(Male)	1.6.27 (Mother)***	1.10.16
Subject 2(Male)	1.5.22 (Mother)	1. 9. 5
Subject 3(Male)	1.5.27 (Father)****	1. 9.16
Subject 4(Female)	1.6.27 (Mother)	1.10. 4
Subject 5(Male)	1.5.29 (Father)	1. 8.28
Subject 6(Female)	1.5.26 (Father)	1. 8.25
Subject 7(Female)	1.5.28 (Mother)	1. 9. 4
Subject 8(Male)	1.5.22 (Mother)	1. 8.28
Subject 9(Male)	1.5.25 (Father)	1. 8.24
Subject 10(Male)	1.6. 8 (Father)	1.10. 0
Subject 11(Male)	1.6. 5 (Mother)	1. 9.20
Subject 12(Male)	1.5.25 (Mother)	1. 9.22
Subject 13(Female)	1.5.24 (Mother)	1. 9. 7
Subject 14(Male)	1.6.17 (Mother)	1. 9. 9

*Average age = 1.6.3; Range = 1.5.17 - 1.6.27

**Average age = 1.9.14; Range = 1.8.24 - 1.10.24

***Indicates first observation was with mother and second was with father (n = 22)

****Indicates first observation was with father and second was with mother (n = 16)

Table 1, cont'd.

	1st Observation*	2nd Observation**
Subject 15(Male)	1.5.24 (Father)	1. 9. 0
Subject 16(Male)	1.6. 9 (Father)	1. 9. 8
Subject 17(Female)	1.6.18 (Father)	1. 9.18
Subject 18(Male)	1.6. 5 (Mother)	1. 9. 4
Subject 19(Male)	1.5.28 (Father)	1. 8.28
Subject 20(Male)	1.6.12 (Mother)	1. 9. 4
Subject 21(Female)	1.6. 4 (Mother)	1. 9.25
Subject 22(Female)	1.5.28 (Father)	1.10. 9
Subject 23(Male)	1.6. 3 (Mother)	1. 8.26
Subject 24(Male)	1.5.18 (Father)	1. 8.25
Subject 25(Male)	1.5.17 (Father)	1. 9. 0
Subject 26(Male)	1.6.20 (Mother)	1. 9.26
Subject 27(Male)	1.5.22 (Mother)	1. 9.20
Subject 28(Male)	1.6.23 (Father)	1. 9.22
Subject 29(Male)	1.6. 1 (Mother)	1. 9. 7
Subject 30(Female)	1.6. 0 (Mother)	1. 9.13
Subject 31(Female)	1.5.24 (Mother)	1. 8.24
Subject 32(Female)	1.6. 4 (Mother)	1.10. 1
Subject 33(Male)	1.6. 9 (Mother)	1. 9. 1
Subject 34(Male)	1.5.26 (Father)	1.10. 0
Subject 35(Female)	1.6. 4 (Father)	1. 9.17
Subject 36(Male)	1.6. 2 (Father)	1. 9.16
Subject 37(Male)	1.5.23 (Mother)	1.10.24
Subject 38(Male)	1.6.20 (Mother)	1.10. 4

who agreed to participate as the membership of the groups fluctuated from meeting to meeting, attendance was not taken, and some of the mothers present did not offer to participate because their infants were older than 18 months. The second procedure, which resulted in recruitment of 25 percent of the sample, involved recruitment through birth announcements published in the newspaper of a suburban community bordering the greater urban area. A brief introductory letter was sent and a follow-up phone call was made to each family. Approximately 50 percent of the families contacted agreed to participate.

No children receiving institutionalized daycare were included in the study. Seven of the mothers were involved in work outside the home for 10 to 20 hours per week and had arranged for care within their home. One of the mothers worked full-time during the academic year and her child was cared for by the father for approximately two days a week and in a home daycare situation with three other children for approximately three days per week. One of the fathers in the study was the child's primary caregiver.

Procedure

Part 1-A: Assessment of initial sociability with an unfamiliar adult utilizing the Strange Situation procedure:

Each child was observed at 18 months with one parent and at 21 months with the other parent in an identical structured laboratory procedure known in the literature as the Strange Situation (see Appendix A for a detailed description of the procedure and Appendix B for directions to the parent). Sex of parent at first (18 month) observation was alternated in order to avoid a sex of parent/age confound. Twenty-two of the infants were seen with mother at 18 months, 16 with father.

Each infant-parent dyad was observed in a carpeted room 12 x 20 feet containing some furniture, age-appropriate toys, a chair and a magazine for each of the adult participants. The situation was videotaped by an automatic focus camera supported on a tripod at one end of the room. A small one-way mirror was utilized for observation of the infant during a one- to three-minute period when s/he was alone in the room.

The experimental procedure was identical to Ainsworth's Strange Situation (Ainsworth, Blehar, Waters, and Wall, 1978). Comprised of seven episodes of approximately three minutes each, the procedure was designed to allow observation of the infant's organization of attachment behavior in response to gradually increasing stress (two

three-minute separations from the mother and a one- to three- minute period of being alone in the room). After having entered the experimental room, the child and parent are alone for three minutes during Episode 1. Typically the child explores the toys available to him/her while the parent pretends to read a magazine. The relevant episode for the assessment of stranger sociability is Episode 2. Episode 2 (mother, child, and stranger present or father, child, and stranger present). The beginning of Episode 2, which is divided into three one-minute segments, is signaled by the entrance of the stranger, who says, "Hi, I'm the stranger", and subsequently takes a seat opposite the parent and sits quietly for one minute. After one minute, the stranger engages the parent in conversation, and during the final minute, the stranger gradually approaches the infant and attempts to engage him/her in play.

Scoring

To encompass various degrees of affiliative, attachment, exploratory, and fearful/wary responses, a seven point rating scale similar to the global rating scale reported by Bretherton and Ainsworth (1974) was developed by the primary investigator and a colleague also trained in the Strange Situation paradigm. Particular emphasis was placed upon the last minute of Episode 2, in which the child's reaction to the stranger's gradual approach and attempt at playful interaction was observed. The following

behavioral definitions, taken from Greenberg and Marvin (1982) served as an additional model for development of the scale.

Attachment behavior system: This system includes those behaviors which predictably function to increase or maintain proximity or contact with the parent. Attachment behaviors include looking at the mother when the stranger enters the room, speaks to or approaches the child, approaching mother without subsequent immediate engagement of mother in play or other sociable behavior.

Affiliative behavior system: This behavior system includes all behaviors directed toward a person which function to promote either the maintenance of proximity or distal interaction. Such behaviors include smiling, positive verbalizations, giving, showing, taking toys, approach resulting in interaction, and response to requests.

Exploratory behavior system: This behavior system includes behaviors through which the child explores and or manipulates objects in the environment. Merely holding a toy while exhibiting attachment behavior or while staring at the stranger is not included as an instance of exploratory behavior.

Wary/fear behavior system: This behavior system includes all behaviors which predictably function to decrease or avoid interaction with the stranger. Wary behaviors are those which indicate avoidance without suggesting outright

fear: locomotor withdrawal, negative verbalization (noncry negative utterances), ignoring the stranger's requests, gaze aversion and gaze avoidance. Fearful behaviors include those that not only function to avoid the stranger, but suggest outright fear: crying, diffuse motor movement, fearful facial expressions.

Rating Scale:

1. A score of one was designated for those children who demonstrated wary/fearful and attachment responses exclusively. Children receiving scores of one typically retreated to the parent immediately upon entrance of the stranger, emitted cries of distress, and remained in physical contact with the parent throughout the episode, clutching him/her upon approach of the stranger during the last minute of the episode. Exploratory behavior ceased upon entrance of the stranger and did not increase over time.
2. A score of two was designated for those children who were similar in response to those receiving a score of one, but who did not emit cries of distress. These children also sought immediate contact with the parent upon entrance of the stranger, maintaining physical contact throughout the episode, but their affective response was not as negative. Exploratory behavior ceased upon entrance of the stranger and either did not increase or increased minimally.
3. A score of three was designated for those children who combined wary, attachment, and exploratory responses, but

who did not respond sociably to the stranger. This reaction was typified by a decrease in exploration upon entrance of the stranger, demonstration of attachment to the mother, subsequent increase of exploratory behavior, but a refusal to accept a toy offered by the stranger and continued gaze aversion.

4. A score of four was designated for those children who combined behaviors from all four behavioral systems in a fairly equal balance. Exploratory behavior slightly decreases upon the stranger's entrance, and either proximity to mother is sought, or the distal act of social referencing (looking at the parent immediately after looking at the stranger) is sufficient for the child to return to toy exploration and manipulation. When the stranger approaches and offers a toy, the child typically accepts it.

5. A score of five indicates that the child, during the last minute of the episode, demonstrates sociable behavior that is greater than average. This is measured by repeated toy exchanges with the stranger and/or heightened affect during interaction (broad smile, chortle, giggle). The child may or may not have decreased exploratory behavior at the time of the stranger's entrance and may or may not have sought proximity to mother for a brief time.

6. A score of six indicates that the child spontaneously approaches the stranger for purposes of interaction before the last minute of the episode in which the stranger is to

approach the child. The child typically approaches and either vocalizes or verbalizes in a positive manner and/or offers a toy. Exploratory behavior is typically minimally decreased upon entrance of the stranger and approach to mother is usually for purposes of playful interaction rather than for physical contact per se.

7. A score of seven indicates that the child repeatedly approaches the stranger for purposes of interaction before the last minute of the episode. The child's organization of behaviors is similar to that of a child receiving a score of six, but child-initiated interaction with stranger is more frequent and/or accompanied by higher positive affect (e.g., laugh, squeal of delight).

Reliability

Approximately 75 percent of the Episode 2 segments were coded by both the primary investigator and her colleague, who was blind to the subject's attachment classification (see Part 1-B for discussion of attachment classification). Inter-rater reliability was high: approximately 96 percent. Disagreements were discussed until consensus was achieved.

Scoring (Part 1-B): The assessment of quality of mother-infant and father-infant attachment utilizing the Strange Situation procedure:

As the relation between quality of attachment and stranger sociability was a focus of interest, the entire Strange Situation was reviewed for purposes of classifying quality of attachment to both mother and father. Particular emphasis was placed on Episodes 4 and 7, during which the parent returns to the room after having left for three minutes (see Appendix C for a description of the attachment classifications and Appendix D for a summary of Ainsworth's scoring criteria). Children were categorized as either securely attached (Group-B), insecurely attached (avoidant Group-A); or insecurely attached (resistant Group-C) according to the child's ability to use the parent as a secure base from which to explore the environment during pre-separation episodes and according to four seven-point scales for the following behavior during the two reunion episodes: (1) proximity- and contact-seeking; (2) proximity- and contact-maintaining; (3) avoidance of the parent; and (4) resistance to the parent. Children who were found to be securely attached to the parent were subsequently categorized according to subgroups within the securely attached classification (see Appendix C for descriptions of subgroups).

Training and reliability of coding:

Due to recent concerns regarding the accuracy and consistency of the use of scoring criteria among researchers in different laboratories, the primary investigator sought specific training. She and another doctoral student also utilizing the Strange Situation procedure in a dissertation project were trained by Diane Wille who had primary responsibility for coding behavior for over 100 children seen in the Strange Situation, the data for which were reported in publication (Jacobsen and Wille, 1984) and at a national conference (Jacobsen et al., 1983; Wille, 1983). Wille received training through training tapes made available by Waters (Ainsworth et al., 1978). Refinement of her skills was achieved through consultation by Jacobsen, who had been directly trained by Waters at the State University of New York-Stony Brook. Reliability was established with Wille on seven video-tapes of subjects involved in this study and six of subjects involved in another attachment study. All video-tapes were coded by the primary investigator and approximately 50 percent (36 of 76) of them were coded by her colleague as well. Inter-rater reliability for the three global (A,B,C) classifications approximated 94 percent. Reliability for scoring on the seven-point scale also appeared acceptable (Proximity and contact seeking: 79 percent; proximity and contact maintaining: 91 percent; avoidance: 88 percent; resistance: 90 percent), and

differences in rating scores rarely differed by more than one point. Agreement and decisions on final subcategory classification were achieved through a second simultaneous viewing by both coders and discussion. For coding of the more difficult tapes (generally those for insecurely attached children), Wille's consultation was obtained.

Analysis:

To determine the extent to which sociability during mother-present and father-present situations was correlated, Pearson correlations were performed for all subjects, for the 29 children (19 boys and 10 girls) classified as securely attached (B1, B2, B3, B4), and, in order to explore sex differences, for boys and girls separately.

Because the literature suggests (Lamb, et. al., 1982; Thompson and Lamb, 1983) that stranger sociability is related to quality of attachment, and that B1 and B2 children are more sociable than either B3, B4, or insecurely attached (A and C) children, an attempt was made to control for effects of security of attachment by selecting for additional analysis those children who had identical subgroup classifications with mother and with father. Eleven subjects were found to be equivalently attached to mother and to father (1 was assessed as B1 with both parents, 4 as B2 with both parents, 3 were categorized as B3 with both parents, and 3 as B4 with both parents). As contact-maintaining attachment behaviors have been found to be

inversely related to stranger sociability, efforts were made to match these children on this variable (while taking into consideration that contact-maintaining would tend to be somewhat higher at the 18-month observation): The average contact-maintaining score during reunion episodes (4 and 7) for these subjects with mother was 5.54 and for father was 7.09. Half (6) of these children were observed at 18 months with mother, half (5) with father, avoiding an age/sex of parent confound.

To determine the level of significance between sociability in mother-present and father-present situations, parametric (t-test for dependent samples) and non-parametric procedures were utilized. To determine the level of significance between sociability of securely attached and insecurely attached subjects in both mother-present and father-present contexts, a t-test for independent samples was utilized. For cases in which variances were found to not be homogeneous, a t-test for matched (dependent) samples was utilized.

Part II: The effect of father-presence on the organization of attachment, affiliative, and fear/wary behaviors during a free play situation with an unfamiliar peer:

Hypotheses: (stated in the null form)

1. There will be no significant difference in the sociable behavior of two and three year-old boys directed at an unfamiliar peer when in the presence of fathers as compared to mothers.
2. There will be no significant difference in the attachment and affiliative behavior directed to mother and father during the free play situation.

Subjects:

Subjects were a subset of 12 boys (six dyads) taken from the larger sample of 38 children described above. Three dyads of two-year-olds and three dyads of 3 1/2-year-olds were each observed twice in a free play situation, once accompanied by mothers and once by fathers. The average age for two-year-olds at first observation was 1.11.27 (range: 1.10.28 to 2.1) and 2.1.15 (range: 1.11.16 to 2.2.21) at the second observation. For the older dyads, the average age at first observation was 3.4.15 (range: 3.0.25 to 3.6.28) and 3.6.10 (range: 3.2.27 to 3.8.23) at the second observation. The average difference in age between the two-year-old dyads was 38 days (range: 16 to 52 days)

and 28 days (range: 4 to 43 days) between the three-year-old dyads.

Procedure:

Each dyad was video-taped for thirty minutes in a free play situation in a carpeted room 28 x 15 feet with windows and containing toys, some furniture, and a chair and magazines for the two accompanying parents. The video camera was located in the hall adjoining the room and the procedure was taped through a window. Although the camera was visible to the children, it appeared to be minimally distracting.

To avoid confounds of age and familiarity, three of the dyads were first seen when accompanied by their mothers and three were first seen when accompanied by their fathers. The average interval between observations was 52 days (range: 35 to 63) for two-year-olds and 59 days for three-year-olds (range: 55 to 62). As quantity of toys has been found to be inversely correlated with early peer interaction (DeStefano and Mueller, 1984), the number of toys was kept to a minimum. For the two-year-old dyads, toys included a ball and a metal and plastic garage/gas station which had movable parts and included two toy cars and two toy dolls designed to fit into the cars as part of the set. For the three-year-olds, who might have begun to sex-type toys and associate certain toys with father and

others with mother, the same ball and garage set were used with the addition of a doll, two paper plates, two plastic glasses and two small plastic milk cartons.

Parents were instructed to use their "best judgment" if the children became especially negative with each other and to otherwise avoid initiating interaction if the children were playing well either alone or together. They were advised to respond to any child-initiated interactions in whatever way they considered appropriate. Differences in amount of discussion between parents was anticipated; in an attempt to somewhat control for degree of extroversion of the parents, a knock on the door after a prolonged silence (more than five minutes) was a signal to begin a conversation. A knock on the door after prolonged conversation (longer than ten minutes) was a signal to begin reading a magazine. This procedure was only rarely necessary because the natural course of events usually led to intermittent conversation, intermittent magazine reading, and intermittent interaction with the children.

Scoring:

Video-tapes were coded by the primary investigator and two trained observers, one a special education student teacher and the other a master teacher in a Montessori toddler daycare class. Half of the tapes were coded by one trained observer and the other half by the other trained observer. The primary investigator coded all of the tapes.

Each child was focused upon individually and frequencies were recorded per 15-second time segments on 17 variables. The coding categories were based on a modified version of the Parten (1932) social participation code (see Appendix E for category definitions). Toy exchanges, which referred to giving and taking a toy and throwing and retrieving a ball were included as a separate category. Cooperative and associative play, imitation, gesturing, and positive rough and tumble interaction were collapsed into one category. Negative interactions (toy struggles, pushes, shoves) were coded as a separate variable. Frequency of verbalization to peer, parent, and peer's parent was also coded. In addition to frequency of verbalization, four codes were added to encompass interaction with the child's parent, as were two codes to encompass interaction with the peer's parent. Frequencies of demonstrated positive affect (laughing, squealing, high arousal) and negative affect (crying) were also included.

Reliability:

Reliability was established comparing data reduction of three of the 12 tapes coded by both raters. Level of agreement was acceptable: approximately 85 percent. Consensus was achieved through discussion between the raters and the primary investigator.

Analysis:

Following Kraemer and Jacklin (1979) and Vandell (1980), the assumption of independent observations was not made, because during interaction one child's behavior may affect the other child's behavior. Thus all individual scores for the two members of each dyad were correlated, and the dyad was considered the unit for all analyses. For those measures found not to be correlated, t-tests were calculated, and MANOVA, which takes into account the amount of correlation between variables (in this case two members of each dyad) was calculated for correlated measures.

CHAPTER IV

RESULTS

The principal objective of this study was to determine if differences exist in the young child's organization of attachment, affiliative (sociable), and fearful/wary behavior in mother-present and father-present situations. Results of Part I of the study indicate that such differences do exist, suggesting that during late infancy, the father's presence represents a different social context to the child than does that of the mother. Results of Part II indicated that the father's presence did not appear to affect the frequency of socially directed behaviors directed by young boys to an unfamiliar peer during a free play situation. However, the finding of significantly more positive affect demonstrated in the father-present situation suggests that there may be a difference between the quality of interaction in father-present and mother-present contexts. Data derived from Part I and Part II of the study are presented separately.

Part I: Results related to the father's role in the infant's development of sociability with an unfamiliar adult

Correlation between mother- and father-present conditions:

Because the effects of quality of attachment and sex of child are of particular interest within the context of the present study, data are reported both separately and combined for boys and girls and for securely and insecurely attached children. Table 2 reports mother-infant and father-infant attachment classifications as well as mother-present and father-present sociability scores for all subjects. Table 3 reports the correlation coefficient and coefficient of determination between stranger sociability in mother-present and father-present situations. The low correlation found in this study between sociability scores for mother- and father-present situations (for all children, $r = -.01$; for securely attached children, $r = .00$) is of particular interest in light of previous research (Thompson and Lamb, 1982) indicating stability in stranger sociability over time for children retaining global attachment categories (A, B, or C). Moreover, utilizing the same scale developed in the present study to determine stability of stranger sociability over time in mother-present situations, Touris (1985) found scores to be stable (identical or differing by one point) for 33 of 40 subjects (83%), with a moderate but significant ($p < .01$) correlation of

Table 2Attachment Classifications and Sociability Scores
for Observations with Mother and Father

Males Securely Attached to Both Parents (n = 19):

	with Mother		with Father	
	Attachment/	Sociab.	Attachment/	Sociab.
Subject 1	B4/*	3**	B1/	5
Subject 2	B3/	2	B2/	4
Subject 3	B2/	5	B1/	4
Subject 5	B4/	2	B4/	4
Subject 9	B4/	2	B4/	6
Subject 11	B1/	4	B3/	4
Subject 12	B3/	2	B3/	6
Subject 16	B4/	4	B2/	7
Subject 18	B2/	5	B1/	4
Subject 19	B3/	5	B3/	2
Subject 23	B3/	3	B3/	7
Subject 24	B2/	3	B1/	5
Subject 25	B3/	3	B1/	5
Subject 27	B2/	4	B2/	2
Subject 28	B3/	4	B2/	4
Subject 29	B2/	4	B1/	2
Subject 33	B4/	2	B1/	4
Subject 36	B3/	5	B2/	2
Subject 37	B2/	5	B2/	4

Males Insecurely Attached to Father (n = 6)

	with Mother		with Father	
	Attachment/	Sociab.	Attachment/	Sociab.
Subject 8	B2/	3	C/	1
Subject 10	B2/	4	C/	3
Subject 15	B2/	4	A2/	4
Subject 20	B3/	1	C/	2
Subject 34	B4/	2	C/	2
Subject 38	B4/	2	C/	2

*Ainsworth et.al.'s (1978) classifications

**Sociability Scale: Range = 1-7

Table 2, cont'd.

Males Insecurely Attached to Mother (n = 2)

	with Mother		with Father	
	Attachment/	Sociab.	Attachment/	Sociab.
Subject 14	C/	5	B2/	5
Subject 26	C/	7	B4/	4

Females Securely Attached to Both Parents (n = 10)

	with Mother		with Father	
	Attachment/	Sociab.	Attachment/	Sociab.
Subject 4	B1/	4	B2/	3
Subject 6	B4/	3	B4/	4
Subject 7	B1/	2	B1/	3
Subject 17	B2/	4	B3/	4
Subject 21	B4/	4	B1/	4
Subject 22	B2/	5	B2/	6
Subject 30	B4/	6	B2/	2
Subject 31	B3/	3	B2/	2
Subject 32	B2/	3	B2/	3
Subject 35	B1/	4	B3/	3

Females Insecurely Attached to Father (n = 1)

	with Mother		with Father	
	Attachment/	Sociab.	Attachment/	Sociab.
Subject 13	B1/	4	A1/	3

Table 3

Correlation Coefficients and Coefficients
of Determination between Sociability Scores
in Mother-Present and Father-Present Situations

	r _{xy}	r ²
All subjects (n=38)	-.02	.03%
All males (n=27)	-.10	.80%
All females (n=11)	.00	00%
Securely attached subjects (n=29)	.00	00%
Securely attached males (n=19)*	-.46	22%
Securely attached females (n=10)	.00	00%
Equivalently attached subjects (n=11)	-.06	.32%

Correlation Coefficients and Coefficients
of Determination between Sociability
Scores in Two Mother-Present Situations

Touris's data (1985) (n=40)**	.54	29%
Thompson and Lamb's data (1982) (n=43)***	.40	16%

*p < .05

**correlation between sociability scores for two mother-present Strange Situations separated by about 3 months (p < .01) (sociability assessed by same instrument developed for the present study)

***correlation between sociability scores for two mother-present situations separated by 6 months (p < .01) (sociability assessed by instrument developed by Stevenson and Lamb (1979))

.54 between sociability during first and second observations.

For all 29 securely attached children in this study, less than half (44.8%) received identical scores or similar scores (differing by one point). Eleven of the 29 (37.9%) received significantly higher (a difference of two points or more) sociability scores when with the father, and 5 of the 29 (17.2%) received significantly higher sociability scores when with the mother.

The relationship between sociability during mother- and father-present contexts for males assessed as securely attached to both parents was negatively correlated (for all males, $r = .00$; for securely attached males, $r = -.46$). Indeed, securely attached boys ($n=19$) tended to be more sociable to the stranger in the father-present context (t test for dependent samples, $p < .1$). In comparing sociability scores in both contexts for securely attached boys ($n=19$), it was found that only 5 (26.3 %) had identical or nearly identical scores, 10 boys (52.5%) had higher scores for the father-present context, and 4 boys (21%) had higher scores for the mother-present context.

Table 4 reports averages of sociability scores in mother-present and father-present situations for male and female subjects and securely and insecurely attached subjects. It is noted that female subjects, and male subjects assessed as insecurely attached to father were slightly

Table 4Comparison of Group Means for Stranger Sociability
in Mother-Present and Father-Present Situations

	Mo. Pr.	Fa.Pr.
All subjects (n=38)	3.61	3.71
All males (n=27)	3.52	3.85
All females (n=11)	3.81	3.36
Securely* attached subjects (n=29)	3.62	3.96
Securely* attached males (n=19)	3.53	4.26***
Securely* attached females (n=10)	3.80	3.40
Insecurely** attached males (n=5)	2.67	2.33
Equivalently attached subjects (n=11)	3.09	4.27****

* Securely attached to both parents

** Insecurely attached to father only

*** $p < .1$ ($t = 1.37$; $df = 18$; one-tailed test)

**** $p = < .1$ ($t = 1.75$; $df = 10$; one-tailed test)

(but not significantly) more sociable to the adult stranger in the mother-present situation. In contrast, for males in general (n.s.), and securely attached males in particular ($p < .1$), average sociability scores were higher in the father-present situation.

Relationship of quality of attachment to level of sociability:

The second objective of Part I of the study was to compare the degree to which quality of attachment in general and contact-maintaining attachment behaviors in particular are related to stranger-directed affiliative behavior. Five males in this study were found to be insecurely attached to their fathers. Because only one of the 11 female subjects was assessed as insecurely attached to her father, conclusions can not be made regarding combined or relative effects on sociability of sex differences and the quality of attachment. However, comparing means for insecurely attached boys with means for boys securely attached to both parents (Table 5), it was found that insecurely attached boys were significantly less sociable to the stranger in the father-present situation than were boys with a secure attachment (t-test for matched pairs, $p < .005$), with a tendency to be less sociable even in the mother-present situation (t-test for independent samples with homogeneous variances, $p < .1$). Of particular interest is the finding

Table 5Comparison of Means for Stranger Sociability
Between Securely* and Insecurely** Attached Males

Mother-Present Situation***

Securely* attached males (n = 19)	X = 3.53
Insecurely** attached males (n = 6)	X = 2.67

Father-Present Situation****

Securely* attached males (n = 6)	X = 4.26
Insecurely** attached males (n = 6)	X = 2.33

* Securely attached to both parents

** Insecurely attached to father only (C group, n=5; A group, n=1)

*** t-test for independent samples (with homogeneous variances); $t = 1.539$; $df = 23$; $p < .01$

**** t-test for matched subjects (matched for attachment classification with mother and age of observation with mother); $t = 4.698$; $df = 5$; $p < .005$

that the two children to receive a score of 1 (the exclusive demonstration of fear/wary behavior coupled with crying) were 2 of the 4 children categorized as ambivalently (C pattern) attached to father. One of these children (categorized as B3 with mother) received a sociability score of "1" in the mother-present context and "2" in the father-present context; the other (categorized as B2 with mother) received a sociability score of "3" in the mother-present context and a "1" in the father-present context. While these numerical findings are too few to be commented upon with any confidence, these findings do lend support to a rationale for continued research in the area of the father's role in early social development.

Only 2 children in the study were found to be insecurely attached to mother (and securely attached to father); therefore little can be said about this group. However, of heuristic interest is the finding that the only child to receive a score of "7" (repeated child-initiated social interaction with stranger) in the mother-present observation was one of the 2 (of 38) children to be categorized as ambivalently (C pattern) attached to mother. An exploratory hypothesis for future research is that spontaneous child-initiated social interaction with stranger, particularly in the absence of social referencing to the parent, may be correlated with secure attachment to father, but not to mother.

Occurrence of "peak" sociable behaviors:

A previous study (Greenberg and Marvin, 1983) has suggested spontaneous, child-initiated affiliative behavior (giving or showing a toy, gesturing, vocalizing) directed to the stranger to be somewhat rare in mother-present situations even for older children, occurring 2 out of 16 observations for two-year-olds, 0 of 16 observations for three-year-olds, and 3 out of 16 observations for four-year-olds. Results of the present study corroborate this observation and extend it: for children found to be securely attached to both parents in the present study, such behavior occurred only once in the mother-present situation, but for five children in the father-present situation, with 3 of these at the 18-month observation.

Organization of attachment, affiliative, and fear/wary behavior:

Previous studies have found an inverse relationship between stranger sociability and contact-maintaining in the reunion episodes of the Strange Situation, with securely attached children lower in contact-maintaining (B1, B2) demonstrating a greater degree of sociability. A subset of 11 children (7 boys and 4 girls) having demonstrated highly similar degrees of contact-maintaining (for mothers, $X = 5.54$; for fathers, $X = 7.09$) with both parents were selected for additional analysis (Table 6). All of these children

Table 6

Attachment Classifications, Contact-Maintaining Scores,
and Sociability Scores for Subjects Demonstrating
Similar Pattern of Attachment with Both Parents

Subject	<u>With Mother</u>			<u>With Father</u>		
	Attach. Class.	Cont Maint.**	Sociab	Attach. Class.	Cont Maint.***	Sociab.
5(male)	B4	3+4	2	B4*	4+6	4
9(male)	B4	4+5	2	B4*	5+6	6
12(male)	B3*	5+7	2	B3	6+6	6
19(male)	B3	1+6	5	B3*	7+5	2
23(male)	B3*	2+6	3	B3	3+3	7
27(male)	B2*	2+2	2	B2	2+1	2
37(male)	B2*	3+3	5	B2	2+1	4
6(fem)	B4	2+4	3	B4*	2+6	4
7(fem)	B1*	1+1	2	B1	1+2	3
22(fem)	B2	1+3	5	B2*	3+3	6
32(fem)	B2*	1+3	3	B2	1+3	3

*indicates first (18-month) observation; (1st observation with Mother, n = 6; 1st observation with father, n = 5)

**Contact maintaining scores are reported separately for reunion episodes 4 and 7, with the score for Episode 4 being the first number reported; Average contact-maintaining score (with mother) = 5.54

***Average contact-maintaining score (with father) = 7.09

had identical attachment classifications (1 was categorized as B1 with both parents, 4 were categorized as B2 with both parents, 3 were categorized as B3 with both parents, and 3 were categorized as B4 with both parents). It is noted that only two subjects had identical contact maintaining scores in both situations. However, the observations were taken three months apart and intervening developmental variables (e.g., more advanced cognitive functioning and verbal abilities) generally result in weaker contact maintaining behaviors with age. See Marvin (1977) and Vaughn et.al. (1985) for a discussion of potential and observed age-related changes in Strange Situation behavior. In fact, 8 of the 9 subjects who did not receive equal contact maintaining scores in both situations followed this expected pattern (slightly higher contact maintaining scores at the 18-month observation).

It was hypothesized that if children organize attachment and affiliative systems similarly in mother-present and father-present contexts, then controlling for attachment classification and contact maintaining behavior would increase the correlation between affiliative behavior in both contexts. Even for the 11 children directing highly similar attachment behavior to both parents, a negative correlation ($r = -.06$) was found for stranger sociability in the two situations. Table 6 reports attachment classifications and sociability scores for these 11 subjects.

Only 54.5% of the 11 children had identical (18%) or nearly identical (36%) scores for both mother- and father-present conditions, 4 (36%) children (all boys) had substantially higher scores (2 points or more) when observed with father, and 1 (9%) (male) child had a substantially higher score (2 points) when observed with mother.

It is noted that this sample of 11 does not represent a general population, but an artificial manipulation undertaken to explore the balance of attachment, affiliative, and fear/wary behaviors for the same child in different contexts. However, of special interest is the finding that these 11 children tended to demonstrate more sociable behavior in the father-present condition ($p < .1$), suggesting that the relationship between patterns of attachment (specifically contact-maintaining) and sociability to strangers are organized differently within mother-infant and father-infant contexts. Additional evidence supporting this hypothesis is found by analyzing contact-maintaining behaviors for children ranked highest and lowest in sociability (Table 7). For behavior in the mother-present situation, high contact-maintaining was associated with low sociability and low contact maintaining was associated with high sociability (corroborating previous research). However, such a relationship did not hold true for social interaction in the father-present context, in which the average contact-maintaining score was similar for highly

Table 7Comparison* of Attachment Profiles of Subjects
Ranked Highest and Lowest in SociabilitySubjects Ranked Highest in Sociability with Mother Present

Subject	Att Class.	Cont. Maint**	Sociability
26(18 mo)	C	1+7	7
30(fem)(18 mo)	B4	7+7	6
22(fem)(21 mo)	B2	1+3	5
14(18 mo)	C	1+1	5
18(18 mo)	B2	2+2	5
3(21 mo)	B2	2+4	5
37(18 mo)	B2	3+3	5
36(21 mo)	B3	5+3	5
19(21 mo)	B3	1+6	5

Subjects Ranked Lowest in Sociability with Mother Present

Subject	Att Class.	Cont. Maint***	Sociability
20(18 mo)	B3	7+7	1
38(18 mo)	B4	7+7	2
2(18 mo)	B3	7+6	2
9(21 mo)	B4	4+5	2
5(21 mo)	B4	3+4	2
33(18 mo)	B4	6+5	2
12(18 mo)	B3	5+7	2
34(21 mo)	B4	7+5	2
7(fem)(18 mo)	B1	1+1	2

* Contact maintaining was significantly higher for low sociability group (t test for independent samples with homogeneous variances; $t = -2.2438$; $df = 16$; $p < .025$ (one-tailed test))

** Contact-maintaining in both reunion episodes (Episodes 4 and 7 are reported separately, the score for Episode 4 being the first number in the column; Average contact-maintaining score for subjects ranked highest in sociability with mother present = 6.55)

***Average contact-maintaining score for subjects ranked lowest in sociability with mother present = 10.44

Table 7, cont'd.Subjects Ranked Highest in Sociability with Father Present

Subject	Att Class.	Cont. Maint****	Sociability
23(21 mo)	B3	3+3	7
16(18 mo)	B2	3+3	7
12(21 mo)	B3	6+6	6
9(18 mo)	B4	5+6	6
22(fem)(18 mo)	B2	3+3	6
24(18 mo)	B1	1+1	5
1(21 mo)	B1	1+1	5
25(18 mo)	B1	1+1	5
14(21 mo)	B2	2+2	5

Subjects Ranked Lowest in Sociability with Father Present

Subject	Att Class.	Cont. Maint*****	Sociability
34(18 mo)	C	2+2	2
36(18 mo)	B2	1+1	2
19(18 mo)	B3	7+5	2
29(21 mo)	B1	1+1	2
27(21 mo)	B2	2+1	2
20(21 mo)	C	4+4	2
38(21 mo)	C	7+*****	2
8(21 mo)	C	1+4	1
30(fem)(21mo)	B2	3+1	2
31(fem)(21mo)	B2	1+5	2

****Average contact-maintaining score for subjects ranked highest in sociability with father present = 5.66

*****Average contact-maintaining score for subjects ranked lowest in sociability with father present = 5.58

*****Strange Situation procedure terminated before Episode 7 due to child's distress

sociable and minimally sociable children.

It is also noted that even for this sample, 4 of the 11 children (3 boys and 1 girl), including 2 at the 18-month observation, spontaneously initiated interaction with the stranger during the first two minutes of episode 2 in the father-present context, while none of the children did so in the mother-present context. Thus certain "peak" sociable behaviors were observed exclusively in the father-present context, even for children demonstrating an identical pattern of attachment and similar degrees of contact-maintaining with both parents.

Finally, an additional observation of potential heuristic value was that the one child in the study whose father was her primary caregiver was perhaps the most consistently sociable children in the study, with a sociability score of 6 in the father-present situation and 5 in the mother-present situation.

Part II: The father's role in the young boy's development of sociability with unfamiliar peers

Part II of the study was designed to compare sociability with an unfamiliar peer in a mother-present and father-present situation.

There were no significant differences between the two contexts for variables pertaining to social competence per se. However, demonstration of positive affect in the form of laughs, squeals, and excited vocalizations was higher for the father-present situation ($p = .05$). A non-significant trend pertaining to the organization of attachment behavior was noted: Children directed more attachment behaviors (in the form of leaning and touching) toward mothers than to fathers ($p = .1$). In addition, the affiliative behavior of "looking" was directed significantly more often to father than mother ($p = .03$). While previous research findings have generally indicated that infants tend to be more sociable to female than male strangers, results from this sample of 2 and 3-year-olds suggests that by this age, boys do not tend to interact more often with a female than male stranger. That is to say, interaction with the peer's parent (generally in the form of ball exchanges) tended to be a more common occurrence ($p = .24$) for the father-present context. However, it should be kept in mind that the context of the present study (peer-oriented free play) was different than that of the other

reported studies focusing on effects of sex of stranger on sociability.

CHAPTER V

DISCUSSION

Results of this study appear to indicate that mother- and father-present conditions represent different social contexts for the child in late infancy. The general import of these findings is the highlighting of limitations in regarding sociability as a trait or unitary construct. The specific contribution of the study is its focus on the role of the father in early social development, with differences suggested in the father's role for sons and daughters.

Prior to addressing the effect of a father-present context on the infant's organization of attachment, affiliative, and fear/wary behaviors, it is important to acknowledge that at present the mechanisms by which the infant becomes attached to the parent are not clear. Thus it cannot be assumed that the mechanisms by which the child becomes attached to the mother are the same as those by which s/he becomes attached to the father (as well as significant others such as grandparents, siblings, and daycare givers). Lamb's finding that the infant under stress tends to approach the mother for comforting when fathers are also

available is an important one. This observation strongly suggests that the mother is the "primary attachment figure", that infant-mother and infant-father attachments are not redundant relationships, and possibly, that the mechanisms by which the child becomes attached to the mother are not the same as those by which s/he develops an attachment to the father.

For example, Gaensbauer and Harmon (1982) address the role of pleasurable interaction in facilitating attachment behavior. Ainsworth and her colleagues (1978) have emphasized the mother's sensitive responsiveness to infant communications as a crucial factor in engendering secure attachment and Lamb (1981) and Lamb and Easterbrooks (1981) have emphasized the contribution of maternal predictable, contingent responding and comforting of infant distress.

However, in addressing motivational factors underlying attachment behavior observed in modified Strange Situation procedures, Gaensbauer and Harmon conclude that "the opportunity for pleasurable interchange is in itself an important motivating factor for attachment behavior, independent of previous experiences with contingent comforting". This may be a particularly important hypothesis in terms of father-infant attachment, in light of repeated findings (cf. Kotelchuck, 1976) that quantity of time involved in caregiving appears not to be a relevant variable vis-a-vis the development of attachment between infant

and father. While many fathers do not participate in the caregiving behaviors that are often concurrent with "soothing and comforting", most fathers do appear to play with their infants, often in an affect-laden boisterous manner. The apparent pleasure experienced by the infant during the physically-oriented playful interaction with his father may be highly significant in the development of an attachment bond.

Sensitivity and contingent response on the part of the father may be developed more in the context of playful interaction than in a caregiving one. For example, Easterbrooks and Goldberg (1984), in classifying fathers according to self-reports into low, middle, and high groups vis-a-vis time involved in play with their infants, found that even fathers in the low group spent an average of 1.6 hours a day in play (with the high group averaging 4.6 hours and the over-all average being 3 hours). This supports previous evidence of father's central role as "playmate" rather than caregiver.

The hypothesis that the father-infant attachment bond is less contingent than is the mother-infant bond upon sensitivity of interaction during caregiving finds support in a recent study (1985) of kibbutz-reared infants by Sagi and his colleagues. Using the Strange Situation procedure to assess the quality of attachment of the infant-mother, infant-father, and infant-metepolet (caregiver) relation-

ship, Sagi et. al. found a high percentage of infants to be insecurely attached with mother (41%) and with caregiver (47%) compared with 30-35% found in most American samples. However, the distribution of secure and insecure father-infant attachment classifications did not differ significantly from those reported by Ainsworth and her colleagues. The reasons for these findings are not clear. Perhaps, in part, they may be traced to greater conflict (and concomitant stress and diminished emotional availability to the infants) of the women vis-a-vis the appropriateness of their roles as mothers and surrogates. However, an alternative hypothesis is that the father-infant attachment bond, for both kibbutz and American fathers, revolves around the pleasurable playful interaction that takes place in the hours immediately preceding and following the dinner hour, and during non-working days.

Data from the present study support the conceptualization of the mother-infant and father-infant attachments as non-redundant relationships, predicated on different types of interaction in different contexts. The low correlation, and in some cases, moderate negative correlation between stranger sociability in mother- and father-present situations suggests that these situations may represent for the infant distinct social contexts. Certain high "peaks" of child-initiated sociable behavior which are rare in mother-present contexts tend to occur with somewhat greater

frequency in father-present contexts.

It is acknowledged that because infants in traditional homes tend to spend less time alone with their fathers than with their mothers, the relative "novelty" of being accompanied only by the father may itself contribute to the difference between mother-present and father-present contexts. However, an alternative or supplementary hypothesis explaining the disparity between behaviors in the two contexts is that the infant organizes attachment, fear/wary, and affiliative behaviors somewhat differently around mother and father.

The finding that securely attached sons tended to be more sociable in the father-present context appears to indicate a trend toward a higher arousal level for affiliative behavior when father is present and/or less initial fear/wariness when father is present. In addition, even if children experience feelings of fear/wariness similarly in mother-present and father-present situations, they may act upon these feelings differently in the two contexts. Thus the father's possible role (for sons) as "encourager of risk-taking" in the face of uncertainty is discussed below.

The father as salient cue for affiliative interaction

For securely attached sons, fathers may be a salient cue for playfulness (increased affiliative behavior). Father-son attachment may be often predicated upon

pleasurable, playful interaction, differing from pleasurable, playful interaction with mother both in terms of relative quantity of time devoted to this interaction as well as the often boisterous, rough and tumble, idiosyncratic quality of father's play. Thus father's very presence may be a cue for playfulness and affiliation.

Central to Bowlby's conceptualization of the role of parent-child attachment in development is the notion of the child's "working model" of the attachment figure and of self (Bowlby, 1973). Bowlby used this terminology to develop ideas generally described in terms of "introjection of an object" and "self concept".

Whereas common sense might suggest that a person would operate with only single models of each of his attachment figures and himself, psychoanalysts from Freud onwards have presented a great deal of evidence that can best be explained by supposing that it is not uncommon for an individual to operate, simultaneously with two (or more) working models of his attachment figure(s) and two (or more) working models of himself (page 205).

The concept of the "working model" is relevant in that it highlights the possibility that the child's representations of his mother and father may differ from each other, despite a similarly healthy quality of attachment to each. Differences in these representations, or "working models" would presumably stem from differences in the quantity, quality, and context of interaction. What is of particular interest is that the child's self concept, or "working model" of himself may vary from context to

context, depending upon the reactions of attachment figures to his signals and growing competencies. A possible alternative interpretation of the present findings is that the male child who is securely attached to father tends to take risks with uncertain elements in the environment (e.g., an unfamiliar adult) in a father-present context because (1) the father encourages risk-taking on the part of sons and/or (2) the father's well modulated, sensitive, and successful encouragement of risk-taking in appropriate contexts creates for the child a distinct "working model of self" in a father-present context.

Father as encourager of risk-taking:

Results of this study suggest differences in the father's role in social development for sons and daughters. Fathers may be a differential cue to playful or affiliative behavior for sons and daughters in that fathers' play patterns may differ with the sex of their child, with idiosyncratic and rough and tumble play more common and stimulating with sons. In fact, Lamb (1977a) and Weinraub and Frankel (1977) reported that fathers were more active with sons. A related interpretation or hypothesis is that fathers differentially encourage risk taking on the part of sons and daughters. The observation that fathers play more boisterously with sons may be related to the enhancement of risk-taking behavior for sons. The context of play would

seem to provide the opportunity for moderate risk-taking within a pleasurable context. Idiosyncratic play is, by definition, relatively unpredictable and rough-and-tumble play would appear to be comparatively physically risky. Elements of mothers' play also involve risk (e.g., the mock "scare" at the end of the "peek-a-boo" pattern). However, being thrown up in the air is probably even more highly arousing to the central nervous system, while the expectation and relief of being caught may serve to enhance the attraction of risk-taking.

In the three-minute Episode 2 of the Strange Situation in which stranger sociability was assessed, there were no obvious differences in parents' facilitation of risk-taking behavior. However, the "peak" infant-initiated sociable behaviors observed for securely attached children in five observations with father (and only one with mother) did appear to reflect the child's greater tendency for risk-taking in a father-present context. Perhaps previous experience with a sensitive father who encouraged appropriate levels of risk-taking facilitated the child's sense of competence. Possibly, one of the child's "working models" of self (that of "successful risk-taker") is relatively more prominent in a father-present context.

Father-infant interaction as a model for distal interaction:

Previous research has provided evidence that distal affiliative behaviors (smile, vocalize, look, laugh, offer) are more often directed to father than mother during the second year of life (Lamb, 1977a), while attachment behaviors are directed to both parents about equally in non-stressful situations. Thus there may be a certain degree of "versatility" in the father-infant relationship in which the infant develops a model for both proximal and distal interaction through his experience with his father. Interestingly, Thompson and Lamb (1983) explained their findings that B1 and B2 12- and 18-month-old infants were significantly more sociable than B3, B4, A, and C children by referring to the B1 and B2 child's "distal" interactive style. They maintained that B1 and B2 children, by definition lower in contact-seeking and maintaining than B3 and B4 children, have developed a distal interactive pattern with the mother that they can transfer to their interaction with strangers. In contrast, the B3 and B4 infants who have developed more proximal (higher degrees of contact seeking and maintaining) modes of interaction, are less able to negotiate interaction from a distance. Thompson and Lamb reasoned that, as the stranger probably becomes more threatening with proximity, it is the B1 and B2 child who can successfully interact from a distance and the B3 and B4

child who becomes fearful as he seeks to interact from the proximal range that he prefers.

Results from the present study corroborate Thompson and Lamb's findings in that the present data indicate that those children ranked highest in sociability when with mother were significantly lower in contact maintaining than those ranked lowest in sociability ($p < .025$). In addition, eight of the 9 children ranked lowest in sociability were B3 or B4 infants, suggesting that a more proximal interaction pattern with mother does, indeed, diminish stranger sociability.

According to Ainsworth's definition of the securely attached child (Group B) "He may or may not be friendly with the stranger, but he is clearly more interested in interaction and/or contact with his mother than with the stranger." Results of the present study suggest that this is more true in mother-present situations, but less so in father-present ones, with child-initiated sociable interaction more common in the father's presence. It may be argued that (male) children in this study more readily approached the (female) stranger in the father-present context because of a preference to interact with a female. However, by this reasoning, the sons assessed as insecurely attached to the father would be the most likely to interact with the female stranger (thus avoiding the father) when in fact they were among the least sociable with the stranger

(see Tables 4, 5, and 7 for details).

Ainsworth posits that the B3 child is the most secure. Thus it may seem somewhat counterintuitive that s/he has been found not to be the most sociable (i.e., the most able to use his/her mother as a secure base from which to explore the environment.) However, from an ethological-evolutionary perspective, high degrees of initial stranger sociability may have been counter-productive vis-a-vis predation. From this perspective, when the child is with the mother, wariness of the stranger is compatible with survival. The father's function, in our "environment of evolutionary adaptedness" was perhaps less related than was the mother's to protection of the infant against predation, and more related to preparing the infant for the future challenge of competition in the peer hierarchy. This conceptualization of the non-redundancy of functions of the mother-infant and father-infant relationships appears to be consistent with Bowlby's original exclusive emphasis on the mother-infant attachment bond. Kotelchuck (1976) concluded that Bowlby's concept of the infant as "monotropically matricentric" in orientation was erroneous. The present study highlights the need for continued expansion of attachment theory to include the similarities and differences in form and function of infant-parent (as well as infant-sibling, infant-grandparent, and infant daycare teacher) attachments.

Discussion related to the findings reported in Part II:

While Part I of this study focused upon comparison of effects of the father's presence on initial sociability in a three-minute procedure, Part II facilitated comparison of effects over a longer period of time (30 minutes) and with both an unfamiliar adult and unfamiliar peer present.

While the quantity of interaction did not differ significantly between mother-present and father-present situations, the finding that positive affect was significantly more frequent ($p = .05$) during the father-present situation suggests that the father's effect on social interaction may be qualitative rather than quantitative. Consistent with a large body of investigations of early peer interaction, the method of data reduction for the present study was based upon frequency counts of behaviors. However, the present data support the appropriateness of recent criticism of frequency counts (Bronson, 1981) as being inadequate to capture the impact of qualitative variables (e.g., such as display of affect). Although greater frequencies of strong positive affect were reported for the father-present situation, the data reduction per frequency counts may have obscured the more important impact of affect on the general qualitative tone of interaction in mother-present and father-present contexts.

For example, in a recent article, Sroufe et.al. (1984) focus on the essential role of affect in promoting

and maintaining interaction and in promoting the emergence of leaders within the peer group social structure. Their major premise is that "affect, as the expressive and experiential part of emotion, has a central role in the organization of individual behavior and therefore social interaction". The role of affect is explored in terms of (1) initiating social interaction (the positive "invitation to play"); (2) metacommunication ("This is a game!" can be communicated in preverbal children); (3) shared affect-contagion; and (4) interjecting life into the interaction. While the complexity of these issues preclude their exploration within the context of this study, the point to be emphasized is that the current finding regarding positive affect was probably an important one, not to be given equal status among the other more "quantitative" variables (e.g., number of toy exchanges) included in the analysis.

It should be noted that while relative novelty of the father-present situation may in itself have been more arousing, higher arousal could have led to more negative affect (especially in light of negative peer interaction often reported for children at these ages). Increase in negative affect was, in fact, not observed in the father-present context.

The tendency ($p = .1$) for the child to direct more attachment behavior to mother than to father (especially for three-year-olds), suggests that mothers served

primarily as "secure bases from which to explore the environment" While father's also served as attachment figures during the free play situation, their central role as "playmate" (as opposed to caregiver) may have served as a cue for boisterous, affect-laden activity. Father's individualistic or "idiosyncratic" play bears resemblance to early peer interactive patterns in that they are often categorized as "rough and tumble" play, which is highly affect-laden. While mother-infant play is, of course, affect-laden, it is usually less boisterously so. Thus the higher frequency of positive affect observed for the child in a father-present context may, in part, be a product of his having three "playmates" in the room, as opposed to only one in the mother-present condition.

However, it should be emphasized that the father-present situation most assuredly does not represent to the child the same context as does a free play situation in which three other peer playmates are included. The implication here is not that a condition of "more" playmates engenders more positive affect, but that more positive affect may have been the result of having an additional "playmate" present who is simultaneously an attachment figure.

Mueller and Vandell (1979) point out that the emotional tone of early peer interaction is generally treated peripherally, if at all, in most studies. Alluding to

research in which neutral affect was found to be the predominant mode (Eckerman et. al., 1975; Mueller and Brenner, 1977), they concluded that "It appears that for infants and toddlers learning to interact with a peer is often 'serious' business."

For the toddlers in the present study, interaction with a peer appeared to be less "serious business" in the father-present context. In addition to the possible link between father as playmate and father as elicitor of playful behavior directed to a peer, is the possible attenuation of fear/wary response to the peer by the father's presence. Demonstration of fear/wariness is presumably generally exclusive of positive affect. Thus significantly more positive affect in the father-present situation may indicate less wariness of the peer when fathers are present. Why this may be so is not clear, but may be traced to the finding by Thompson and Lamb (1982) and theoretical formulation of Bischoff (1975) that affiliative/sociable and fear/wary response systems are inversely related. It is also possible that in mother-present and father-present contexts, the child initially experiences the same degree of fear/wary feelings due to uncertainty in the free play situation. However, insofar as the father's presence may be more conducive to risk-taking, once interaction with the peer is initiated, the "uncertainty" of the situation may have diminished, thus creating a more relaxed context

conducive to the demonstration of positive affect.

Summary and integration of findings:

Findings from both Part I and Part II of the study provide evidence that mother-present and father-present situations represent to the young child distinct social contexts. Sons assessed as securely attached to their fathers tended to direct more sociable behavior to an unfamiliar adult during the father-present context, and sons assessed as insecurely attached to fathers were generally the least sociable of the children. Children who were identical in attachment classification with both parents were found to organize attachment and affiliative behaviors differently in mother-present and father-present contexts.

No differences in mother-present and father-present situations were observed for frequencies of socially competent behavior in the free play situation with a peer. However, positive affect was significantly higher in the father-present context, suggesting the existence of qualitative differences in interaction.

A preliminary acknowledgement was made regarding present lack of knowledge of the mechanisms by which infants become attached to their parents. It was hypothesized that the mechanisms in the development of mother-infant and father-infant attachment may differ, with father's sensitivity and contingent responsiveness most salient to

the child during playful interaction.

Several interpretations were explored regarding the father's salience in the development of sociability. The father's central role as preferred playmate was postulated to be of importance in his capacity to elicit social behavior directed toward others. An alternative or supplementary hypothesis focused on the father's possible role as encourager of risk-taking behaviors, particularly for sons. Both hypotheses would account for the father's differential impact on the development of sociability for sons and daughters reported in this study. In other words, fathers have been found to play more and differently with sons, and a large body of data has highlighted the father's role in the development of sex-typed behavior (of which risk taking would be one example). Finally, the father-infant relationship, as a prototype for distal interaction (which appears to be correlated with greater stranger sociability) was explored in comparison with the mother's role as the protective primary attachment figure.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FUTURE RESEARCH

Summary:

This two-part study was designed to compare the young child's organization of attachment, affiliative (sociable), and fear/wary behaviors in mother-present and father-present situations. Part I focused on the comparison of the older infant's behaviors directed toward an unfamiliar (female) adult during mother-present and father-present situations. Part II focused on the effects of the father's presence, as compared with that of the mother, on the 2- and 3-year-old boy's organization of attachment and affiliative behavior during a "free play" situation with a same-age, same-sex peer.

A highly salient finding of studies focusing on father-infant interaction undertaken in this and the previous decade has been the central role of father as playmate; a link between father as elicitor and recipient of playful (affiliative) behavior and father as elicitor of affiliative behavior directed toward others is intriguing. The present study, by exploring the extent to which the father's presence represents to the infant a distinct social

context, extends knowledge of the role of the father in the development of the attachment and affiliative behavioral systems during the second and third year of life.

Part I:

Subjects were 38 (27 male and 11 female) children from middle- and upper-middle class intact families observed in Ainsworth's Strange Situation procedure at 18 months with one parent and at 21 months with the other parent (in a random order to avoid an age/sex of parent confound). Children were classified according to Ainsworth et.al.'s criteria (1978) into subcategories representing quality of infant-parent attachment.

While earlier studies of "stranger anxiety" emphasized the child's fearful/wary responses, current focus has shifted to the combination of sociable (affiliative) and fearful/wary responses to the approach of a stranger, as well as to the effect of context on the child's behavior. Thus the degree of sociability with the unfamiliar (female) stranger during Episode 2 of the Strange Situation (parent, stranger, child) was measured utilizing a 7-point scale developed to assess the child's organization of attachment, fear/wariness, and affiliative responses in mother-present and father-present situations.

Previous studies have found an inverse relationship between contact-maintaining in the reunion episodes of the

Strange Situation and stranger sociability, with securely attached children lower on contact maintaining (B1,B2) demonstrating a greater degree of sociability. Thus a subset of 11 securely attached children having demonstrated highly similar patterns of attachment (identical attachment subgroup classifications and highly similar degrees of contact-maintaining behavior to both parents) were selected for additional analysis. This manipulation was not intended to reflect a general population, but served to determine the degree to which contact-maintaining attachment behaviors were related to stranger-directed affiliative behavior for the same child in the two conditions.

The very low correlation ($r=.00$) found in this study between sociability scores of securely attached children for mother-present and father-present situations is of particular interest in light of previous research indicating stability over time in stranger sociability in mother-present situations. Even for the 11 children who were assessed as having identical attachment classifications with both parents, stranger sociability in the two contexts was negatively correlated ($r= -.30$).

The father-present situation appeared to be most salient for males ($n=19$) found to be securely attached to both parents. Indeed, these boys tended to be more sociable to the stranger in the father-present situation (t -test, $p < .1$), with mother-present and father-present sociability

scores actually negatively correlated ($r = -.46$). Sons assessed as insecurely attached to father ($n = 6$) appeared to be less able to use father as a "secure base from which to explore the social environment". That is to say that these boys were significantly less sociable to the strange adult in the father-present situation than were boys assessed as securely attached to father (t-test for matched pairs, $p < .005$) and tended to be less sociable even in the mother-present situation ($p < .1$).

Previous research has suggested that spontaneous, child-initiated social behaviors (giving or showing a toy, gesturing, vocalizing) directed toward the stranger during the first two minutes of Episode 2 in mother-present conditions are somewhat rare even for 2-, 3-, and 4-year-olds. For children found to be securely attached to both parents in the present study, such behavior occurred only once in the mother-present situation, but for 5 children in the father-present situation, with 3 of these at 18 months of age.

Part II:

A subset of 12 males (6 dyads) were observed twice (once with mother and once with father) in a 30-minute free play situation with a peer. While no significant differences were observed for frequencies of interactive behaviors (e.g., toy exchanges, verbalizations) with peers,

general positive affect was significantly higher ($p=.05$) in the father-present context. A higher frequency of attachment behaviors directed toward the mother than the father ($p = .1$) was a non-significant trend.

Integration of findings and conclusions:

It was concluded that mother-present and father-present situations represent different social contexts for the child, with securely attached males tending to direct more affiliative behavior to an unfamiliar adult in the father-present context and high "peaks" of sociability more common in the father-present context. Evidence from this study supports the conceptualization of the mother-infant and father-infant relationships as non-redundant, suggesting that each contributes to early social development by both similar and different mechanisms.

Previous studies (Lamb, 1978; Main and Weston, 1981) indicated that the quality of the infant's attachment relationship with one parent does not predict the quality of his attachment to the other (i.e., a secure relationship with mother does not necessarily result in a secure relationship with father, nor does an insecure relationship with mother preclude a secure tie to the father). Results from this study indicate that even for children demonstrating a highly similar pattern of attachment with both mother and father, the organization of attachment, affiliative,

and fear/wary responses are actually negatively correlated.

Possible explanations for the different organization of behaviors in mother- and father-present conditions were the following (1) the mechanisms by which the child develops an attachment to father may differ from those by which s/he develops an attachment to mother; (2) the mechanisms by which the child develops an attachment to father may occur in relatively more novel, playful, and arousing contexts; (3) fathers may consciously and/or unconsciously encourage risk-taking behavior differentially for sons and daughters; (4) the boisterous, "idiosyncratic", rough-and-tumble play experiences that may be intrinsic to the development of father-son attachments may themselves engender risk-taking behavior and; (5) father-infant interaction may serve as a prototype for distal interaction (which previous research has suggested to be facilitative of stranger sociability). The finding that positive affect was significantly more frequent ($p = .05$) in father-present than mother-present free play situations with a peer suggests that the father's presence affected qualitative, more than quantitative, aspects of the social interaction.

Possible applications and implications for future research:

The general contribution of the present study is its signaling the limitation of regarding sociability as a trait or unitary construct. In that the presence of the

father was suggested as constituting a distinct social context for the child, this study supports the theoretical orientation of other investigators focusing upon the impact of context on behavior. The specific contribution of the study is in its exploration of the father's role in early social development and its support of the conceptualization of the maternal and paternal role as non-redundant.

The results of this study have implications for future research, both in terms of theory development and application. Data indicated that even children who demonstrate highly similar attachment behavior toward both parents tend to organize attachment, affiliative, and fear/wary behavior differently in mother- and father-present contexts. This highlights the current lack of knowledge regarding the mechanisms by which children become attached to their parents and suggests that differences exist in the ways in which (and/or the contexts in which) children become attached to mother and father. Continued research is certainly warranted in which repeated naturalistic in-home observations of father-infant interaction during the first year of life is related to subsequent attachment and affiliative behavior.

The first part of this study focused on the role of the father in initial sociability with an adult stranger in a laboratory setting. The main findings were that (1) securely attached sons tended to be more sociable in the

father-present than mother-present context and; (2) sons insecurely attached to father were generally less sociable in both contexts than were securely attached sons. While these findings were of importance, additional studies are needed to explore the effects of the father's presence on the child's sociability over longer periods of time and in naturalistic environments.

The investigation of infant-parent interaction in homes in which fathers are primary caregivers is clearly warranted. Results of this study suggest that of particular importance would be the exploration of the effects of this type of caregiving arrangement on subsequent social development.

In terms of practical applications, findings from this study support the notion that the father's role in early social development, particularly for sons, is a substantial one, and that early father-absence may constitute an at-risk situation apart from that stemming from factors often associated with single parenthood (e.g., increased maternal stress and diminished economic resources). Information regarding the father's potential role in early development may effectively be shared with educators and mental health personnel associated with daycare centers and preschools serving children in father-absent homes. Facilitating stable relationships between such children and a male caregiver or teacher might be a goal for such

institutions. In addition, effective preventive measures may include those developed by social workers in hospital settings in which fathers and mothers of newborns are sensitized to the potential impact of father-infant interaction.

REFERENCES

- Ainsworth, M.D.S., Blehar, M.C., and Waters, E., and Wall, S. (1978). Patterns of Attachment. Hillside, N.J.: Erlbaum.
- Arend, R., Gove, F., and Sroufe, L.A. (1979). Continuity of individual adaptation from infancy to kindergarten: A predictive study of ego-resiliency and curiosity in preschoolers. *Child Development*, 50, 950-959.
- Bell, R.Q. (1968). A reinterpretation of the direction of effects in studies of socialization. *Psychological Review*, 75, 81-95.
- Bell, S.M. (1970). The development of the concept of object as related to infant-mother attachment. *Child Development*, 40, 291-311.
- Bischof, N.A. (1975). A systems approach toward the functional connections of attachment and fear. *Child Development*, 46, 801-817.
- Bowlby, J. (1958). The nature of a child's tie to his mother. *International Journal of Psychoanalysis*, 39, 350-373.
- Bowlby, J. (1969). Attachment and loss: Vol. 1. Attachment. New York: Basic.
- Bowlby, J. (1973). Attachment and loss: Vol.2. Separation. New York: Basic.
- Bretherton, I. (1978). Making friends with one-year-olds: An experimental study of infant-stranger interaction. *Merrill-Palmer Quarterly*, 24, 29-51.
- Bretherton, I. and Ainsworth, M.D.S. (1974). Responses of one-year-olds to a stranger in a strange situation. In M. Lewis and L. Rosenblum (eds.), The origins of fear. New York: Wiley, 131-164.
- Bridges, K.M.B. (1933). A study of social development in early infancy. *Child Development*, 4, 36-49.
- Bronson, W.C. (1981). Toddlers' behavior with agemates: Issues of interaction, cognition, and affect. Norwood, NJ: Ablex Publishing.
- Buhler, C. (1933). The social behavior of children. In C. Murchison (Ed.) Handbook of Child Psychology. Worcester, Mass.: Clark University.

Caldwell, B.M. (1964). The effects of infant care. In M.L. Hoffman and L.W. Hoffman (eds.) Review of child development research: Vol. 1. New York: Russell Sage, 9-87.

Clarke-Stewart, K.A. (1977, March). The father's impact on mother and child. Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans.

Clarke-Stewart, K.A. (1978). Recasting the lone stranger. In J. Glick and A. Clarke-Stewart (Eds.), Studies in social and cognitive development: The development of social understanding: Vol. 1. New York: Gardner Press, 109-176.

Crawley, S.B. and Sherrod, K.B. (1984). Parent-infant play during the first year of life. *Infant Behavior and Development*, 7, 65-75.

Daniels, D. and Plomin, R. (1985). Origins of individual differences in infant shyness. *Developmental Psychology*, 21, 118-121.

DeStefano, C.T. and Mueller, E. (1982). Environmental determinants of peer social activity in 18-month-old males. *Infant Behavior and Development*, 5, 175-184.

Easterbrooks, M.A. and Lamb, M.E. (1979). The relationship between the quality of infant-mother attachment and infant competence in initial encounters with peers. *Child Development*, 50, 380-387.

Easterbrooks, M.A., and Goldberg, W. (1984). Toddler development in the family: Impact of father involvement and parenting characteristics. *Child Development*, 55, 740-752.

Eckerman, C.O., Whatley, J., and Kutz, S. (1975). Growth of social play with peers during the second year of life. *Developmental Psychology*, 1975, 11, 42-49.

Feiring, C. and Lewis, M., Starr, M.D. (1984). Indirect effects and infants' reaction to strangers. *Developmental Psychology*, 20, 485-491.

Freud, A. and Dann, S. (1951). An experiment in group upbringing. In R.S. Eissler, A. Freud, H. Hartmann, and E. Kris (Eds.) The psychoanalytic study of the child: Vol. 6. New York: International Universities Press.

Furman, W., Rahe, D.F., and Hartup, W.W. (1979). Rehabilitation of socially withdrawn preschool children through mixed-age and same-age socialization. *Child Development*, 50, 915-922.

- Gaensbauer, T.J. and Harmon, R.J. (1982). Attachment behavior in abused/neglected and premature infants: Implications for the concept of attachment. In R.N. Emde and R.J. Harmon (Eds.) The development of attachment and affiliative systems (pp. 263-279). New York: Plenum Press.
- Goldsmith, H.H., and Gottesman, I.I. (1981). Origins of variation in behavioral style: A longitudinal study of temperament in young twins. *Child Development*, 52, 91-103.
- Greenberg, M., and Morris, N. (1974). Engrossment: The newborn's impact upon the father. *American Journal of Orthopsychiatry*, 44, 520-531.
- Greenberg, M.T. and Marvin, R.S. (1982). Reactions of preschool children to an adult stranger: A behavioral systems approach. *Child Development*, 53, 481-490.
- Grossman, K.E.; Grossman, K., Huber, F., and Wartner, U. (1981). German children's behavior toward their mothers at 12 months and their fathers at 18 months in Ainsworth's strange situation. *International Journal of Behavioral Development*, 4, 157-182.
- Harlow, H.F. (1958). The nature of love. *American Psychologist*, 13, 673-685.
- Jacobsen, J.L., Willie, D.E., Tianen, R.L. and Aytch, D.M. (1983, April). The influence of infant-mother attachment on toddler sociability with peers. Paper presented at the biennial meeting of the Society for Research in Child Development, Detroit.
- Jacobsen, J.L. and Wille, D.E. (1984). Influence of attachment and separation experience on separation distress at 18 months. *Developmental Psychology*, 20, 477-484.
- Kagan, J., Kearsley, R.B., and Zelazo, P.R. (1980). Infancy: Its Place in Human Development. Cambridge: Harvard University Press.
- Kaltenbach, K., Weinraub, M., and Fullard, W. (1980). Infant wariness toward strangers reconsidered: Infants' and mothers' reactions to unfamiliar persons. *Child Development*, 51, 1197-1202.
- Kotelchuck, M. (1972). The nature of the child's tie to his father. Unpublished Ph.D. dissertation, Harvard University.

Kotelchuck, M. (1976). The infant's relationship to the father: Experimental evidence. In M.E. Lamb (ed.) The role of the father in child development (pp. 329-344). New York: Wiley.

Kraemer, H.C. and Jacklin, C.N. (1979). Statistical analysis of dyadic social behavior. *Psychological Bulletin*, 86, 217-224.

LaFreniere, P.J. and Sroufe, L.A. (1985). Profiles of peer competence in the preschool: Interrelations between measures, influence of social ecology, and relation to attachment history. *Developmental Psychology*, 21, 56-69.

Lamb, M.E. (1975). Fathers: Forgotten contributors to child development. *Human Development*, 18, 245-266.

Lamb, M.E. (1976a). Effects of stress and cohort on mother- and father-infant interaction. *Developmental Psychology*, 12, 435-443.

Lamb, M.E. (1976b). Interactions between eight-month-old children and their fathers and mothers. In M.E. Lamb (Ed.) The role of the father in child development (pp. 307-327). New York: Wiley.

Lamb, M.E. (1977a). The development of mother-infant and father-infant attachments in the second year of life. *Developmental Psychology*, 13, 637-648.

Lamb, M.E. (1977b). Father-infant and mother-infant interaction in the first year of life. *Child Development*, 48, 167-181.

Lamb, M.E. (1978). Qualitative aspects of mother- and father-infant attachments. *Infant Behavior and Development*, 1, 265-275.

Lamb, M.E. (1980). In F.A. Pedersen (Ed.) The father-infant relationship: Observational studies in the family setting (pp. 21-43). New York: Praeger.

Lamb, M.E. (1981a). The development of social expectations in the first year of life. In M.E. Lamb and L.R. Sherrod (Eds.) Infant Social Cognition: Empirical and theoretical considerations (pp. 155-175). Hillsdale, N.J.: Erlbaum.

Lamb, M.E. (1981b). The role of the father in child development (2nd edition). New York: Wiley.

Lamb, M.E. (1982). Individual differences in infant sociability: Their origins and implications for cognitive development. In H.W. Reese and L.P. Lipsitt (Eds.), Advances in child development and behavior: Vol. 16 (pp. 213-239). New York: Academic Press.

Lamb, M.E., and Easterbrooks, M.A. (1981). Individual differences in parental sensitivity: Origins, components, and consequences. In M.E. Lamb and L.R. Sherrod (Eds.) Infant Social Cognition: Empirical and theoretical considerations (pp. 127-153). Hillsdale, N.J.: Erlbaum.

Lamb, M.E., Hwang, C.P., Frodi, A., and Frodi, M. (1982). Security of mother-and-father-infant attachment and its relation to sociability with strangers in traditional and non-traditional Swedish families. *Infant Behavior and Development*, 5, 355-367.

Lamb, M.E., Thompson, R.A., Gardner, W., and Charnov, E.L. (1985). Infant-mother attachment: The origins and developmental significance of individual differences in strange situation behavior. Hillsdale, N.J.: Erlbaum.

Lenssen, B.G. (1975, March). Infants' reactions to peer strangers. Paper presented at the biennial meeting of the Society for Research in Child Development, Denver.

Lewis, M. (1984). Beyond the dyad. New York: Plenum Press.

Lewis, M. and L.A. Rosenblum (1974). The effect of the infant on its caregiver, New York: Wiley, 1974.

Lewis, M. and Schaeffer, S. (1981). Peer behavior and mother-infant interaction in maltreated children. In M. Lewis and L.A. Rosenblum (Eds.) The Uncommon Child (pp. 193-223). New York: Plenum Press.

Lewis, M., Young, G., Brooks, J., and Michalson, L. (1975). The beginning of friendship. In M. Lewis and L.A. Rosenblum (Eds.) Friendship and peer relations (pp. 27-66). New York: Wiley.

Lieberman, A.F. (1977). Preschoolers' competence with a peer: Influence of attachment and social experience. *Child Development*, 48, 1277-1287.

Lynn, D.B. and Cross, A.R. (1974). Parent preference of preschool children. *Journal of Marriage and the Family*, 36, 555-559.

MacDonald, K., and Parke, R.D. (1984). Bridging the gap: Parent-child play interaction and peer interactive competence. *Child Development*, 55, 1265-1277.

Main, M. and Weston, D. (1981). The quality of the toddler's relationship to mother and father: Related to conflict behavior and the readiness to establish a new relationship. *Child Development*, 52, 932-940.

Matheny, A.P. (1980). Bayley's infant behavior record: Behavioral components and twin analyses. *Child Development*, 51, 1157-1167.

Maudry, M., and Nekula, M. (1939). Social relations between the children of the same age during the first two years of life. *Journal of Genetic Psychology*, 54, 193-215.

Mueller, E. (1979). (Toddlers and toys) = (An autonomous social system). In M. Lewis and L.A. Rosenblum (eds.) The child and its family (pp. 169-194). New York: Plenum Press.

Mueller, E., and Brenner, J. (1977). The growth of social interaction in a toddler playgroup: The role of peer experience. *Child Development*, 48, 854-861.

Mueller, E., and Rich, A. (1976). Clustering and socially-directed behaviors in a playgroup of one-year-old boys. *Journal of Child Psychology and Psychiatry*, 17, 315-322.

Mueller, E., and Vandell, D. (1979). Infant-infant interaction. In J.D. Osofsky (ed.), Handbook of infant development (pp. 591-622). New York: John Wiley.

Parke, R.D. (1979). Perspectives of father-infant interaction. In J.D. Osofsky (ed.), Handbook of infant development (pp. 549-590). New York: John Wiley.

Parke, R.D. and O'Leary, S.E. (1976). Father-mother-infant interaction in the newborn period: Some findings, some observations, and some unresolved issues. In K. Riegel and J. Meacham (eds.), The developing individual in a changing world: (Vol. 2) Social and environmental issues. The Hague: Mouton.

Parke, R. D. and Sawin, D.B. (1975, April). Infant characteristics and behavior as elicitors of maternal and paternal responsibility in the newborn period. Paper presented at the biennial meeting of the Society for Research in Child Development, Denver.

- Parten, M.B. (1932). Social participation among pre-school children. *Journal of Abnormal and Social Psychology*, 27, 243-269.
- Pastor, D.L. (1981). The quality of mother-infant attachment and its relationship to toddler's initial sociability with peers. *Developmental Psychology*, 17, 326-335.
- Pedersen, F.A. (1980). The father-infant relationship: Observational studies in the family setting. New York: Praeger.
- Pedersen, F.A. and Robson, K.S. (1969). Father participation in infancy. *American Journal of Orthopsychiatry*, 39, 466-472.
- Pedersen, F.A., Rubinstein, J., and Yarrow, L.J. (1979). Infant development in father-absent families. *Journal of Genetic Psychology*, 135, 51-61.
- Piaget, J. (1952) The origins of intelligence in children (2nd ed.). New York: International Universities Press. (Original work published 1936.)
- Plomin, R. and Rowe, D.C. (1979). Genetic and environmental etiology of social behavior in infancy. *Developmental Psychology*, 15, 62-72.
- Power, T.G. and Parke, R.D. (1983). Patterns of mother and father play with their 8-month-old infant: A multiple analysis approach. *Infant Behavior and Development*, 6, 453-459.
- Rheingold, H.L. and Eckerman, C.O. (1974). Fear of the stranger: A critical examination. In H.W. Reese (ed.) Advances in child development and behavior (pp. 186-222). New York: Academic Press.
- Ross, H.S. and Goldman, B.D. (1977). Establishing new social relations in infancy. In T. Alloway, P. Pliner, and L. Krames (eds.) Advances in the study of communication and affect (Vol. 3) Attachment Behavior (61-79). New York: Plenum Press.
- Rubenstein, J. and Howes, C. (1976). The effects of peers on toddler interaction with mother and toys. *Child Development*, 47, 597-605.

Sagi, A., Lamb, M.E., Lewkowicz, K.S., Shoham, R., Dvir, R., and Estes, D. (1985). Security of infant-mother, -father, and -metepelet attachments among kibbutz-reared Israeli children. In I. Bretherton and E. Waters (eds.) Growing points in attachment theory and research. Monographs of the Society for Research in Child Development (pp. 257-275), 50, (1-2, Serial No. 209).

Scarr, S. (1969). Social introversion-extroversion as a heritable response. *Child Development*, 40, 823-832.

Schaffer, H.R. (1966). The onset of fear of strangers and the incongruity hypothesis. *Journal of Child Psychology and Psychiatry*, 1, 95-106.

Schaffer, H.R. (1974). Cognitive components of the infant's response to strangeness. In M. Lewis and L.A. Rosenblum (Eds.) The origins of fear (pp. 11-24). New York: Wiley.

Schaffer, H.R. and Emerson, P.E. (1964). The development of social attachments in infancy. Monograph of the Society for Research in Child Development, 29, (whole no. 94).

Schneider-Rosen, K., and Cicchetti, D. (1984). The relationship between affect and cognition in maltreated infants: Quality of attachment and the development of visual self-recognition. *Child Development*, 55, 648-658.

Shatz, M. and Gelman, R. (1973). The development of communication skills: modifications in the speech of young children as a function of listener. Monographs of the Society for Research in Child Development, 38, (5, Serial No. 152).

Shill, M.A., Solyom, A.E., and Biven, B.M. (1984). Parent preference in the attachment exploration balance in infancy: An experimental psychoanalytic approach. *Child Psychiatry and Human Development*, 15, 34-48.

Spelke, E., Zelazo, P., Kagan, J., and Kotelchuck, M. (1973). Father interaction and separation protest. *Developmental Psychology*, 9, 83-90.

Spitz, R. (1950). Anxiety in infancy: A study of its manifestations in the first year of life. *International Journal of Psychoanalysis*, 31, 138-143.

Sroufe, L.A. (1979). Socioemotional development. In J. Osofsky (Ed.) Handbook of infant development (pp. 462-516). New York: Wiley.

Sroufe, L.A. (1983). Infant-caregiver attachment and patterns of adaptation in the preschool: The roots of maladaptation and competence. In M. Perlmutter (Ed.) Minnesota Symposium in Child Psychology, Vol. 16 (pp. 41-83).

Sroufe, L.A., Schork, E., Motti, F., Lawroski, N., and LaFreniere, P. (1984). The role of affect in social competence. In C. Izard, J. Kagan, and R. Zajonc (Eds.) Emotions, cognition, and behavior (pp. 289-319). Cambridge: Cambridge University Press.

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

Sroufe, L.A., Waters, E., and Matas, L. (1974). Contextual determinants of infant affective response. In M. Lewis and L.A. Rosenblum (Eds.), The origins of fear (pp. 49-72). New York: Wiley.

Stevenson, M.B. and Lamb, M.E. (1979). The effect of sociability and the caretaking environment on infant cognitive performance. *Child Development*, 50, 340-349.

Suomi, S.J. and Harlow, H.F. (1972). Social rehabilitation of isolate-reared monkeys. *Developmental Psychology*, 6, 487-496.

Thompson, R.A. and Lamb, M.E. (1982). Stranger sociability and its relationships to temperament and social experience during the second year. *Infant Behavior and Development*, 5, 277-287.

Thompson, R.A. and Lamb, M.E. (1983). Security of attachment and stranger sociability in infancy. *Developmental Psychology*, 19, 184-191.

Touris, M. (1985). Unpublished manuscript, Loyola University of Chicago.

Tracy, R., Lamb, M.E., and Ainsworth, M. (1976). Infant approach behavior as related to attachment. *Child Development*, 47, 571-578.

Vandell, D.L. (1976). Boy toddlers' social interactions with mothers, fathers, and peers. Unpublished Ph.D. dissertation, Boston University.

Vandell, D.L. (1979). Effects of a playgroup experience on mother-son and father-son interaction. *Developmental Psychology*, 15, 379-385.

Vandell, D.L. (1980). Sociability with peer and mother during the first year. *Developmental Psychology*, 16, 355-361.

Waters, E., Wippman, J., and Sroufe, L.A. (1979). Attachment, positive affect, and competence in the peer group: Two studies in construct validation. *Child Development*, 50, 821-829.

Weinraub, M., Brooks, J., and Lewis, M. (1977). The social network: A reconsideration of the concept of attachment. *Human Development*, 20, 30-47.

Weinraub, M., and Frankel, J. (1977). Sex differences in parent-infant interaction during free play, departure, and separation. *Child Development*, 48, 1240-1249.

Wille, D.E. (1983, April). The growth of peer social interaction in the preschool aged child. Paper presented at the biennial meeting of the Society for Research in Child Development, Detroit.

Yogman, M.J., and Dixon S., Tronick, E., Als, H., and Brazelton, T.B. (1977, March). The goals and structure of face-to-face interaction between infants and fathers. Paper presented at the biennial conference of the Society for Research in Child Development, New Orleans.

Zaslow, M. (1980). Relationships among peers in kibbutz toddler groups. *Child Psychiatry and Human Development*, 10, 178-189.

APPENDIX A

APPENDIX A

THE STRANGE-SITUATION PROCEDURE (Ainsworth et.al., 1978, pp.32-40)

The strange situation consists of eight episodes presented in a standard order for all subjects, with those expected to be least stressful occurring first. After a brief introductory episode, the baby was observed with his mother in the unfamiliar, but not otherwise threatening environment of the experimental room, to see how readily he would move farther away from her to explore a novel assembly of toys. While the mother was still present, a stranger entered and made a very gradual approach to the baby. Only after this did the mother leave, because it was anticipated that separation from her would constitute a greater stress than the presence of a stranger and/or of an unfamiliar environment per se. After a few minutes the mother returned and the stranger slipped out. The mother was instructed to interest her baby in the toys again in the hope of restoring his exploratory behavior to the baseline level characteristic of when he was previously alone with his mother. Then followed a second separation, and this time the baby was left alone in the unfamiliar environment. As some check on whether any increased distress was a response to being alone rather than to have been separated a second time, and also to ascertain whether separation was more distressing than the presence of a stranger, the stranger returned before the mother finally returned. The sequence just summarized was very powerful both in eliciting the expected behaviors and in highlighting individual differences. The sequence of episodes is described in more detail as we proceed.

The Physical Situation

Two adjacent rooms were employed for the experimental room and the observation room, connected by two one-way vision mirror windows. The experimental room was furnished, not bare, but was so arranged that there was a 9-by-9 foot square of clear floor space. For the first 13 subjects of the Sample 1, the floor was covered by a braided rug, but for the last 10 subjects and for all subsequent samples, the mastic tile floor was bare but marked off into 16 squares to facilitate recording of location and locomotion. For Samples 1 and 2, the furnishings approximated those of a university office, with desk, chair, and a bookcase at one side of the room. Bright postcards were tacked around the periphery of the mirror windows. In the period between Samples 2 and 3, the office furniture was

moved out and replaced by metal storage cabinets. The postcards had been removed, but colorful posters were tacked to three walls of the room.

Film records were made of the last 10 subjects of Sample 1, as well as of the babies of Sample 3. For the purpose of filming, a glass-covered photography port was put in the wall opposite the observation windows, and sun-gun lights were introduced high in the room. To obscure the noise of the camera, as well as to counter the heat from the bright lights, an electric fan was placed on the bookcase (later on top of the cabinets).

At one end of the experimental room (see attached) was a child's chair heaped with and surrounded by toys. Near the other end of the room in square 16 was a chair for the mother, and on the opposite side in square 13 was a chair for the stranger. The baby was put down on the line between squares 14 and 15, facing the toys, and left there to move where s/he wished.

This much attention has been paid to a description of the physical arrangement of the experimental room because even minor variations seemed to affect the babies' behavior. For example, the desk and bookcases attracted more exploratory interest in Samples 1 and 2 than did the cabinets in Samples 3 and 4. More important, it seems likely that the position of the door on the stranger's side of the room may have affected the likelihood of a baby's approaching it when the stranger was present. Furthermore, the arrangement of the room in orientation to the observation windows obviously affected what sequences of behavior and facial expression the observers were able to see most clearly. They had a good view of a baby's face as he approached either the mother's or stranger's chair, a profile view (at least) of a baby oriented to the door or to a person entering, but only a back view when the baby was approaching the child's chair and the heap of toys.

Either one or two observers (more frequently and preferably two) dictated a play-by-play account into Stenorettes of what the baby did, and as much as possible also of what the adult(s) did. The Stenorette microphones also picked up the sound of a buzzer that marked off 15 second time intervals. The observers wore earphones that both enabled them to hear what went on in the experimental room and prevented them from hearing each other's dictation. An intercom system also made sounds from the experimental room audible in the observation room. This system was not reversed to give instructions to the adults in the

experimental room, lest a disembodied voice alarm the infants. Predetermined signals were given by knocks on the wall. On the few occasions when special intervention was necessary, someone went to the door of the experimental room to deliver the message directly.

Personnel

The usual number of personnel included two observers (O1 and O2), a stranger (S), and an experimenter (E). It was E's task to time the episodes and to give cues to the mother and stranger that determined their entrances and exits. Whenever possible a fifth person received the mother and baby upon their arrival, reviewed the instructions (of which the mother and baby had a copy and that had previously been discussed with her at a home visit), and introduced them to the experimental room; otherwise either O2 or E did this. The irreducible minimum of personnel (used in Sample 2) was one observer and a second person to act as both E and S.

A necessary complication of the procedure is that separation episodes were curtailed if a baby became so distressed that he clearly would continue to cry throughout an episode of standard duration. Although it is obviously undesirable to allow a baby to become unduly distressed, an effort was made not to curtail episodes unnecessarily, for some babies may protest briefly and then settle down either to play or to search for the mother, or both. Sometimes it is also desirable to prolong an episode. Thus, for example, the first reunion episode was sometimes prolonged so that a baby could fully recover from distress occasioned by the first separation and settle down again to play. Furthermore, should a baby make contact with his mother just before a signal is due for her to leave, the episode may be somewhat prolonged so that the mother's departure does not constitute a direct rebuff to the baby.

The responsibility for deciding when episodes should be curtailed or prolonged was usually delegated to E, if he were experienced enough, so as not to distract O from his primary task of observing.

Toys

The original set of toys used for Samples 1 and 2 were selected at a local toy shop and supplemented by other attractive objects, such as bangles, a shiny pie plate, and a long red tube. For the two sessions that Sample 3 was to undergo, the original set of toys was divided in half, and

Playthings, so that there was an entirely different array of toys in Session 2. Although it was likely that some of the toys were duplications of toys a baby had at home, it was assumed that the total array of toys would be novel enough to activate exploration.

Because so many of the toys were noise-makers, and because so many babies played banging games, it proved not feasible to tape the vocalizations of mother and baby in the experimental room. The observers could distinguish crying from noncrying vocalizations better at first hand than from the tape. Thus the chief information that was lost by not making taped records was the precise content of some of the adults' speech, which the observers found difficult to include exactly while dictating an account of all the action.

Episodes of the Strange Situation

The episodes of the strange situation are delineated in the following general instructions to the personnel - the observers, stranger, and experimenter. (Separate instructions were given to the mother in advance of her arrival at the laboratory, and are shown in Appendix I.

Episode 1: Mother, Baby, and Experimenter. This is a very brief, introductory episode. M and B are introduced to the experimental room. M has been instructed to carry the baby into the room. Meanwhile, the O notes the B's response to the new situation from the safety of M's arms, E leaves as soon as he has completed his instructions (here and elsewhere in these instructions, M stands for mother, B for baby, E for experimenter, O for observer and S for stranger.

Episode 2: Mother and Baby. M puts B down midway between S's and M's chairs (on the line between squares 14 and 15), facing the toys. She then goes to her chair and reads (or pretends to read) a magazine. It is expected that B will explore the room and manipulate the objects in it, especially the toys. M has been instructed not to initiate an intervention, although if B obviously wants a response from her, she is to respond in whatever way she considers appropriate.

For two minutes M will direct B's attention neither to the toys nor to other objects in the room. If, after 2 minutes, B has not begun to explore the toys, a signal is given to M (a knock on the wall for her to take him to the toys and to try to stimulate his interest in them. One minute is allowed for this stimulated exploration. Meanwhile E times the episode, beginning when M puts B down. He

signals when 2 minutes are up if, in his judgment, B needs stimulation. When 3 minutes are nearly up, he cues S to go to the experimental room.

The focus of the observation is on the amount and nature of B's exploration of the strange-situation-locomotor, manipulatory, and visual - and on the amount and nature of his orientation to M.

Episode 3: Stranger, Mother, and Baby. S (who has never met B before) enters and says to M: "Hello! I'm the stranger." She immediately seats herself in S's chair and remains silent for 1 minute. She may watch B, but should not stare at him if B seems apprehensive of her. At the end of 1 minute, E knocks on the wall to signal S to begin a conversation with M. M, meanwhile, has been instructed not to begin talking until S initiates interaction with B. At the end of another minute S is signaled to initiate interaction with B. At the end of 3 minutes, E knocks to signal the end of the episode. At this signal M leaves the room unobtrusively, leaving her handbag behind on the chair and choosing a moment to leave when B seems occupied either with S or with the toys.

The focus of the observation is on how much and what kind of attention B pays to S, in comparison with the attention he pays to M or to exploration, and on how B accepts S's advances.

Episode 4: Stranger and Baby. E begins to time the episodes as soon as M leaves the room. M, meanwhile, comes to the observation room. As soon as M has gone, S begins to reduce interaction with B, so that B has a chance to notice that M has gone, if indeed he had not already noticed. If B resumes exploring, S retreats to her chair and sits quietly as M did previously, although she is to respond to any advances B may make. We are primarily interested in the amount of exploring B will undertake in contrast with the amount he did when he was alone with M.

If, however, B cries, S will intervene trying to distract B with a toy; if this fails to calm him, S will attempt to comfort B by picking up B if he permits and/or by talking to him. If S is successful in comforting B, she then puts him down and again attempts to engage his interest in the toys.

Three minutes are allowed for this episode, although it may be curtailed should B become highly distressed and unresponsive to S's efforts to distract or comfort him. Just before 3 minutes are up (or sooner if the episode is

to be curtailed) E cues M to return to the experimental room.

We are interested in the amount and nature of B's exploration in contrast with earlier episodes. We are also interested in B's response to M's departure - crying, search behavior, and any acute distress. B's response to the stranger is also of importance, including his response to being picked up and put down, and any clinging that he does.

Episode 5: Mother and Baby. M approaches the closed door and speaks outside, loudly enough that B can hear her voice. She pauses a moment, opens the door, and pauses again, to allow B to mobilize a response to her if he is going to. M is instructed to make the baby comfortable, finally settling him on the floor, and interesting him in the toys. Meanwhile S leaves unobtrusively. After 3 minutes, or when it is judged that B is settled enough to be ready for the next episode, M is signaled to leave. She picks a moment (if possible) when B seems cheerfully occupied with the toys, gets up, puts her handbag on her chair, and goes to the door. At the door she pauses and says "bye-bye" to B and leaves the room, closing the door securely behind her.

In general, in this episode we are interested in observing B's response to M after her absence and their interaction after her return.

Episode 6: Baby Alone. E begins timing when M leaves. Three minutes are allowed for B to explore the room while he is alone. If he cries when M departs, he is given a chance to recover in the hope that he may do some exploring, but if he becomes acutely distressed the episode is curtailed.

We are interested, of course, both in B's exploratory play (if any) when he is left alone in an unfamiliar situation and in his reaction to his mother's departure - crying, search behavior, grumbling, vocalizations, tension movements, and so on.

Episode 7: Stranger and Baby. Just before the end of the 3 minutes (or upon a decision to curtail Episode 6) E cues S to return. S approaches the closed door and speaks outside, loudly enough that B can hear her voice. She pauses a moment, opens the door, and pauses again, to allow B to mobilize a response if he is going to do so. E begins timing Episode 7 as soon as S enters.

If B is crying, S will first attempt to soothe him, picking him up if he will permit it. When and if he calms, she will put him down and attempt to engage him in play. If he gets interested in the toys and begins to play, S will gradually retreat to her chair. If B is not distressed at the time S enters, she invites him to come to her. If B does not come, she approaches B and attempts to initiate play. If he becomes interested in the toys and begins to play with them himself, S will gradually retreat to her chair. In either case, if B signals that he wants interaction or contact with S, she will respond to his wishes, and in general she is to gear her behavior to B's behavior.

In this episode we are interested primarily in B's response to S - how readily he is soothed by her, whether he seeks or accepts contact, whether he will interact with her in play - and in how this response compared with B's response to M in the reunion episodes. Also we are interested to see whether the pull of the toys is strong enough that B permits S to become nonparticipant.

Episode 8: Mother and Baby. Just before the end of 3 minutes (or upon a decision to curtail Episode 7), E cues M to return. M opens the door and pauses a moment before greeting B, giving him an opportunity to respond spontaneously. She then talks to the baby and finally picks him up. Meanwhile S leaves.

APPENDIX B

APPENDIX B

INSTRUCTIONS TO THE MOTHER (Ainsworth et.al., 1978, pp. 323-325)

This is a set of instructions to explain what will happen from the moment you arrive at the designated meeting place. Here will be discussed any questions about the observation of the baby in the strange situation. When you enter the church atrium, please observe the sign on the door directing you to Room 107 where you will place your child on the mat with the toys facing the camera.

I would like to stress an important aspect of your role in the strange situation: Try to be as natural in your responsiveness to the baby as you would generally be. Do not actively engage him/her in play with the toys in the first three episodes until a signal is given to you (a knock on the door), but feel free to respond to his/her advances (smiling, approaching, etc.) as you ordinarily would at home. If the baby is distressed at any time while you are in the room, please feel free to react as you normally would in order to make him/her comfortable again. We want to watch your child's spontaneous response to the toys and to the strangeness of the situation. For this reason I ask the mother not to intervene and attract her child's attention. Yet we don't want the baby to feel that his/her mother is acting strangely.

Thus, yours is a delicate task of reassuring the baby of your support as you would normally do when s/he seems to need it, without interfering with his/her exploratory behavior.

EPISODES

Episode 1. Mother, Baby, Experimenter. Please proceed to room 819 of Lewis Towers. Place your child on the mat with the toys facing the camera, and there will be a chair designated "M" for you to sit. I want to see how the baby reacts to a new environment from the safety of his/her mother's arms.

Episode 2. Mother, Baby (3 minutes). As soon as you sit down on the chair, pretend to read the magazine which was placed there with further instructions. You will respond to the baby quietly if s/he makes overtures to you, or reassure him/her if s/he is uneasy or upset, but you are not to try to attract the baby's attention. I want to see the kind of interest the baby has in a new situation. If the baby spontaneously begins to play with the toys. A knock will sound on the door signalling you to take him/her over to the toys and to try to arouse his/her interest in them. Then, after a moment, you will go back to your chair, and I will signal you when the last minute is up.

Episode 3. Stranger, Mother, Baby (3 minutes). A stranger- myself, will enter the room and introduce myself briefly and then go to the other chair, across the room from yours, and I will sit quietly for 1 minute. Then I will engage in conversation with you for 1 minute, and finally, I will invite the baby's attention for 1 minute. Throughout this, you are to sit quietly in your chair and talk only when I talk with you. The purpose of this episode is to observe the baby's responses to gradually increased attention from a stranger, with his/her mother present but not active. When the 3 minutes have passed, you are to leave the room as unobtrusively as possible leaving your handbag on your chair. Please close the door when you leave.

Episode 4. Stranger, Baby. (3 minutes or less). The stranger remains with the baby during this episode. We want to see what the baby's interest is in an unfamiliar room with only a stranger present. Some babies become upset when their mothers leave. Should your baby become too upset, we will terminate the episode. If you feel that the episode should be terminated, just tell me, and you can go back to the observation room immediately.

Episode 5. Mother, Baby. (3 minutes or more). Someone will tell you when it is time to begin the episode. You will go to the door and, before opening it, call to the

will go to the door and, before opening it, call to the baby loudly enough for him/her to hear through the closed door. Pause a moment, then open the door and pause again. I am interested to see how the baby will greet his mother spontaneously after she has been absent. After this pause, greet the baby and make him/her comfortable for the next episode, finally settling him/her on the floor, interested in the toys. After 3 minutes, or when the observer judges that the baby is settled enough to be ready for the next episode, s/he will signal by a knock on the door. This will give you your cue to leave the baby alone in the room.

Episode 6. Baby Alone. (3 minutes or less). After the knock comes, pick a moment when the baby seems cheerfully occupied with the toys, get up, put your handbag on the chair, and go to the door. Pause at the door to say "bye-bye" to the baby, and then leave the room, closing the door behind you. I want to see how the baby reacts to your departure and what s/he will do all by him/herself in a strange room. S/he may be quite content, but if s/he becomes too upset, I will terminate the episode.

Episode 7. Stranger, Baby. (3 minutes or less). The stranger enters, and we can see how the baby reacts to a stranger, without his mother present and after being alone. If s/he has been unhappy without his/her mother, we want to see whether s/he can be comforted by a stranger. In any case, we want to see whether s/he will play with her or with the toys in her presence.

Episode 8. Mother, Baby. (3 minutes). In this episode, you will then go back into the room, but after opening the door pause for a moment to see what the baby will do spontaneously when s/he sees you. Then talk to him/her for a moment, then pick him/her up. I will come to the door to tell you when the episode is over. In the meantime, do whatever seems the natural thing to do under the circumstances.

APPENDIX C

APPENDIX C

DESCRIPTION OF ATTACHMENT CATEGORIES (Ainsworth et.al., 1978, 59-63)

Group A:

--Conspicuous avoidance of proximity to or interaction with mother in the reunion episodes. Either the baby ignores his mother on her return, greeting her casually if at all, or, if there is approach and/or a less casual greeting, the baby tends to mingle his welcome with avoidance responses--turning away, moving past, averting the gaze, and the like.

--Little or no tendency to seek proximity to or interaction or contact with mother, even in the reunion episodes.

--If picked up, little or no tendency to cling or to resist being released.

--On the other hand, little or no tendency toward active resistance to contact or interaction with the mother, except for probable squirming to get down if indeed the baby is picked up.

--Tendency to treat the stranger much as the mother is treated, although perhaps with less avoidance.

--Either the baby is not distressed during separation, or the distress seems to be due to being left alone rather than to his mother's absence. For most, distress does not occur when the stranger is present, and any distress upon being left alone tends to be alleviated when the stranger returns.

Subgroup A1

Conspicuous avoidance of the mother in the reunion episodes, which is likely to consist of ignoring her altogether, although there may be some pointed looking away, turning away, or moving away.

If there is a greeting when the mother enters, it tends to be a mere look or smile.

Either the baby does not approach his mother upon return, or the approach is "abortive" with the baby going past his mother, or it tends to occur only after much coaxing.

If picked up, the baby shows little or no contact maintaining behavior. He tends not to cuddle in; he looks away; and he may squirm to get down.

Subgroup A2

The baby shows a mixed response to his mother on reunion, with some tendency to greet and to approach, intermingled with a marked tendency to turn or move away from her, move past her, or ignore her. Thus there may be moderate proximity seeking, combined with strong proximity avoiding.

If he is picked up, the baby may cling momentarily; if he is put down he may protest or resist momentarily; but there is also a tendency to squirm to be put down, to turn the face away when being held, and other signs of mixed feelings.

Group B:

--The baby wants either proximity and contact with his mother or interaction with her, and he actively seeks it, especially in the reunion episodes.

--If he achieves contact, he seeks to maintain it, and either resists release or at least protests if he is put down.

--The baby responds to his mother's return in the reunion episodes with more than a casual greeting--either with a smile or a cry or a tendency to approach.

--Little or no tendency to resist contact or interaction with his mother.

--Little or no tendency to avoid his mother in the reunion episodes.

--He may or may not be friendly with the stranger, but he is clearly more interested in interaction and/or contact with his mother than with the stranger.

--He may or may not be distressed during the separation episodes, but if he is distressed, this is clearly related to his mother's absence and not merely to being alone. He may be somewhat comforted by the stranger, but it is clear that he wants his mother.

Subgroup B1

The baby greets his mother, smiling upon her return, and shows strong initiative in interaction with her across a distance, although he does not especially seek proximity to or physical contact with her.

If picked up, he does not especially seek to maintain contact.

He may mingle some avoiding behavior (turning away or looking away) with interactive behavior, but he shows little or no resistant behavior and, in general, seems not to have feelings as mixed as an A2 baby.

He is likely to show little or no distress in the separation episodes.

Subgroup B2

The baby greets his mother upon reunion, tends to approach her, and seems to want contact with her, but to a lesser extent than a B3 baby. Some B2 babies seek proximity in the pre-separation episodes, but not again until Episode 8, and then perhaps only after some delay.

The B2 baby may show some proximity avoiding, especially in Episode 5, but this gives way to proximity seeking in Episode 8, thus distinguishing him from the A2 baby.

Although he accepts contact if he is picked up, he does not cling especially, and does not conspicuously resist release.

On the other hand, he shows little or no resistance to contact or interaction, and in general shows less sign of mixed feelings than A2 babies.

He tends to show little distress during the separation episodes.

He resembles a B1 infant, except that he is more likely to seek proximity to his mother.

Subgroup B3

The baby actively seeks physical contact with his mother, and when he gains it he is conspicuous for attempting to maintain it, actively resisting her attempts to release him. Most B3 babies show their strongest proximity-seeking and contact-maintaining behavior in Episode 8, but some do in Episode 5 and are so distressed in the

second separation episode that they cannot mobilize active proximity seeking and resort to signaling. Occasionally a baby who seems especially secure in his relationship with his mother will be content with mere interaction with and proximity to her, without seeking to be held.

At the same time, the B3 baby may be distinguished from other groups and subgroups by the fact that he shows little or no sign of either avoiding or resisting proximity to or contact or interaction with his mother.

He may or may not be distressed in the separation episodes, but if he shows little distress, he is clearly more active in seeking contact and in resisting release than B1 or B2 babies.

Although his attachment behavior is heightened in the reunion episodes, he does not seem wholly preoccupied with his mother in the preseparation episodes.

Subgroup B4

The baby wants contact, especially in the reunion episodes, and seeks it by approaching, clinging, and resisting release; he is, however, somewhat less active and competent in these behaviors than most B3 babies, especially in Episode 8.

He seems wholly preoccupied with his mother throughout the strange situation. He gives the impression of feeling anxious throughout, with much crying. In the second separation, particularly, he seems entirely distressed.

He may show other signs of disturbance, such as inappropriate, stereotyped, repetitive gestures or motions.

He may show some resistance to his mother, and indeed he may avoid her by drawing back from her or averting his face when held by her. Because he also shows strong contact-seeking behavior, the impression is of some ambivalence, although not as much as is shown by Goup-C infants.

Group C:

--The baby displays conspicuous contact- and interaction-resisting behavior, perhaps especially in Episode 8.

--He also shows moderate-to-strong seeking of proximity and contact and seeking to maintain contact once gained, so that he gives the impression of being ambivalent to his mother.

--He shows little or no tendency to ignore his mother in the reunion episodes, or to turn or move away from her, or to avert his gaze.

--He may display generally "maladaptive" behavior in the strange situation. Either he tends to be more angry than infants in other groups, or he may be conspicuously passive.

Subgroup C1

Proximity seeking and contact maintaining are strong in the reunion episodes, and are also more likely to occur in the preseparation episodes than in the case of Group-B infants.

Resistant behavior is particularly conspicuous. The mixture of seeking and yet resisting contact and interaction has an unmistakable angry quality and indeed an angry tone may characterize behavior even in the preseparation episodes.

Angry, resistant behavior is likely to be shown toward the stranger as well as toward the mother.

The baby is likely to be extremely distressed during the separation episodes.

Subgroup C2

Perhaps the most conspicuous characteristic of C2 infants is their passivity. Their exploratory behavior is limited throughout the strange situation, and their interactive behaviors are relatively lacking in active initiative.

Nevertheless in the reunion episodes they obviously want proximity to and contact with their mothers, even though they tend to use signaling behavior rather than active approach, and protest against being put down rather than actively resist release.

Resistant behavior tends to be strong, particularly in Episode 8, but in general the C2 baby is not as conspicuously angry as the C1 baby.

APPENDIX D

APPENDIX D

ABBREVIATED DESCRIPTION OF INTERACTIVE RATING SCALES (Lamb et.al, 1985, 33-34)

Scale	Abbreviated description of selected anchor points
Proximity and Contact seeking	<ol style="list-style-type: none">7. Very active effort and initiative in achieving physical contact (e.g., fully approaches the adult and achieves contact through its own efforts)5. Some active effort to achieve physical contact (e.g., approaches but is picked up without any clear bid for contact)3. Weak effort to achieve physical contact or moderately strong effort to gain proximity (e.g., approaches, does not request pick up, and is not held)1. No effort to achieve physical contact or proximity
Contact maintaining	<ol style="list-style-type: none">7. Very active and persistent effort to maintain physical contact (e.g., while held more than 2 minutes, infant at least twice actively resists release)5. Some active effort to maintain physical contact (e.g., while held for less than one minute, the infant actively resists release once)3. Some apparent desire to maintain physical contact but relatively little active effort to do so (infant initiates contact at least twice in an episode, but on each occasion the hold is brief, and its cessation is not protested)

1. Either no physical contact or no effort to maintain it

Scale

Abbreviated description of
selected anchor points

Resistance

7. Very intense and repeated resistance (e.g., 2 or more instances of: repeatedly hitting the adult, strong squirming against hold, temper tantrum, repeated angry rejection of the adult or toys)
5. Some resistance--either less intense or more isolated and less persistent (e.g., at least 3 instances of the above, without as great a degree of anger)
3. Slight resistance, (e.g., 2 rather slight instances of resistance)
1. No resistance

Avoidance

7. Very marked and persistent avoidance (e.g., no attention to adult despite repeated attempts by him/her to attract attention)
5. Clear-cut avoidance but less persistent (e.g., 30 seconds of ignoring in the absence of attempts by the adult to gain attention)
3. Slight isolated avoidance behavior (e.g., brief delay in responding)
1. No avoidance

APPENDIX E

APPENDIX E

DEFINITIONS OF VARIABLES CODED DURING FREE PLAY WITH PEER

The following definitions refer to behaviors of the child in relation to the peer, parent, and peer's parent. The definitions of solitary, parallel, associative and cooperative play were extrapolated from Parten (1932):

Solitary independent play--The child plays alone and independently with toys that are different from those used by the peer. The child pursues his own activity without reference to what others are doing.

Parallel play--The child plays independently, but the activity he uses naturally brings him close to the peer. He plays with toys that are like those with which the peer is playing, but he plays with the toys as he sees fit, and does not try to influence or modify the activity of the peer. He plays beside rather than with the other child.

Looks at peer--the child clearly looks at the face and/or body of the peer (looking at the peer's hands as he manipulates an object is not coded)

Categories of "peer interaction"

1. toy exchange--the child gives or accepts a toy from the peer
2. toy proffer--the child offers a toy, but it is not accepted
3. verbalization and vocalization--the child utters either a verbalization or vocalization that is quite clearly directed to the peer
4. associative play--the children engage in a common activity; there is a borrowing or loaning of play materials; there is verbalization regarding the activity
5. cooperative play--the children quite clearly are directing their efforts to attain a mutual goal

Negative peer interaction--the child engages in a toy struggle, pushing or similar aggressive behavior, negative (protest) verbalizations or vocalizations clearly directed toward peer

Categories of affect

1. positive affect--refers to clear instances of positive affect such as a laugh, giggle, positive squeal, or vocalization indicating a high level of gleeful excitement such as that accompanying a mock chase
2. negative affect--refers to instances of crying or strong whining (not clearly directed toward peer)

Categories of interaction with parent

1. looks at parent--the child looks at face and/or body of parent (is not coded if look is directed to parent's hand while s/he manipulates an object)
2. attachment behavior--the child touches his parent or leans against chair in which his parent is seated
3. verbalizations and vocalizations--the child utters a verbalization or vocalization that is quite clearly directed toward the parent
4. toy exchange--the child gives a toy to or accepts a toy from his parent
5. other--the child engages in associative or cooperative play with his parent

Categories of interaction with peer's parent

1. looks at peer's parent--the child looks at face and/or body of peer's parent (is not coded if look is directed to hands of peer's while s/he manipulates an object)
2. toy exchange--the child gives a toy to or accepts a toy from the peer's parent
3. verbalizations and vocalizations--the child utters a verbalization or vocalization quite clearly directed to peer's parent
4. other--the child engages in associative or cooperative play with the peer's parent

APPROVAL SHEET

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

11/22/85

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