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Interaffectivity in the Mother-Infant Relationship

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INTERAFFECTIVITY IN THE MOTHER-INFANT RELATIONSHIP

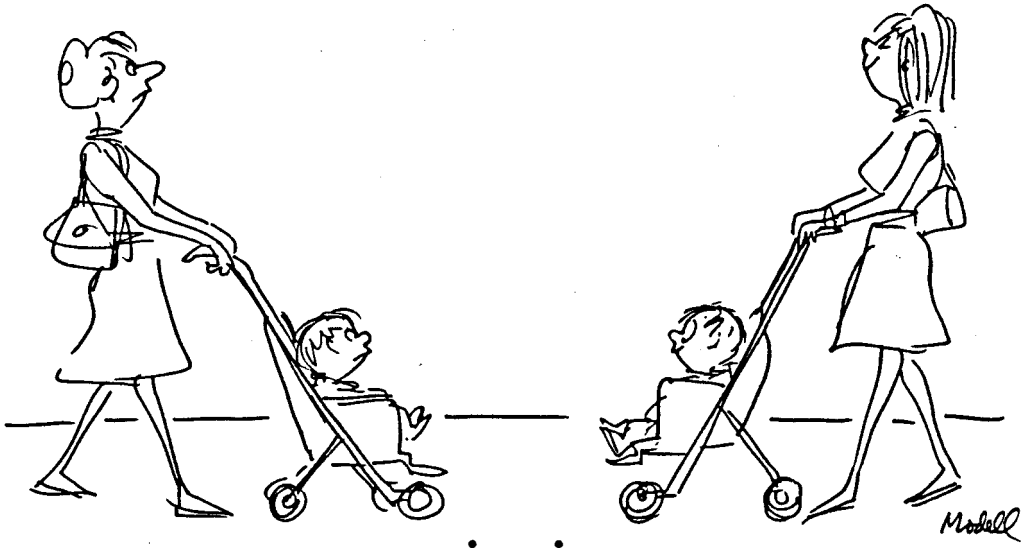
by

Lenore R. Weissmann

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

May

1987



"...ONLY CONNECT"

E.M. Forster

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Many thanks are due to all who have nurtured me through this project - I have thanks for everyone from my grandparents to my grandson.

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VITA

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Mrs. Weissmann presented a Poster at the International Association for Infant Mental Health, in Chicago, September, 1986: Parent Infant Interaction and Interaffectivity. Her submission for a poster presentation at the Society for Research in Child Development 1987 meeting has been accepted: Interaffectivity in the Mother-Infant Relationship: Developments Within the space Between.

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INTRODUCTION

"Only Connect!" (Forster, 1921). These words from Forster's novel, Howard's End, have a resonance that has stayed with me since I read the book, long ago. This sense of the importance of human connection is deep and universal. However, it is the mystery of human connectedness that is the issue. How do we come to feel connected to one another - to share on a feeling level?

Stern (1984a,1984b,1985c,1985d) has attempted to deal with this issue through the process he calls "affect attunement".

It is through this process that the mother begins to let her baby know that she is sharing his inner state; she does this by matching not behavior, but intensity, timing or shape, often across modalities. The results of this process will determine what parts of the inner world are "considered sharable, and may become the subject matter of intimacy."(Stern, 1985d, p.266). Stern points to the future: "The phenomenon of affect attunement sits at the interface between parental fantasy and observable interactional conduct. In being so positioned, it holds promise for investigating these powerful developmental influences that parents bring to the interaction with their infants." (Stern,1985d, p.266.)

In this study, one result of the process of attunement is examined. This result, interaffectivity, is defined here as the experience of emotional intimacy, the sense of connectedness or "being with" (Stern, 1983), and the ability to share on a feeling level. Although the interactions between mother and infant demonstrate an affective charge early on (Stern, 1977), the process of affect attunement brings the infant into the world of awareness of sharable feelings. Interaffectivity is seen as one result of the attunement process, as one aspect of the mother-child relationship, but not as representing the entire relationship. Because the process of attunement will differ for each dyad, it is assumed that the quality of interaffectivity will vary. To assess this variation, interaffectivity has been operationalized through the coding of specific characteristics of observed behaviors displayed by mother and infant during interaction.

Stern, in his discussion of intersubjective relatedness, has opened the way for exploration of the development of human connectedness. This study will attempt to take one step on that road, and examine some aspects of interaffectivity. These aspects will include those Stern (1985d) has cited as powerful developmental influences, parental fantasy and observable interactional conduct, as well as others. The following questions are proposed as the basis for this exploratory study:

1. In a normal population of mother-infant dyads, what is the range of variation of observed interaffectivity?

2. What are some of the factors involved in the development of interaffectivity; specifically, what are the roles and relationships of perinatal precursors such as (a) maternal prenatal personality and (b) infant neonatal characteristics, as well as of (c) the familial context?

3. How does the quality of interaffectivity relate to and reflect the mother's own fantasies and expectations for her child, and for herself as a parent?

REVIEW OF THE LITERATURE

Mother-infant interaction has been the basis of a great deal of study in the past twenty-five years. It has formed the basic structure underlying the theoretical work in attachment (Bowlby, 1969), the study of individual differences in that attachment (Ainsworth, Blehar, Waters & Wall, 1978), reciprocal social development (Stern, 1977, Brazelton, Koslowski & Main, 1974), and cognitive development (Vygotsky, 1978). The interaction forms a process which may be seen as an enabling framework, where the mother functions as an "auxiliary ego" (Freud, A., 1970), provides the "holding environment" (Winnicott, 1965), supplies "scaffolding" (Bruner, 1974), and enhances learning in the "zone of proximal development" (Vygotsky, 1978). It is also seen as taking place within the greater environment, and both influencing it and being influenced by it in a transactional way (Sameroff and Chandler, 1975). Recently, Stern (1984a, 1984b, 1985a, 1985c, 1985d) has looked more deeply into the process of social development as it relates to interpersonal relatedness, and the development of the sense of self.

In order to trace the thread of the development of the construct of interaffectivity and the basis for its study, this review will: (1) briefly outline the history of theory

and research in mother-child interaction as described above, (2) discuss Stern's interpersonal view which attempts to combine developmental and clinical perspectives, (3) describe the contribution to the interaction of each of the partners, and (4) examine one of the results for the partnership - the development of interaffectivity within the relationship.

Brief Review of Theory and Research in Mother-Infant Interaction

Three lines of research have over the years looked at observable interaction: attachment research and theory, microanalytic studies, and clinical applications.

Attachment

Current attachment theory was articulated by Bowlby (1969). He formulated the attachment construct based on ethological theory, and although his theory departed from psycholanalytic secondary drive theory, psychoanalyses remained a strong influence (Bretherton, 1984). Mother-child interaction , in terms of sensitivity and responsiveness to the baby's signals, and the quantity and nature of initiations by the caregiver were seen as leading to the most secure attachments. He concluded that children become attached to those who initiate interaction, not merely provide caretaking. The work of Ainsworth and colleagues (Ainsworth et al, 1978) provided support for this

position, through longitudinal study and assessment of attachment quality.

There have many studies relating attachment security both to antecedents and to future development (for review, see Bretherton, 1984). According to Main, Kaplan and Cassidy (1984), the current approach to the study of attachment security, has essentially been a behavioral, empirical approach, defining differences in attachment security in terms of descriptions of organization of non-verbal behavior. They have presented a more representational view, where the individual differences in attachment security represent internal states of mind regarding the relationship, not merely differences in behavior. In addition, Main and Goldwyn (1984, 1985; Main, 1985) have described a new category of attachment (which they call disorganized) and have related it to the unresolved mourning of the mother, who as child suffered the loss of her own mother through death. These studies, as well as several others looking at intergenerational effects on attachment (for review, see Ricks, 1984), is suggestive; there appears to be a growing recognition of the importance of the contribution of the mother's internal life as well as of her behavior to the development of attachment. (This is an issue important to the more integrative spirit in infancy research suggested by Stern (1985c,1985d) and Cramer (1986), and discussed later in this review in relation to

interactivity.)

Microanalytic Studies

As the advent of more advanced technology made microanalytic techniques of mother-infant observation available, the moment-by-moment characteristics of mother-infant interaction became accessible. For example, Stern (1971) observed the importance of the visual behavior of the infant in performing regulation of social contact. He used the filmed interaction to observe frame by frame the interaction of a mother with her 3 1/2 month old twin sons, and the patterns of interaction with each infant. The results confirmed his original observation that the interaction was very different with each child, and filled in the differentiating details. His continued studies of the reciprocal interactions (1971, 1974, 1977) elucidated the intricate "dance" of the mother and infant in the service of social development. Brazelton (1974) describes the learning of each other's rules by mother and infant as part of reciprocity, and delineates the intricate adjustments and readjustments needed for a synchronous result.

Clinical Applications

Study of mother-child interaction including the direct observation of variables delineating affect was a goal of the Greenspan and Lieberman (1980) Quantitative Clinical Assessment, during which interactions which looked at affect

as well as behavior were scored at 15 second intervals. The Rating Scale of Mother-Child Interaction (Clark, Musick, Stott, & Klehr, 1980), designed to analyze the quality of mother-child interaction, focus clinical observations and assess behavior and affect in a systematic manner, was developed originally to distinguish the affect and behavior of disturbed mothers and their children from that of normal mothers and their children. This scale (and its revised version, the Parent-Child Early Relational Assessment, Clark et al, 1985) differed from earlier video-taped analyses by using global ratings rather than time sampling in order to move past discrete behaviors to a focus on the quality of the interaction, and the interaction as a reciprocal system (Clark, 1983).

Transactional Model

Adding another domain to the interaction, Sameroff and Chandler (1975) developed the transactional model. In this model, the interaction of the mother and child is set against other aspects of the environment, such as the socio-economic status of the family, the age of the mother, the perinatal risk factors associated with the infant's birth, etc. Development may thus be influenced over time by the dynamic complex of individual, interpersonal and environmental resources.

A New Developing View - The Interpersonal

There has been recent interest in bringing together the picture of infancy as currently described in the Developmental Psychology literature - the results of empirical study - with the view of the infant as developed retrospectively through Psychoanalysis (Lichtenberg, 1981,1983; Call, Galenson & Tyson, 1983, 1984; Sander, 1980; Cramer, 1986). Stern (1985c) speaks of the current inadequacies and the importance for clinical practice of an understanding of early development, particularly the area of interpersonal relatedness; he also addresses the importance for and current lack in infant research of the subjective, feeling quality of observations and emphasizes the opportunities that acquaintance with the clinical or subjective infant will bring to the conceptualization of new directions for research. Therefore, he seeks to effect a partial joining of the clinical (reconstructed) infant of psychoanalysis, and the observed (examined) infant of developmental research; his goals are both to stimulate a dialogue between the two views, and primarily, to illuminate the development of the infant's sense of self. It is in the course of this effort that he has developed the notion of affect attunement, and the interpersonal level of subjective relatedness, or intersubjective relatedness

(1985c).¹

Stern (1985c) states that the period of infancy from the ages of 9 to 18 months is not only a period of individuation and separation as asserted by Mahler (1975) and others, but equally a period of "creating intersubjective union with another. This process involves learning that one's subjective life - the contents of one's mind and the qualities of one's feelings - can be shared with another."(p.10)

Stern (1985c) reviews the evidence for the beginnings of intersubjective relatedness, which he sees as appearing at seven to nine months. He asserts that three mental states, which indicate the beginnings of interpersonal communication and which do not require language, have been shown to be present by nine months; these three are sharing joint attention, sharing intentions and sharing affective states. He refers to the work of Bruner (1977) and others as evidence of the sharing of joint attention by means of pointing, for example. Among the indicators of

¹ As an aside, it is fascinating to learn that, in 1938, Spock and Huschka, on a different level, encouraged pediatricians to participate in the "Psychological Aspects of Pediatric Practice". Anticipating the reluctance of the pediatrician to feel qualified to handle psychological problems, they suggest that if infantile data were available, it would often be apparent that later problems had begun "even in the first year of life", and that the pediatrician, "not the psychiatrist, has the greater opportunity to make contributions to mental health." (p.757)

interintentionality at this age is the clear intention to communicate (Harding and Golinkoff, 1979; Harding, 1982). He refers to the studies of social referencing (for example, Emde and Sorce, 1983) which he asserts indicate the capacity for the sharing of affect. He concludes that these examples, among others, meet Trevarthan and Hubley's (1978) definition of intersubjectivity which includes the deliberate seeking of sharing of experiences. He cites these examples (see review, Stern 1985c) as evidence for the development of the domain of intersubjective relatedness at from nine to twelve months. Stern asserts that it is at this time, when the infant realizes that he has a mental state, that he comes to sense that his mental state and that of others can communicate. The result is the development of intersubjective relatedness.

Stern looks at interaffectivity as the first "most pervasive, and most immediately important form of sharing subjective experiences." (Stern, 1985c, p.132) His observations support the assumptions of others, including psychoanalysts, "that early in life affects are both the primary medium and the primary subject of communication." (p.133) Stern states that it is for this reason that when the infant becomes aware of the possibility of intersubjective relatedness, he is more of an expert in the domain of affect exchange than other states, and he refers to Trevarthan and Hubley's (1978) comment that the sharing

of affective moods and states appears before the sharing of mental states that reference things outside the dyad.

Stern synthesizes differing developmental perspectives to explain the emergence of intersubjective relatedness. He brings together three approaches: (1) the assumption (i.e. Trevarthan 1977, 1978) that the special form of awareness that is seen at this time is a capacity that unfolds maturationally, (2) the constructionist approach (i.e. Piaget, 1954; Bruner, 1974, 1977) that this is an acquired social skill that provides for the discovery of rules and procedures; he then asserts that the maturational capacity and the constructed tools need the third perspective, (3) the approach of interpersonal meanings (i.e. Newson, 1977; Vygotsky, 1962) and fantasies (i.e. Fraiberg et al, 1975, Stern, 1971) provided by the mother's bringing the infant's behavior into her framework of meanings, and the eventual mutual creation of meanings. It is the integration of these three factors, maturation, construction and the interpersonal framework of meanings, which provides for the emergence of intersubjective relatedness at this time.

The sharing of affective states marks for Stern the period of the beginning of the sense of subjective self, which features intersubjective relatedness. This period, when the infant is between 9 and 15 months old, marks the development of interaffectivity, which Stern defines as "mainly what is meant when clinicians speak of parental

'mirroring' and 'empathic responsiveness'."(1985c, p.138.) The process - called affect attunement - through which the infant learns that intersubjective sharing is possible requires 3 things: (1) that the parent is able to read the infant's feeling state through his behavior, (2) that the parent do something that is not imitation but which corresponds to the infant's behavior, and (3) that the infant be able to read this response as reflecting his own feeling experience.

Stern (1984a, 1984b, 1985a, 1985c, 1985d) then describes the process of affect attunement as taking place when the mother matches her baby's behavior and affect, not by imitation, but by matching in intensity, timing or shape, often across modalities. An example is seen when a mother might raise her voice to a higher pitch in response to her infant's raised arm. There may be a difference in overt behavior, but there is a similarity in intensity, timing or shape. Stern (1985a) describes this as the mother making an "end run": going around the content to the inner experience, saying, in effect, to the infant: "I know what it felt like to have your experience." In this way the infant comes to understand the sharing of an experience with another.

Thus, attunement behaviors express the quality of feeling of a shared inner state. They are often embedded in interactive routines, subtle and difficult to identify; however, "it is the embedded attunements that give much of

the impression of the quality of the relationship." (p.141)
It is because of the reference to the inner state that attunement differs from imitation; the focus of attention is to what is behind the behavior, to the quality of the shared feeling.

It is also because of this subtlety within the interaction that it is difficult to evaluate attunement, and the resulting interaffectivity, connectedness, feeling of "being with."

Cramer (1986) makes many of the same points as Stern in terms of the need for a more subjective element in the evaluation of parent-infant interaction. He suggests that in addition to the objective behavioral interaction of mother and child, the parent's expectations, conflicts, etc., "the unconscious psychological forces that have prompted parents to wish to have a child" (p.37) must be taken into account in order to understand the development of the relationship.

Interaffectivity: The Contribution of Each Partner

It becomes apparent that both mother and child contribute to the development of interaffectivity. Stern (1985d) stresses that attunement is a "powerful tool in social development." It is through the process that the child develops the sense of which part of the spectrum of the internal feeling world is sharable. Cramer (1986)

addresses the need for taking into account the parent's psychological forces that will orient the style of the interaction. In a sense, like other developmental processes structured through the interaction, the process and result will be a "dialectic process...to some extent regulated and facilitated by the parent, but accomplished in the infant." (Stechler, 1983, p. 48.)

That each partner makes a contribution is clear. Stern's (1971,1974,1977) investigations of the infant's gaze behavior, which allows him to control the interaction, show the infant to be a fully participating interactive partner. Cramer (1986) makes clear the importance of the mother's personality and style. It is reasonable to conclude with Osofsky (1976) that consistent patterns may develop from the first few days of an infant's life. An examination of the development of interaffectivity requires a consideration of each partner's contribution from the time of the infant's birth, or earlier.

Contribution of the Mother

The mother's contribution to the development of interaffectivity may be thought of in terms of her own personality. In a discussion of the impact of prebirth parent personality, Heinicke (1984) asserts that prebirth parental personality makes an important contribution to postnatal parent-infant interactions. He supports this contention with a review of available literature, and

suggests that the importance of this finding be recognized when designing future research. Heinicke reports findings which suggest that the parent-to-be who is flexible, who can relate with empathy to others, who can express emotions and affection is "more likely to respond with affection, empathy and efficiency to the changing and at times heightened needs of the infant" (p.1048). In a series of studies, Heinicke and colleagues (Heinicke, Diskin, Ransey-Klee, & Given, 1983; Heinicke, 1984; Diskin & Heinicke, 1986; Heinicke, Diskin, Ransey-Klee & Oates, 1986) have found that prenatal maternal characteristics, particularly those associated with the ability to provide warmth and responsiveness, are among the influences in the development of positive parent-child transactions.

Belsky (1984) has posited maternal psychological resources as the most important influence (the others being child characteristics and contextual support and stress) on parental functioning. Belsky and Isabella (1985) find that maternal personality measured before the infant's birth is a major influence on attachment security.

Emde, in discussing emotional availability (1980) alludes to the parent bringing to her parenting role the experiences of having been parented, the "intergenerational, interactive history" (p.94) through which she may through experiences of identification etc., also give to herself. He cites some causes of emotional unavailability in mothers:

grief and depression, negative parental attitudes (perhaps related to their own experiences of being parented, or related to infant effects). He discusses the complexity of influences, and the reciprocal process at work in emotional availability. Field and colleagues (Field, Vega-Lahr, Scafidi & Goldstein, 1986) in a study comparing emotional availability with separation, show results that suggest it is more difficult for an infant to cope with a physically present but emotionally unavailable mother than with a physically absent one.

Winnicott (1965, 1971,) speaking of development, describes the necessity for a "good enough mother," one who is able to meet her infant's needs, and to adapt to the lessening of those needs over time. She is likely to be able to meet the infant's needs with "unresented preoccupation.....[depending] on the fact of devotion, not on cleverness or intellectual enlightenment." (1971, p.10)

The Contribution of the Infant

The infant's contribution to the development of interaffectivity may be thought of in terms of his behavioral repertoire at birth. Infant characteristics at birth will immediately influence the reciprocal mother-infant interaction. Osofsky and Danzger (1976) speak of the relationship between the infant's neonatal style and the early mother-child relationship, suggesting a significant infant role in determining the mother-infant relationship.

Horowitz and Linn (1984) speak of how the behavioral organization of the newborn infant may be a powerful stimulus in the interactive system, "perhaps modifying the functional effectiveness of environmental variables." (p.101.) Aleksandrowicz and Aleksandrowicz, in a study of precursors of ego in neonates, stress how inborn differences in infants' abilities for responsiveness, cuddliness, self-quieting, smiling and consolability may influence later development and have great importance in the mother-child relationship. They call the innate individual characteristics "endowment profiles," and expect them to interact with maternal characteristics in influencing later personality characteristics of the child. Brazelton (1984) speaks of the powerful influence of the infant's individuality, and its role in shaping the parent-child relationship. He stresses the importance of neonatal observation in understanding the relative contribution of each partner to the relationship, contrasting it with data gathered when the child is older and patterns already become established.

A number of studies have shown specific relationships between neonatal assessment and later mother-child interaction. These include relationships between Neonatal Behavioral Assessment Scale (Brazelton, 1973) performance and temperament (Sostek and Anders, 1977), between inconsistent infant performance and maternal responsiveness

(Linn and Horowitz, 1983), and between NBAS scores and attachment (Vaughn, Taraldson, Crichton & Egland, 1980). In their review of these and other studies, Horowitz and Linn (1984) stress the need for research designs which include environmental variables, because of the strong interactive effects.

Conclusions and Research Questions

Variation in and Antecedents of Inter-affectivity

The purpose of this study is to examine the construct of inter-affectivity, specifically, its variation, its relationship to what each partner brings to the interaction, and the relationship of the mother's fantasies and expectations. Inter-affectivity is defined as the experience of intimacy, a sense of connectedness or "being with" (Stern, 1983, 1985d), and sharing on a feeling level, as experienced by the mother and infant. The experience of inter-affectivity is a part of what Stern (1985c) calls intersubjective relatedness, which "goes on outside of awareness and without being rendered verbally.....[it] can only be alluded to; it cannot really be described..." (p.27). Although inter-affectivity may not be directly accessible, this sharing of feelings may be inferred from the quality of behavior and affect displayed in the mother-child interaction, and is assumed to be one result of affect attunement (Stern, 1985c, 1985d). Because the process of

attunement takes place between the ages of 9-12 months (Stern 1984b, 1985a, 1985c), the experience of interaffectivity may be assumed to become consolidated at 12 months. Although it forms part of the mother-child relationship, it represents only one aspect of the relationship. It involves the emotional availability of the mother (Emde, 1980), and her having the average nurturing qualities of the "good enough mother" (Winnicott, 1971), but does not represent the entire mother-child relationship.

Interaffectivity is not only influenced by maternal and child characteristics, but also needs to be assessed by means of capturing joint functioning. For this study, the inference of the level of interaffectivity will be made through the adaptation of an assessment technique which was designed to attempt to capture the mother's and child's experience of the other (Clark et al, 1980, 1985), and which includes a measurement of emotional availability (of the mother, of the child and within the dyad.) The mother's personality characteristics related to her nurturing abilities, measured before the birth of her child (Heinicke, 1984; Belsky, 1984), and the infant characteristics measured at birth are assumed to play a role in the development of interaffectivity, an interactive developmental outcome, (Brazelton, 1984; Osofsky, 1984). The environmental, familial characteristics are also assumed to have a role (Sameroff, 1975; Belsky, 1984). The role of

the mother's own fantasies and expectations (Stern, 1985c,1985d; Cramer, 1986), elicited through interview, will be explored.

In summary, based on the above assumptions, this study will attempt to examine some aspects of interaffectivity. These aspects will include those Stern (1985d) has cited as powerful developmental influences, i.e., parental fantasy and observable interaction, as well as aspects of prenatal and perinatal antecedence. For purposes of this study, interaffectivity is defined as a sense of emotional intimacy, connectedness and "being-with", experienced between mother and infant, and the experience of sharing on a feeling level. It is assumed to reflect a quality of the mother-child interaction, not the entire relationship. The observational aspects will be operationalized through the coding of specific characteristics of observed behaviors displayed by the mother and child during interaction. It will be looked at in infants who are at least 12 months of age, the age period which Stern (1985c) says represents the emergence of intersubjective relatedness, of which interaffectivity is a part.

The following questions are proposed as the basis for this exploratory study:

1. In a normal population of mother-infant dyads, what is

the range of variation in observed interaffectivity?

2. What are the factors involved in the development of interaffectivity: specifically, what are the roles and relationships of perinatal precursors such as (a) maternal prenatal personality and (b) infant neonatal characteristics, as well as of (c) the familial context?

3. How does the quality of interaffectivity relate to and reflect the mother's own fantasies and expectations for her child, and for herself as a parent?

METHOD

overview

The questions pursued in this study required a methodological approach which combines empirical and clinical components. Cramer (1986) discusses the need for studying parent-infant relationships in a way which combines the use of both observational and clinical methodological practices. He suggests bringing together the results of a) focusing on the viewing of observed behavior and b) focusing on the expression of subjective experience. Although these two methods are usually discrete and usually used for different purposes, he suggests that using them together provides a broader base of understanding; he calls this method "complementarity." He cites Stern's (1971) use of complementarity in first describing the "how" of an apparently aberrant relationship between a mother and one of her twin infants, and then uncovering the "why" of this behavior through an interview with the mother. Stern (1985c) speaks directly to the issue of bringing together the "observed infant" and the "subjective infant," and illustrates it further (1986) by describing the attunement behavior of a mother with her infant; the behavior seemed to him to be deliberately non-responsive and the interview material revealed the mother's

own agenda.

Interaffectivity, defined as the experience of intimacy, a sense of connectedness or "being with," reflects the sharing of feelings, and can be inferred from the quality of behavior and affect displayed in the mother-child interaction. It may be operationally defined through particular examples of joint functioning, which are observed and scored. The resulting range of scores, representing a range of interaffectivity, may then be related to perinatal precursors and contextual aspects. In order to enrich the data derived by observational and statistical means, and therefore bring together the objective and clinical goals of this study, a three part design was implemented.

1. To describe the qualitative interactive process and variation of interaffectivity, a relational assessment was undertaken. Each mother-infant pair was videotaped, and the interaction rated using an adaptation of the Rating Scales of Mother-Child Interaction (Clark et al, 1980) and the Parent-Child Early Relational Assessment (Clark et al, 1985). Although this assessment technique attempts to go beyond time sampling observations and to capture in a global manner the mother's and child's experience of the interaction, it is essentially an observational method.

2. To explore the mechanisms involved in the development of interaffectivity, its relationship to perinatal precursors has been examined statistically.

Pearson Product Moment Correlation and multiple regression have been used to explore the relationship of interaffectivity with the nurturing qualities of the mother's personality, (as represented by the qualities revealed through the Femininity factor of the CPI, Gough, 1975 administered before the birth of her child), and the infant's characteristics at birth (as assessed by the NBAS, Brazelton, 1973). In addition, the relationship between interaffectivity and maternal age, SES, parity, child's age and sex were also examined.

3. To examine how the quality of interaffectivity reflects the mother's own fantasies and expectations and the meaning the child holds for her, case studies, drawn on interview findings and other material, have been developed. The case studies, drawn from either end of the range of variation, used a clinical approach as a means for examining the "why" of observed variation in interaffectivity.

Sample

Criteria

The research sample consisted of 40 mother-infant pairs,¹ recruited from a larger group participating in the Michael Reese Hospital and Medical Center Mother-Infant

¹ These same 40 subjects are a part of a subset of the larger sample, being concurrently studied, using some of the same data, as part of the Norming Project of the Parent Child Early Relational Assessment (Clark et al, 1985).

Project (Barglow, 1985). As part of their participation in the original ongoing study, they had been assessed prenatally and perinatally to meet criteria of psychological and physiological normality. The particular subset of 40 subjects used in this study was chosen on the basis of age, availability of data, and location. The criteria were:

Age: The oldest children to be included would be no older than 36 months of age at the time of participation. The study would begin with the youngest children; (the youngest being, at that time, 12 months of age).

Perinatal Data: Only those dyads in which both (1) the mother had received the CPI and (2) the child had been assessed on the NBAS were to be included.

Location: Only families residing within a 50 mile radius of Chicago, and whose living area offered no problems of personal security to the investigator, would be included.

The subjects were contacted between June and October, 1985. Of those reached, five had moved, five were not currently available, and three asked to be dropped from the study. Of those meeting all criteria, the first forty visited became the research sample for this study.

Demographic characteristics

Based on the data supplied (Barglow, 1985), SES was determined by the Hollingshead Four Factor Index of Social Status (Hollingshead, 1975); scores were computed using the occupation and educational levels of both husband and wife,

according to the Hollingshead formula. The possible range of scores when using this formula is from a low of 8 to a high of 66.

Demographic data for the research sample is shown on Table 1.

To summarize, the sample is essentially middle to upper middle class, with the mean of 56.85 falling just within the highest category (55-66) on the Hollingshead Four Factor Index (1975); the mothers, with a mean age of 30.1, are "older" mothers [NOTE: only 18% of live births in 1984 were in the 30-34 year age bracket; the median age for giving birth was early in the 25-29 year bracket (National Center for Health Statistics, 1986)]; the babies ranging in age from 12 to 32 months, with a mean of 18.3 months, are mainly (28) first children (parity mean = 1.35), and the children are evenly divided between boys and girls. Three mothers are non-white, one mother is divorced and one is widowed.

TABLE 1
DEMOGRAPHIC DATA

	SES*	MATERNAL AGE (at birth)	PARITY	CHILD AGE (in months)
MINIMUM	37.00	19.00	1.00	12.00
MAXIMUM	66.00	37.00	3.00	32.00
MEAN	56.85	30.10	1.35	18.30
SD	8.25	3.69	0.05	5.73
NUMBER OF FEMALES		20		
NUMBER OF MALES		20		

* Hollingshead, 1975

Procedures

Part 1: Assessment of Variation on Inter-affectivity:

Introduction

Inter-affectivity may be described as one result of affect attunement, the process by which the infant learns that affect can be shared and communicated (Stern, 1984a, 1984b, 1985a, 1985c, 1985d). Stern describes attunement as taking place as mothers match their babies' behavior and affect, not by imitation, but by matching in intensity, timing or shape, often across modalities (1985c). Stern (1985a) describes this as the mother making an "end run": going around the content to the inner experience, saying, in effect, to the infant: "I know what it felt like to have your experience." In this way the infant comes to understand having his experience understood, and the fact that it was understood reflected back to him (Stern, 1985c). Inter-affectivity is conceived of as the sense of connectedness or "being with" resulting from attunement.

Choice of Instrument

The source

Because inter-affectivity reflects an interactive process, it may be operationally defined through an instrument which measures interaction. A source for such an assessment was the Rating Scale of Mother Child Interaction

(Clark et al, 1980), which was developed to assess the quality of joint functioning. It is an affective and behavioral assessment which attempts to capture the mother's and child's experience of the interaction. Because the authors wished to focus on the quality of the interactions rather than on quantities of behavior, they chose to use global ratings rather than time sampling, in order to move past discrete behaviors to a "more phenomenological assessment of the mother and child as a reciprocal system." (Yarrow, 1979; Clark, 1983, p.59.) It requires videotaping of the mother and child in interaction in three activities: eating, structured task and free play.

The Scale (Clark et al. 1980. 1985) (see Appendix B) consists of a total of 52 maternal, child and dyadic variables, includes descriptions of behavior, expressed affect and interactions, and is rated on a 5 point likert scale, with each point defined.

Among the items on the Scale are included many items that suggest Stern's (1983) descriptions of behaviors that might reflect state sharing at different ages, and that could be reflective of interaffectivity. One example, Mirroring, clearly describes a major aspect of interaffectivity:

This variable measures the behavioral indicators of the mother's emotional availability to the child. It can be seen in the mother's reflections of the child's affect and/or behavior through imitation, echoing (with infants), gazing, smiling, confirming behavior, approval, encouragement, and praise. (Clark et al, 1985,

Maternal Variable #13)

Another example, Connectedness, is descriptive of a quality which may reflect interaffectivity:

This variable assesses the quality of the parent's engagement; in tune with; genuine interest in child. Parent is aware of and involved with child even when not actively interacting with child. Attentiveness to child; subtly monitoring child; an awareness of child (e.g., mother can be preparing lunch, but simultaneously is aware of child's activities and needs.) This evaluates both frequency and quality, i.e., genuineness of involvement. Ingenuineness may be manifested by "going through the motions;" superficial interaction, or pretense of involvement. (Clark et al, 1984, Maternal Variable #25)

1 = No involvement; indifferent; distant; totally unaware; rarely even looks at child; unconnected.

2 = Very little involvement; makes only brief, fleeting periods of contact; this may also be manifested by "going through the motions" quality of interaction.

3 = Moderate, but sporadic or less intense involvement; some periods of connectedness.

4 = Considerable but not characteristic involvement / connectedness. Brief, fleeting periods of uninvolvedness.

5 = Very involved; engaged; connected; in tune with child.

Adaptation: Scale of mother-infant interaffectivity

Specific adaptations of the scale were made for this study; these adaptations represent not only changes in the number of variables used and the number of situations scored, but also the use of a summary score. Variables felt to access the observation of interaffectivity were selected a priori. In addition, since the maternal

variables were available in an early revised form, the 1985 version of maternal scales was the source of the maternal variables; however, revised child and dyadic variables were not yet available, and the 1980 version was used as the source for those portions.

The specific adaptations are:

1) From the original (Clark et al, 1980) and early revision (Clark et al, 1985), 20 variables were chosen, a priori. For the most part, the variables chosen do not directly assess the expressed affect in either partner, but instead focus on interactive or shared features. The goal was not to measure affect as expressed, but to capture some of what goes into the reciprocal process of sharing and connection during interaction -- a reflection of interaffectivity as an aspect of the "intersubjective relatedness" described by Stern (1985c, 1986d).

However, because it was felt that a measure of the emotional availability of each partner was crucial, variables assessing the withdrawn or depressed mood of the mother, of the child, and of the dyad were included.

Items chosen include eleven maternal variables: depressed, withdrawn, apathetic mood; mirroring; structures and mediates the environment; amount of visual contact; amount of verbalization; quality of verbalization; social initiative; reads child's cues and responds sensitively and appropriately; connectedness; flexibility/rigidity; and

intrusiveness. There are five child variables: apathetic, withdrawn, depressed disposition; social responsivity; social initiation; communicative competence; and attentional abilities. The four dyadic variables are: flat, empty, constricted; mutual enjoyment; joint attention, activity; and reciprocity. (See Appendix B for adapted scale: Sub-Scale of Mother-Infant Interactivity.)

2) The Interactivity Score for each dyad is equal to the sum of the scores on each of the twenty variables. The possible range of scores is from 20 to 100. The use of a summary score is a departure from previous uses of this scale, which has mainly been used to develop profiles.

3) Although the entire protocol was followed in filming the interactions, (i.e., all three segments: feeding, structured play, and free play), only the structured play segment was selected to be rated for this study. The structured play was chosen because it represented the most consistent segment across dyads, since all children of a given age were given the same tasks. The tasks for each age group involved a teaching situation somewhat appropriate to that age group, with specific, standard instructions given to each mother. (See appendix B for complete protocol.)

Data Collection

Data collection was accomplished by home visits to

each of the subject dyads. In all cases the researcher conducted the home visit and did the videotaping. (In 18 of the first 19 visits an assistant accompanied the researcher in order to assist with the equipment and help with the infant during the interview. The remaining 22 visits were accomplished by the researcher alone.)

The procedure for data collections consisted of the following steps:

- 1) Following an introductory letter from Dr. Barglow, (see Appendix A), each subject was contacted by telephone. The procedures were described and if the subject was willing to participate, an appointment was made for videotaping in the home. Subjects were told that they would be given a copy of this tape.

- 2) Prior to the home visit, each subject was mailed a packet of self report instruments, to be filled out before the visit and returned at the time of the taping. Questionnaires requesting information relating to personality, temperament, depression, and psychological functioning were disseminated, primarily for use in the norming project, which was proceeding concurrently and using the same subjects. Additional self-report instruments were filled out in the course of the visit, and a packet was left to be returned by mail, for the same purpose.

- 3) At the time of the home visit, which lasted an average of two hours, three copies of the informed consent

form (See Appendix A) were signed by the subject and the researcher; the subject was given one copy.

4) The mother and child were videotaped in interaction in three situations: feeding, structured task, and free play, always in that order. Each filmed segment lasted five minutes and was taken from the beginning of the activity. Because of the needs of the feeding segment, the visit was arranged around a meal time (in all but one case, breakfast or lunch). Each mother was asked to sit with her child, at a table, in a corner arrangement, so that each member of the dyad could look at the other, and so that both faces would be visible in the film. (In 5 cases, at the mothers' insistence, the play segments were filmed with the dyad on the floor). For each segment, the mother was given verbal instructions. (See appendix B)

5) Following the taping, the videotape was viewed by the mother and the researcher. (In one case the subject's television set was broken and viewing was impossible.)

6) Following the viewing, a structured interview 2 was conducted (See Appendix B). The interview offered an

² The interview was developed during the course of this study. Some questions were used at the suggestion of Roseanne Clark, and parts of it dealing with video feedback had been used previously by her with the Rating Scale of Mother-Child Interaction; some questions were contributed by Frances Stott and others were developed by the researcher as the study progressed. (A form of this interview is now being used as part of the latest revision of the Parent Child Early Relational Assessment.)

opportunity for feedback on the video experience as well as drawing on the mother's family issues, her expectations, and her perceptions of her relationship with her child. The last part of the interview consisted of the Life Events Interview (Pilkonis, Imber & Rubinsky, 1985) with additional probes around such issues as mother's work, separation issues, etc. The interview lasted approximately one hour and was audiotaped.

DATA ANALYSIS

As described earlier, the Rating Scale of Mother-Child Interaction (Clark et al, 1980) and early revision of the Mother-Child Early Relational Assessment (Clark et al, 1985) include descriptions of behavior and interactions, and each scale item is rated on a 5 point Likert scale, with each point defined. The Interactivity Sub-Scale, as already indicated, contains 20 variables chosen a priori from the original 52 variables. Although only the 20 selected items were used in the analysis, all scale items were rated for each child. This was done in order to ensure consistency in the rating of each item.

An interactivity score for each dyad was reached by averaging the scores of two raters on each of the twenty variables, and then summing these means. In cases of disagreements of more than one scale point, consensus was reached through discussion.

Rating of Tapes

Raters

Each taped interaction on the structured task was rated by two raters, chosen from among graduate students in child development and clinical psychology, who had an interest in parent-infant relationships. Four raters, forming three pairs, rated the tapes.

Training

Training sessions included the above 4 raters and the researcher. The group training was led by Roseanne Clark, during the summer and fall of 1985. The training group met for a total of 48 hours.

Training tapes included selections from pilot tapes, subject tapes, and tapes from a study of the young (12 - 48 months) children of psychiatrically ill and well mothers (Clark, 1983; Klehr, Cohler, & Musick, 1983; Stott, Musick, Clark & Cohler, 1983; Musick, Stott, Spencer, Goldman & Cohler, 1984). (It was for that study the original scale was developed and used.) Training consisted of viewing and rating tapes, discussing each rater's choices, reviewing the tape, and reaching consensus.

Inter-rater agreement and reliability: at end of training.

Inter-rater agreement was preliminarily assessed in Aug/Sept 1985 by independent viewing by each rater of three

tapes from the 1983 study, followed by independent viewing of three tapes of the subjects, (to be used as data). The training tapes and the tapes used for assessing agreement were selected to represent a range of behavior and to include a selection of age groups. Although, as stated above, all 52 variables were rated, only the variables used to assess interaffectivity were included in the analysis of inter-rater agreement.

Reliability was assessed using the Percent Agreement method, defined as the number of agreements over the sum of agreement plus disagreements. Lawlis and Lu (1972) suggest that not all disagreements are necessarily of equal seriousness, and suggest a flexible model for defining the seriousness of disagreement. Therefore, agreement was defined as agreement within one point, except between points 2 and 3, where a difference would count as a disagreement. The difference between points 2 and 3 could represent a distinct qualitative difference - the borderline between a normal or pathological quality of interaction (Clark, 1985).

Mitchell (1979) recommends that if a composite score is to be used for analysis, it is the composite and not the individual components that should be examined for agreement and reliability. She states that it is possible and common for observers to be in only moderate agreement for small units, but to show good agreement for a total score, in

which case an analysis of unit by unit agreement would underestimate the score. Therefore, reliability was determined on the composite score (as well as the individual items).

When agreement is assessed as defined above, agreement across individual variables ranged from .773 to 1. The mean agreement for the composite score is .898. See Table 2.

In addition, the Pearson Product Moment was determined for reliability between raters on the total score. The mean Pearson $r = .821$. In other studies (Klehr et al, 1983; Stott et al, 1983; Clark, 1983) using the full 1980 Rating Scales of Mother Child Interaction, reliability at the end of training, computed by Pearson Product Moment Correlation, was $r=.75$.

Procedures for rating of tapes

Each tape was rated independently by two raters. Several times during the rating period (December, 1985-May, 1986), raters met to assess drift and reach consensus on ratings on which they differed by more than one point. Retraining was done for variables on which there was consistent disagreement. At the conclusion of rating, tapes were reviewed and consensus was reached through discussion wherever disagreements of more than one point remained. The summed means of these final scores were those used for analysis.

Inter-rater reliability at conclusion of rating

At the conclusion of rating, inter-rater reliability was calculated by Pearson Product Moment Correlations on the total scores reached by each pair of raters (prior to consensus) on all the subject tapes they had rated. The weighted mean reliability was .701. (In previous studies (Klehr et al, 1983; Stott et al, 1983; Clark, 1983), using the full Scale of Mother Child Interaction (Clark et al, 1980), interrater agreement, based on 21 segments in all three contexts, was calculated using a Pearson Product-Moment Correlation; $r = .73$.)

TABLE 2
INTER-RATER AGREEMENT

VARIABLES	PERCENT AGREEMENT
<u>MATERNAL VARIABLES</u>	
1. DEPRESSED, WITHDRAWN MOOD	.866
2. MIRRORING	.866
3. STRUCTURES AND MEDIATES	.773
4. AMOUNT OF VISUAL CONTACT	.830
5. AMOUNT OF VERBALIZATION	.886
6. QUALITY OF VERBALIZATION	.830
7. SOCIAL INITIATION	.773
8. READS CUES & RESPONDS SENSITIVELY	1.000
9. CONNECTEDNESS	1.000
10. FLEXIBILITY/RIGIDITY	.94
11. INTRUSIVENESS	.94
<u>CHILD VARIABLES</u>	
12. APATHETIC, WITHDRAWN	.887
13. COMMUNICATIVE COMPETENCE	.94
14. ATTENTIONAL ABILITIES	1.000
15. SOCIAL RESPONSIVITY	.83
16. SOCIAL INITIATION	.77
<u>DYADIC VARIABLES</u>	
17. FLAT, EMPTY, CONSTRICTED	1.000
18. ENTHUSIASM, MUTUAL ENJOYMENT	.83
19. JOINT ATTENTION, ACTIVITY	1.000
20. RECIPROCITY	.94
MEAN PERCENT AGREEMENT	.898

Procedures

part 2: Exploration of the Development of Interactivity

Introduction

Given the interpersonal, interactive nature of the processes of development, it is reasonable to conclude with Osofsky (1976) that consistent patterns may develop from the first few days of an infant's life, and that, in order to study the outcomes of development, it is necessary to study the contribution of each partner to the interaction. The complexity of a developmental outcome (such as interactivity) requires a developmental model that relies on "joint functions...of behavioral repertoire and environment stimuli" (Horowitz and Linn 1984, p.101). Interactivity is an example of an outcome which not only is related to joint contributions, but is itself examined in interactional terms.

Given the stable, middle class nature of this research sample, it is reasonable to suggest, in line with the transactional model proposed by Sameroff and Chandler (1975), that the effects of the earliest influences will include the influence of the environment. Therefore, prenatal maternal data, neonatal infant data, and demographic data, (see Appendix B) gathered earlier in the course of the Michael Reese Study were used to explore the relationship of perinatal precursors to the development of

the range of interaffectivity ascertained for this group.

Specifically, the mother's personality before the birth of her child, as represented by the qualities revealed through the Femininity factor of the California Psychological Inventory (CPI) (Gough, 1975), and the infant's characteristics at birth, as assessed by the Neonatal Behavioral Assessment Scale (NBAS) (Brazelton, 1973), were entered into a multiple regression analysis along with demographic data, such as maternal age at the time of giving birth, child's age at time of the current assessment, SES, and parity. Pearson Product Moment Correlations were also performed.

Use of NBAS Data

The use of NBAS data in relation to an interactive outcome has been implicit since its original development (Sameroff, 1978; Brazelton, 1978; Als, 1978; Horowitz, Sullivan & Linn, 1978), as well as being recently re-stated in 1984 revision of the manual (Brazelton, 1984). This is in line with an interactive view of development. The assumption is that the value of assessing the characteristics of the infant in the early neonatal period of development lies in seeing the newborn in a social context; in this way, predictions of outcomes may be based on the characteristics of the dyad, not of the child alone. Outcomes which reflect or measure interaction, not merely

child characteristics, are the implied goal.

Its use in this context has been undertaken in a variety of studies (cf. lit review; Als, Tronick, Lester & Brazelton, 1979; Horowitz & Linn, 1984). Horowitz & Linn (1984) state that their review of the literature shows several reports which appear to provide some evidence for predictive validity, but that the NBAS itself often accounts for small amounts of outcome variance. They conclude that prediction in terms of assessment of both partners to the interaction is more promising, and ultimate predictive validity will depend on research that increases understanding of how the infant's behavioral repertoire relates to caregiver characteristics. An additional assumption that could be drawn from Horowitz and Linn's discussion is that assessments of outcome should also include interactional variables; this could be a factor in increasing the predictive validity of the NBAS. Therefore, the use of the NBAS as a measure of the contribution of the infant's behavioral repertoire in a study which not only includes caretaker variables, but which uses assessment of parent-child interaction as an outcome measure, is appropriate.

The NBAS data previously gathered in the Michael Reese study (Barglow, 1985) has been used to represent the infant's behavioral repertoire at birth, and is the measure of the contribution of that feature as it relates to the

development of interaffectivity in the mother-infant relationship. In this research sample, the NBAS (1973) was performed on each infant at about 7-9 days of life, (Joffee, Vaughn, Barglow and Benveniste, 1985.) For use in this study the NBAS data was summarized by means of the clusters developed by Lester and colleagues (Lester, Als & Brazelton 1982), and the cluster scores were used in the multiple regression analysis as independent variables.

Summarizing data for analysis

The use of the NBAS in Data Analysis has required the reduction of the large number of scores generated (26 behavioral items and 20 elicited reflexes) both for statistical analysis, and for conceptual reasons (Lester, 1984; Lester et al, 1982; Als, 1978). Although both factor analytic and a priori methods have strengths and weaknesses (Sameroff, 1978; Jacobson, Fein, Jacobson, and Schwartz, 1984; Gyurke, Reich and Holmes, 1985), and although an adaptation of the Als Clusters (Waters, Vaughn and Egeland, 1980) has been used previously with some of this data (Joffee, Vaughn, Barglow, and Benveniste 1985), the a priori cluster system designed by Lester et al (1982) is now recommended in the 2nd edition of the Neonatal Behavioral Assessment Scale (Brazelton, 1984; Lester, 1984) and was used in this study.

The Lester et al (1982) clusters, derived by examining previous factor analytical studies, using various

statistical procedures, and by rethinking the conceptual basis of the previous four dimension cluster system (Als et al, 1977), group the 26 behavioral items into 6 clusters, and the 20 reflex items into a 7th cluster score. (The clusters and criteria are shown in Appendix B.)

Lester (1984, p.88-89) describes the clusters as follows:

The seven clusters represent constructs of neonatal behavior. Habituation is the ability to respond to and then inhibit responding to a discrete stimulus while asleep. Orientation includes the quality of the alert states and the ability to attend to visual and auditory stimuli while alert. The motor cluster measured motor performance (activation as well as inhibition), and the quality of movement and tone. There are two state clusters. Range of state is a measure of the general arousal level or arousability of the infant. Regulation of state refers to how the infant responds when aroused, which may consist of endogenous mechanisms for lowering arousal or the ability to respond to environmental (examiner-induced) input. The autonomic cluster records signs of stress related to homeostatic adjustments of the nervous system. The Reflex cluster is a simple count of the number of abnormal elicited responses.

Items that are not linear in terms of optimality (see Appendix B) are transformed so that a higher score, (except for the reflex item) consistently indicates a higher level of performance. The cluster score represents the mean of the individual items, except for the reflex cluster, which is the sum of abnormal reflexes, and where a high score is representative of a lower level of performance.

The raw NBAS scores were summarized into the 7 cluster scores through use of an SAS program (Hoffman, 1986) which was transformed (Corliss, 1986) for use with Systat (Wilkinson, 1985). (See Table 3 for cluster statistics on

this sample.) Habituation scores were missing for seven subjects. In order to make proper use of the Systat multiple regression program, mean scores for this sample on the habituation cluster were used as habituation scores on those seven subjects where this data was missing.

Recently, criticisms of the Lester et al (1982) cluster system were documented by Jacobsen, Fein, Jacobsen and Schwartz, (1984). They suggest a revised cluster system that they find to be more internally consistent. It differs from the Lester clusters by not transforming items with mid-range optimal scores, and adding or dropping items to some clusters. They argue that information is lost when these scores are transformed. Gyurke, Reich, and Holmes (1985) compared these systems with previously derived Als et al (1978) cluster scores and found that all three systems are generally comparable in detection of group differences for their at-risk groups compared to normal groups. However, in the Range of State cluster, when directions of deviation in extreme scores is maintained, the group differences are not evident. Jacobsen et al suggest that collapsing extreme scores may well make sense when studying pre-term infants, since this may reflect a dimension of variability more characteristic of pre-terms. In order to check for a more detailed result, the direction of variability was examined on some of the raw NBAS scores, particularly Range of State.

TABLE 3
NBAS CLUSTER SCORES

	MINIMUM	MAXIMUM	MEAN	S D
HABITUATION	2.500	9.000	6.045	1.509
ORIENTATION	3.000	9.000	6.545	1.406
MOTOR	3.000	6.600	5.198	0.893
RANGE OF STATE	1.250	5.250	3.306	1.088
REGULATION OF STATE	3.000	8.250	5.717	1.193
AUTONOMIC STABILITY	4.667	8.333	7.233	1.013
REFLEXES	0.000	6.000	2.125	1.556

Use of California Psychological Inventory Data

The contribution of the mother's personality to an interactive outcome in development has been discussed (cf. Lit Review, Heinicke, Belsky). The California Psychological Inventory (Gough, 1957) was among the measures used in the Michael Reese Study (Joffe, et al, 1985) because each had been used in previous studies concerned with variables affecting interactions between mothers and infants and each had proven to be a valid and reliable measure of the traits and qualities assessed. The CPI is a well established and commonly used instrument in personality research (Furnham and Henderson, 1982), that describes nonclinical and nonpathological aspects of personality and that shows considerable stability over time (Schuerger, Tait, & Tavernelli, 1982). The theoretical basis of the CPI (Gough, 1975) lies in the assessment of the ongoing processes of everyday life, reflecting aspects of interpersonal behavior. It is a self-report instrument, with 480 items, giving scores on 18 subscales.

The CPI assessment reveals profiles on various dimensions. For purposes of this study, the femininity (FE) dimension was chosen to represent the nurturing qualities of the mother. This is one of 3 dimensions which varies

independently of the major clusters. These three are described as, psychologically, reflecting "broad and far-reaching attitudes toward life." (Gough, 1968, p. 24) High scores on this variable usually have connotations of "maturity, generosity, warmth, and nurturance...and is in accord with a theory of femininity in women as essentially a conserving, maintaining, and nurturing disposition." (Gough, 1968, p.19). Although this kind of description of femininity is decidedly out of date, and could be construed as sexist, the various descriptive terms which describe qualities of the individual with a high FE score are representative of qualities generally recognized as contributing to sensitivity and nurturance.

The CPI was administered to each mother in the research sample during the last trimester of pregnancy. (Joffee et al, 1985). The scores (Gough Standard Scores) for this research sample range from 36 to 74, the mean = 52.63, and the standard deviation = 7.62. For the CPI, the normed mean is 50, and the standard deviation is 10 (Gough, 1975). The mean for this sample (52.63) puts the mothers in this group essentially on the norm.

The Femininity standard scores were used in the Pearson Product Moment Correlation computations and were entered into the multiple regression as an independent variable representing the nurturing qualities of the mother's personality before the birth of her child.

Use of Demographic Data.

Demographic data relating to the mother's age at the time of the birth of her child, the child's age at the time of data gathering, the socio-economic standing of the family, the sex of the child, and the birth order of the child, were used in Pearson Product Moment Correlations and were entered into the multiple regression as independent variables. (see Table 1 for statistics on these variables).

Procedures

part 3: Illustration of Variation in Interaffectivity

Stern (19885c, 1985d) and Cramer (1986) make a case for the role the mother's fantasies and expectations play in her interactions with her child. For example, her own mothering and the meaning her child holds for her, (Emde, 1980) are subjective forces which may be expected to affect interaffectivity. Stern states that through the process of affect attunement the child learns what constitutes the sharable world (Stern, 1985c, 1985d). He has illustrated this with an example of a mother who tuned down her responses to her son, in a way that was clearly deliberate and unexpected; Stern's discussion with her revealed her own agenda - she hoped to develop in her son a less passive nature than she found in her husband (Stern, 1986). Cramer's (1986) proposal for the use of the method of "complementarity" - observation plus interview - suggests one way to access some of this information, and thus deepen our understanding not only of the "how" but of the 'why" of an interaction.

The researcher conducted a structured clinical interview with each mother in the subject group. The interview, developed and modified during the course of this study (See appendix B), explored issues of temperament, the meaning of the child for the mother, the relationship of the

mother with her own mother, as well as developmental milestones, and family issues. In addition, the Life Events Interview (Pilkonis et al, 1985), with additional probes relating to issues such as separation, mother's work history, and marital issues was conducted as part of the interview. The interviews were audiotaped and subsequently transcribed. The material gathered was used to construct two case studies of mothers chosen from among those who appear in the upper and lower extremes of interaffectivity scores (those falling more than one standard deviation from the mean). One from either extreme was chosen. The clinical studies are an attempt to examine the "why" of the observed variation in interaffectivity. It is particularly interesting to investigate this issue in a group which was screened to be normal, but these studies can serve only as illustrations.

RESULTS AND INTERPRETATION

INTRODUCTION

Results of (1) assessment of variation of interaffectivity and (2) its relationship to perinatal precursors, as well as (3) a somewhat deeper clinical look at the dyads, in the form of case studies, are such that results and interpretation must be viewed together:

1. The variation in interaffectivity is established, and an examination of the relationship of the scale to Stern's concepts is relevant. Further examination of inter-relationships within the scale suggest patterns which may be relevant to this sample.

2. The relationship of perinatal precursors and contextual aspects to variation in interaffectivity holds some surprises, but also suggestions of strength in the capacity of "good enough mothers" to meet the needs of their infants. It also confirms the importance of examining the contributions of a number of interactive variables - both in the sense of antecedents, but also in the sense of transactional continuity. In a way, there is the suggestion that interaffectivity reflects a capacity that resides in neither the mother nor her child, but is a reciprocal balancing mechanism residing in the dynamic "space between".

3. Examination of the data analysis lays the

empirical groundwork for this interpretation, and the case studies give a deeper view of what has happened in an individual case at either extreme of the interaffectivity range. Comparisons between these two examples suggest something of the role played by a mother's expectations, fantasies, and needs. The patterns of their interactions reveal the differing nature of interaffectivity for each dyad

Part One: Variation in Interaffectivity

Introduction

Results and interpretation of the assessment of observed interaffectivity will cover discussion of: (1) the range of scores, (2) the characteristics of the interaffectivity sub-scale, (3) the relationship of the scale to Stern's concept of attunement, and (4) the relationship of the variables representing emotional availability to the outcome.

1. Range of Scores

As described earlier, interaffectivity was assessed through the Interaffectivity Scale (adapted from the Scales of Mother-Child Interaction and the Parent-Child Early Relational Assessment, Clark et al, 1980, 1985). Video

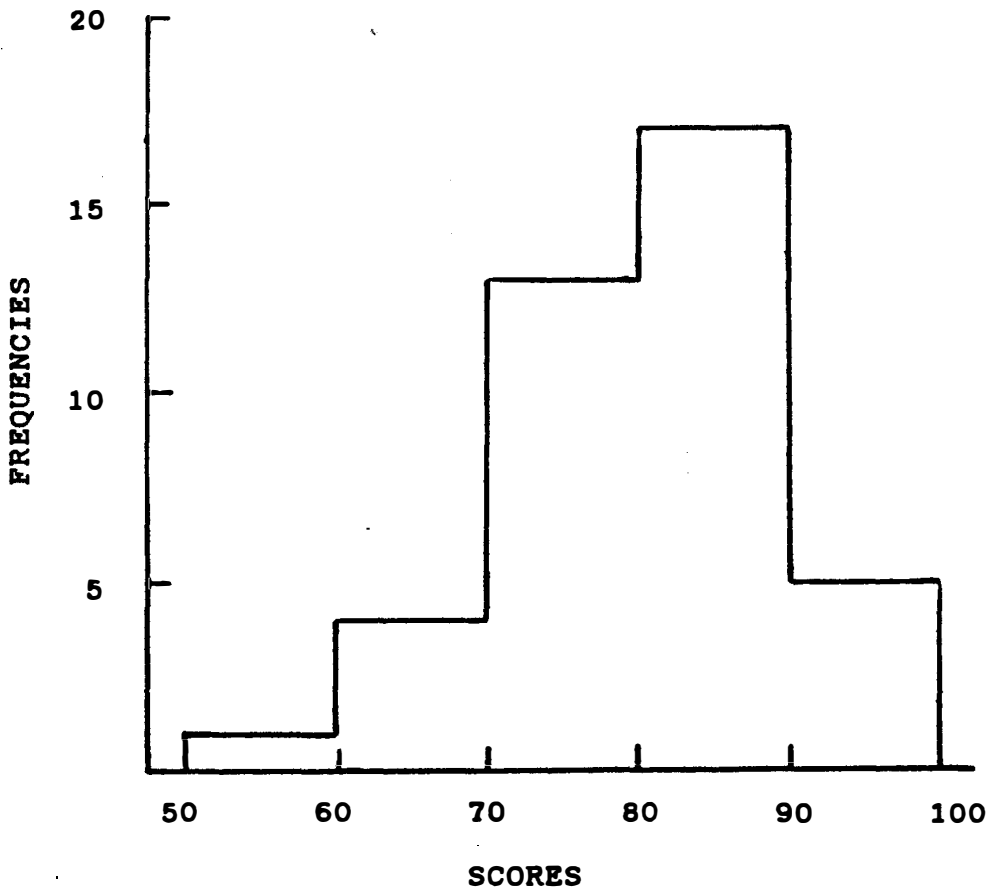
tapes of each of the 40 mother and infant pairs participating in a structured task were rated on 5 point scale along 20 variables, by two raters trained to reliability ($P A = .898$). The scores of the raters were averaged and summed, resulting in a single interaffectivity score for each dyad. The possible range of scores was from 20-100.

Table 4 shows the distribution of the resulting scores. As the histogram and the statistics show, the scores ranged from 59.5 to 94.5, with a mean of 80.53 and a standard deviation of 8.46. The shape and distribution of the scores appear to support the designation of this research sample as a normal group. The full possible range of the scale includes a range from pathological to optimal. Scale point 1 and 2 represent worrisome interactions, characterized as "of concern" (Clark, 1985). The raters' training had included examples of dyads exhibiting aspects of these disturbed interactions. Therefore, the range of results falling essentially in the upper 3/5s of the scale, bears out the designation and original screening of this group as "normal". The existence of a range of this nature within a normal group speaks for considerable variation within a normal group, and speaks for the discriminatory qualities of the assessment instrument itself.

TABLE 4DISTRIBUTION OF INTERAFFECTIVITY SCORES

POSSIBLE RANGE: 20-40
MINIMUM = 59.5 MAXIMUM = 94.5

MEAN = 80.53
SD = 8.46



2. Characteristics of the Interactivity Scale

The variables making up the Interactivity Sub-Scale (see appendix A) were chosen a priori from a relational assessment scale (Clark et al, 1980, 1985). Questions arise as to (1) the internal reliability of the sub-scale: does it hang together - do the parts seem to be measuring characteristics of the same function? and, (2) which variables contribute the most to the scale, and thus, which qualities contribute most to interactivity? Two kinds of data are available to deal with these questions. Coefficient Alpha (Cronbach, 1951; SPSS, 1983) was performed to determine internal reliability of the scale and both the data generated by this process, and The Pearson Product Moment Correlation Coefficient data suggest the most important components of interactivity.

Internal reliability.

The Coefficient Alpha was determined on the full 20 variable Interactivity Sub-Scale, (see Table 5) and also on its three subscales: maternal interactivity (consisting of the 11 maternal variables), child interactivity (consisting of the 5 child variables) and dyadic interactivity (consisting of the 4 dyadic variables). The Alpha of .9272 for the full scale shows a very high level of internal reliability. The subscale alphas: maternal = .8807, child = .8250, and dyadic = .8507

TABLE 5

COEFFICIENT ALPHA-INTERNAL RELIABILITY: INTERAFFECTIVITY

STATISTICS FOR SCALE	MEAN	VARIANCE	STD DEV	# OF VARIABLES		
	81.2025	67.3002	8.2037	20		
ITEM MEANS	MEAN	MINIMUM	MAXIMUM	RANGE	MAX/MIN	VARIANCE
	4.0601	3.0125	4.5625	1.5500	1.5145	.1573
ITEM VARIANCES	MEAN	MINIMUM	MAXIMUM	RANGE	MAX/MIN	VARIANCE
	.4010	.2301	.6158	.3857	2.6759	.0122
INTER-ITEM COVARIANCES	MEAN	MINIMUM	MAXIMUM	RANGE	MAX/MIN	VARIANCE
	.1560	-.0164	.3614	.3778	-22.0234	.0068
INTER-ITEM CORRELATIONS	MEAN	MINIMUM	MAXIMUM	RANGE	MAX/MIN	VARIANCE
	.3958	-.0361	.8017	.8377	-22.2173	.0351
ITEM-TOTAL STATISTICS						
	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM-TOTAL CORRELATION	SQUARED MULTIPLE CORRELATION	ALPHA IF ITEM DELETED	
1 DEPRESSED	76.6900	63.4527	.4272	.6716	.9267	
2 MIRRORING	77.3900	58.7850	.8156	.8739	.9191	
3 STRUCTURE	76.7025	62.7618	.5058	.8114	.9254	
4 VISUAL CON	76.9275	60.4472	.6475	.6854	.9226	
5 AMT VERBL	76.6400	62.2440	.5532	.6674	.9246	
6 QUAL VERBL	76.9775	62.3110	.6284	.7829	.9236	
7 SOC INITIA	78.1900	59.8373	.5823	.7596	.9244	
8 RESPONDS	77.0150	61.0459	.6607	.7511	.9226	
9 CONNECTS	76.8400	61.7968	.6593	.7615	.9229	
10 FLEX/RIG	77.3125	59.6370	.5815	.8615	.9245	
11 INTRUSIV	77.0900	63.1430	.3229	.6704	.9299	
12 APATHIC	76.9900	60.4640	.6703	.8279	.9222	
13 COMMUNCAT	77.1775	60.7126	.6307	.7349	.9230	
14 ATTN ABIL	76.8025	63.6561	.3577	.6525	.9281	
15 SOC RESPD	77.1275	60.0077	.6537	.8423	.9225	
16 SOC INITI	77.7025	60.7926	.5007	.7662	.9263	
17 FLAT,WTHD	77.2525	59.0564	.7596	.8668	.9202	
18 MUTUL JOY	77.7275	59.1610	.7591	.7999	.9202	
19 JNT ATTN	76.8650	60.9095	.6530	.8271	.9226	
20 RECIPROCY	77.4275	59.2036	.7546	.8608	.9203	

RELIABILITY COEFFICIENTS

INTERAFFECTIVITY: ALPHA=.9272 STANDARDIZED ITEM ALPHA=.9291
 MATERNAL INTERAF: ALPHA=.8807 STANDARDIZED ITEM ALPHA=.8817
 CHILD INTERAFF : ALPHA=.8250 STANDARDIZED ITEM ALPHA=.8227
 DYADIC INTERAFF : ALPHA=.8507 STANDARDIZED ITEM ALPHA=.8506

also reflect high internal reliabilities. Table 5 shows the Column "Alpha if Item Deleted" which illustrates the relative importance of each item to the total; if the item lowers alpha appreciably, it means that item contributes more heavily to the scale; if alpha is higher without a particular item, that item may be detracting from the scale's overall reliability. This column shows a range from .9191 to .9281, not very different in either direction from the alpha of .9272.

Relative contribution of individual variables.

According to table 5, column 5, (alpha if deleted), item 2, Mirroring, would cause the greatest lowering of the alpha if it were deleted. Its contribution to the meaning of the total score is emphasized by its Pearson correlation with the total score: .8156 (see Table 6). The items next in importance appear to be dyadic variables - those reflecting the affective level of the dyad and the quality of reciprocity; again the correlations with the total reflect this.

The deletion of two items would raise the alpha slightly -- the mother's degree of intrusiveness, and the child's attentional ability; the correlation of these items with the total is considerably lower than the others, (although still significant at the .05 level). These results, although they do not change the overall reliability of the scale, do suggest possible revisions in this sub-

TABLE 6 - INTERCORRELATION OF SCALE ITEMS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	DEPRSD	MIRROR	STRUCTURE	VISUL	AMT-VERB	QUAL-VER	SOC-INIT	RESPDS	CONCTS	FLEX/RIG	INTRUSIV	APATH	COMMUN	ATTN-ABIL	SOC-RESP
1 DEPRESSED	1.000														
2 MIRRORING	0.403	1.000													
3 STRUCTURE	0.138	0.503	1.000												
4 VISUAL CON	0.486	0.638	0.189	1.000											
5 AMT VERBL	0.423	0.325	0.266	0.317	1.000										
6 QUAL VERBL	0.090	0.676	0.252	0.420	0.411	1.000									
7 SOC INITIA	0.479	0.614	0.316	0.596	0.460	0.430	1.000								
8 RESPONDS	0.396	0.735	0.252	0.554	0.248	0.541	0.463	1.000							
9 CONNECTS	0.417	0.643	0.262	0.614	0.218	0.447	0.419	0.665	1.000						
10 FLEX/RIG	0.252	0.625	-0.031	0.516	0.252	0.586	0.548	0.639	0.604	1.000					
11 INTRUSIV	0.133	0.423	-0.034	0.367	-0.019	0.281	0.210	0.544	0.364	0.650	1.000				
12 APATHIC	0.505	0.438	0.312	0.464	0.586	0.202	0.347	0.408	0.484	0.302	0.119	1.000			
13 COMMUNCAT	-0.001	0.468	0.517	0.301	0.443	0.490	0.226	0.288	0.353	0.235	0.036	0.545	1.000		
14 ATTN ABIL	0.089	0.222	0.521	0.024	0.304	0.267	0.133	0.231	0.061	-0.036	0.059	0.239	0.376	1.000	
15 SOC RESPD	0.124	0.502	0.608	0.263	0.457	0.422	0.346	0.327	0.237	0.208	0.049	0.574	0.659	0.478	1.000
16 SOC INITI	0.145	0.300	0.286	0.369	0.371	0.194	0.077	0.221	0.333	0.190	0.107	0.573	0.576	0.131	0.663
17 FLAT,WTHD	0.550	0.571	0.343	0.573	0.590	0.436	0.517	0.376	0.491	0.518	0.201	0.724	0.475	0.235	0.449
18 MUTUL JOY	0.316	0.769	0.329	0.594	0.379	0.646	0.535	0.521	0.584	0.626	0.361	0.421	0.449	0.245	0.422
19 JNT ATTN	0.275	0.554	0.693	0.324	0.429	0.403	0.274	0.394	0.522	0.216	0.014	0.481	0.629	0.586	0.512
20 RECIPROCY	0.138	0.574	0.677	0.348	0.450	0.529	0.311	0.351	0.385	0.288	0.137	0.560	0.785	0.493	0.802
CHLD INTERAFF	0.221	0.502	0.576	0.377	0.561	0.406	0.289	0.380	0.386	0.239	0.097	0.765	0.822	0.552	0.886
DYAD INTERAFF	0.386	0.743	0.607	0.557	0.557	0.608	0.496	0.494	0.595	0.502	0.220	0.660	0.701	0.462	0.657
MOTH INTERAFF	0.553	0.880	0.389	0.769	0.502	0.678	0.757	0.810	0.749	0.785	0.558	0.543	0.430	0.230	0.458
INTERAFFECTVY	0.456	0.844	0.546	0.667	0.589	0.676	0.636	0.698	0.665	0.653	0.420	0.694	0.664	0.428	0.705

	16	17	18	19	20				
	SOC-INIT	FLAT,WTH	MUTL-JOY	JNT-ATTN	RECIP	CHLD-INT	DYAD-INT	MOTH-INT	INTERAFF
16 SOC INITI	1.000								
17 FLAT,WTHD	0.467	1.000							
18 MUTUL JOY	0.320	0.724	1.000						
19 JNT ATTN	0.313	0.481	0.481	1.000					
20 RECIPROCY	0.640	0.585	0.561	0.691	1.000				
CHLD INTERAFF	0.796	0.614	0.483	0.643	0.857	1.000			
DYAD INTERAFF	0.527	0.846	0.838	0.786	0.853	0.780	1.000		
MOTH INTERAFF	0.334	0.685	0.759	0.519	0.541	0.518	0.756	1.000	
INTERAFFECTVY	0.574	0.771	0.791	0.675	0.785	0.799	0.911	0.911	1.000

scale in future uses. Perhaps in the future, these variables could be dropped from the scale.

3. Relationship to Stern's Concept of Attunement

In addition, and more important, the relative dissonance of intrusiveness and structuring and mediating on the mother's part, and attentional abilities on the child's part, reflect Stern's (1985d) discussion of "interpersonal communion" as a vital feature of affect attunement. In his discussion of features making up affect attunement, interpersonal communion is in fact the largest category of attunement functions - the one that included "to share," "to participate in" and to "join in". He contrasts it with functions that include responding, restructuring the interaction, reinforcing, teaching, or tuning the baby up or down. These he calls communication functions, which in general include the effort to transmit, to exchange information, or attempts to alter beliefs or actions. Communion means "to participate together or to share in another's experience without altering their behavior." (p.265) The fact that items reflecting qualities such as mirroring and quality of reciprocity contribute most strongly to the total score and that those representing more cognitive features of the interaction may detract from the total, suggests that the Inter-affectivity Sub-Scale reflects a certain face validity with Stern's conceptualization.

There is also the suggestion that interaffectivity as measured here has a relationship to the communion aspects of attunement, and may develop through this process.

A second feature of the internal reliability of the sub-scale is its consonance with the basis of the a priori choice of variables for inclusion in the scale. Stern's (1985c) discussion of the attunement to inner states, and the importance of "vitality affects" makes it clear that observation of discrete affect displays would not serve the continuous unbroken process of sharing inner experiences. He states that most attunements occur with "vitality affects," which he defines as "those dynamic, kinetic qualities of feeling that distinguish animate from inanimate and that correspond to the momentary changes in feeling states involved in the organic processes of being alive." (Stern, 1985c, p.156) The choice to exclude direct expression of affect has made the scale most directly correspond to this feature of attunement. It may also make observed interaffectivity correspond most directly to vitality affects and the communion features of attunement.

4. Emotional Availability Variables

Three variables were chosen for the interaffectivity sub-scale that did not reflect interactive processes as such, but which dealt with the emotional availability of the partners, in terms of the depressed, withdrawn quality of

the mother, the apathy of the child, and the affective tone of the dyad as flat, empty or constricted. It was assumed that emotional availability would be of crucial importance to interaffectivity. Although it may still be assumed to be true, and the correlations of these items with the total interaffectivity score are all significant, an examination of Table 6 shows that of the three, the maternal variable (#1-Depressed) has the lowest correlation ($r=.456$, $p < .02$) with total interaffectivity. The child variable (#12-Apathetic; $r=.694$) and the dyadic variable (#17-Flat, Withdrawn; $r = .771$) each show a much stronger relationship. It is tempting to speculate about this; perhaps, as is stated in the instructions for rating the original scale (Clark et al, 1980, 1985), the dyadic interaction is indeed greater than the sum of its parts.

Part Two: Relationship of Interactivity to
Perinatal Precursors

Introduction

The interactivity scores were related to the child and dyadic variables, including contextual variables, through Pearson Product Moment Correlations, and through Multiple Regression analysis. Because some of the results were unexpected, additional analyses were undertaken. Specifically, because some NBAS cluster scores had a negative relationship with interactivity, quartiles were inspected to determine linearity. In addition, because these NBAS cluster scores involved data which had been transformed, inspection of the raw data was undertaken, and an analysis is included. The results are interpreted in relation to the characteristics of this research sample.

Procedures

The steps used in analyzing the maternal and child data in relation to the variation in interactivity were as follows:

1) Univariate relationships were identified by performing Pearson Product Moment Correlations among all the variables (Cohen and Cohen, 1983; Holmes, 1986).

2) Multiple Regression models relating interactivity as the dependent variable to the various independent

variables were determined by first doing stepwise regressions. Separate step models were run with maternal variables: mother's age, quality of nurturing (CPI FE), parity; and child variables: NBAS clusters, child's age, child's sex. After determining the basic subsets, other variables were added and tested in order to determine the group which made the greatest contribution to the variance. Regardless of the size or significance of its correlation with interaffectivity, or with other variables, each variable was tested in order to ascertain whether it made an independent significant contribution to the whole.

3) The use of interactive variables, as described by HO (1986) was attempted. The notion that some variables in interaction could have a contribution above that which each makes independently was tested by Ho in looking at mother-child interaction and developmental outcomes, with positive results. Therefore, several interactive variable combinations, such as maternal age x regulation of state, were attempted.

Summary of Statistical Results

Pearson Correlations (See table 7)

1) The mother's nurturing qualities (CPI FE) and mother's age are positively related to interaffectivity; (FE: $r=.268$, $p=.095$; mother's age: $r=.267$, $p=.095$)

2) Range of State and Regulation of State and parity are negatively related to interaffectivity; (range: $r = -.216$, $p = .180$ regulation: $r = -.236$, $p = .143$; parity: $r = -.094$, $p = .565$).

3) The age of the child has a strong positive relationship to the child-related components of the interaffectivity measure; ($r = .465$, $p = .002$).

4) SES and age of the mother have a significant positive relationship, ($r = .333$, $p = .036$).

Multiple Regression (See Table 8)

1) Maternal nurturance, range of state, parity and the mother's age account for 24% of the variation in interaffectivity, ($p = .04$). (See Appendix B for this data.)

2) In this population, SES does not affect variation in interaffectivity, although mother's age does. Given the low variability in SES, this is not surprising; its effect is confounded with maternal age and makes no independent contribution. The relationship between these causal variables may be hiding their actual relationship with interaffectivity, which would be larger were they not correlated (Cohen & Cohen, 1983).

3) The use of the HO (1986) procedures to determine whether any variables had an interactive effect that made a contribution in addition to their individual contributions showed no interactive effects - the interactive variables tested added nothing, showing that they did not make any

TABLE 7
CORRELATION MATRIX

	INTERAFF	CPI-FE	MOTH AGE	SES	PARITY
INTERAFF	1.000				
CPI-FE	0.268 [~]	1.000			
MOTHR AGE	0.267 [~]	-0.033	1.000		
SES	0.110	0.155	0.333*	1.000	
PARITY	-0.094	-0.080	0.247	0.089	1.000
RANGE	-0.216 [~]	-0.037	0.027	0.079	-0.286
REGLULATN	-0.236 [~]	-0.062	-0.005	0.151	-0.057
ORIENTATN	-0.135	-0.074	-0.073	-0.163	-.075
CHILD AGE	0.162	0.199	0.111	-0.118	-.179
MOTH-INT	0.911	0.247	0.231	0.124	-.042
CHLD-INT	0.799	0.176	0.279	0.058	-0.140
DYAD-INT	0.911	0.221	0.183	-0.016	-0.093
	RANGE	REGULA	ORIENTA	CHLD AGE	MOTH-INT
RANGE	1.000				
REGULA	0.379**	1.000			
ORIENTA	-0.103	0.232	1.000		
CHLD AGE	-0.135	0.050	0.031	1.000	
MOTH-INT	-0.116	-0.224	-0.020	-0.105	0.100
CHLD-INT	-0.324*	-0.222	-0.181	0.465**	0.518
DYAD-INT	-0.223	-0.209	-0.313*	0.183	0.756
	CHLD-INT	DYAD-INT			
CHLD-INT	1.000				
DYAD-INT	0.780	1.000			

* p < .05
** p < .02
~ trend

TABLE 8
MULTIPLE REGRESSION

STEPWISE REGRESSION WITH FIRST 4 VARIABLES FORCED IN MODEL
ALPHA-TO-ENTER= .150 AND ALPHA-TO-REMOVE= .150

STEP=	1	ENTER	CPI-FE	R=	.268	RSQUARE=	.072
STEP=	2	ENTER	MOTH-AGE	R=	.385	RSQUARE=	.148
STEP=	3	ENTER	RANGE	R=	.440	RSQUARE=	.194
STEP=	4	ENTER	PARITY	R=	.493	RSQUARE=	.243

THE SUBSET MODEL INCLUDES THE FOLLOWING PREDICTORS:

CONSTANT
FE_ST
MOTH_AGE
RANGE3
PARITY

MODEL TO ESTIMATE THE COEFFICIENTS

DEPENDENT VARIABLE: INTERAFFECTIVITY N = 40

MULTIPLE R = .493

SQUARED MULTIPLE R = .243

VARIABLE	COEF.	STD.ERROR	STD.COEFF.	TOLRNC	T	P(2 TAIL)
CONSTANT	54.305	14.311	0.000	.	3.79	.001
CPI-FE	0.277	0.164	0.249	0.98970	1.69	.100
MOTH-AGE	0.789	0.351	0.343	0.92796	2.25	.031
RANGE	-2.222	1.203	-0.286	0.90415	-1.85	.073
PARITY	-3.512	2.335	-0.241	0.84600	-1.50	.142

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	678.437	4	169.609	2.807	.040
RESIDUAL	2115.087	35	60.431		

combined independent contribution to the proportion of variance.

Linearity

Because the negative correlation of NBAS data with interaffectivity was unexpected, the data was inspected for linearity. In order to assess the linearity of negative relationships between the NBAS clusters orientation, range of state, and regulation of state with interaffectivity, the data was sorted into quartiles. The results indicate that these are linear relationships.

Examination of NBAS Clusters With Negative Correlation

Range of State

The significant contribution of the NBAS Range of State Cluster to variance in interaffectivity raised the question about just which neonatal characteristics might have been involved. As described earlier, NBAS data is not uniformly linear, so that when cluster scores are developed, not only are certain items grouped together, some are transformed so that mid-range optimal scores become linear. In the course of this transformation, extreme scores from both ends are collapsed into single scores which designate less than optimal performance. Although this makes

statistical analysis possible, it may mask important information. In this case, it was deemed advisable to inspect the items making up the Range of State Cluster in order to learn if there was a trend - whether what mothers were responding to were extremely passive or extremely excitable infants.

The Range of State cluster is a measure of general arousal level or arousability of the infant, and is made up of four variables. The mean for range of state for this sample was 3.306, with a range from 1.250 to 5.250, and a standard deviation of 1.088. (The possible range is 1 to 5.5) Although the original variables' scores range from 1 to 9, the optimal score is in the middle, and, as stated above, linearity is achieved through recoding, leading to scores with a maximum score of 5 or 6 representing optimal performance. Inspection of each variable shows whether these infants tended to fall at either extreme and reveals more about their characteristics (See Table 9). The analysis follows:

- 1) Peak of excitement is a measure of the overall amount of motor and crying activity observed over the course of the whole examination. Infants whose intense reactions at their peak of excitement makes them unavailable to quieting or consolation, or who reach a screaming state more often and need to be consoled receive high scores. Some hardly respond at all, and their peak is very low, as

are their scores.

In this sample, half the scores (20) were originally in the high range, 19 were in the average moderate midpoint range, and 1 showed a score at the low end of the range. As a group, they could be characterized as more easily excitable and in need of consolation to return to a moderate state in terms of extreme scores.

2) Rapidity of Buildup measures the timing and amount of stimulation needed before the infant changes from his initially quiet state to a more agitated one. In scoring, the amount of stimulation which is necessary to cause the infant to lose control and the point in the progression of the exam when this occurs are considered. The criteria range from never upset to never quiet enough to score, with the mid points being optimal.

In this sample, there were 18 scores in the high range, 17 in the low, with the remaining 15 in the moderate mid-range. As a group, the extremes are equally divided.

3) Irritability measures the number of times the baby gets upset when presented with aversive stimuli. For this sample, 23 infants fell in the average or optimal range, with 5 of the remaining 17 representing the low extreme of no irritable fussing, and 12 representing the high extremes of fussing. As a group, the extreme behaviors are somewhat more likely to be at the more irritable end.

4) Lability of States measures the infant's state

performance over the exam period, and every state change is counted. The optimal number is 3-5 changes, scored as 2, with over 16 changes as the extreme on the high end (scored as 7,8 and 9).

In this sample, no infants fell on the high end, 22 on the low end, with the other 18 optimal or average. As a group, they would be characterized as not very labile.

5) Summary of Range of State items: As a group, these babies, if they are not average or optimal, are likely to cry more than average, change state less often than average, be about evenly divided on extremes of rapidity of buildup, and be more likely than not to show irritable fussing to aversive stimuli. They are slightly more likely to be extreme than average or optimal. It could be a picture of infants who are easily irritable, cry a lot, yet don't exhibit many state changes.

Regulation of State

On the Regulation of State cluster, which shows how an infant responds when he is aroused, where high scores would be the most optimal, showing for example high degrees of cuddliness or self quieting, this sample tended toward low to average scores ($m=5.717$, Standard deviation = 1.93, range from 3 to 8.250).

Orientation

On the orientation cluster, which includes the quality of alert states and the ability to respond to visual and

TABLE 9
NBAS RANGE OF STATE ITEM ANALYSIS

NBAS ITEM	INITIALLY HIGH EXTREME	INITIALLY LOW EXTREME	INITIALLY OPTIMAL OR AVERAGE
PEAK OF EXCITEMENT	20	1	19
IRRITABILITY	12	5	23
BUILD-UP	18	17	15
LABILITY OF STATE	0	22	18

auditory stimuli when alert, this group performs at a high average level ($M = 6.545$, $SD = 1.406$, with a range from 3 to 9).

Summary

Together, these findings seem to indicate that, neonatally, these babies were irritable, cried more than average, were average in their ability to be comforted on their own or by others, and had high average ability to respond to auditory and visual stimuli. This information leads to speculation regarding the meaning of the negative relationship of these clusters with interaffectivity, and their contribution to it.

Interpretation and Discussion of
Statistical and NBAS Analyses

Overview of Interpretation of Statistical and NBAS Results

Through the sample selection process in the original design of The Michael Reese Study (Joffe et al, 1985), this research sample was designed to represent a low-risk, middle to upper-middle class group of normal mothers. (See table

1) The pre-birth personality variable representing nurturing qualities (CPI-FE) suggests that the mothers in this sample are average, adequate nurturers (FE mean = 52; CPI-FE mean = 50). Therefore, it is not unexpected that the nurturing aspects of the mother's personality correlate positively with interaffectivity. In addition, the positive significant correlation of SES with maternal age ($r=.333$, $p = .036$) suggests that these are essentially older mothers placed in stable supportive environments.

However, it was unexpected to find two NBAS cluster scores, Range of State and Regulation of State (Lester, 1982) showing negative correlations with interaffectivity. (Range: $r = -.216$, $p = .180$; Regulation: $r=-.236$, $p = .143$). While these correlations do not show statistical significance, the relationships suggest clinical significance. It appears that babies scoring lower on NBAS state clusters at birth had a tendency to become partners in interactions scored as higher in interaffectivity later.

These babies, easily irritated, crying frequently, with lower self-quieting abilities, could be characterized as relatively difficult. The status of babies with these characteristics in a partnership high in interaffectivity suggests that perhaps, with these normal middle class older mothers there may be a tendency to right an imbalance.

The result of the Multiple Regression analysis further identifies the qualities contributing to variation in interaffectivity. The variables which significantly account for 24% of the variation ($p = .04$) are the nurturing quality of the mother, the mothers age, (both with a positive contribution) and the range of state cluster, representing neonatal qualities in the infant, making a negative contribution, and parity making a negative contribution. This seems to mean that older mothers, with a higher level of nurturing qualities, having their first child, will tend to develop higher levels of interaffectivity with infants who have more relative difficulty with regulating their arousal level.

In this group, babies who have these difficulties are likely to have been, as newborns, infants who cried more than average, were irritable, changed state less often than average, and were about evenly divided between infants who rapidly became agitated, and those who barely become upset, under upsetting conditions. Although it doesn't make an independent contribution to the variability of the group,

the regulation of state cluster also correlates negatively with interaffectivity. Infants who would score low on this cluster would have had difficulty with consolability--either in employing self-quieting maneuvers or in being comforted by others, and would have shown little cuddliness when held. In a sense, babies with the qualities described above could possibly be perceived as difficult. However, the data seems to indicate that it was the babies with these problems who later became partners in dyads high in interaffectivity.

Contribution of the Context

While these results were unexpected, it may not be surprising that these mothers employed compensatory efforts with their infants who had relative difficulty with state regulation. There have been suggestions that studies with normal middle class groups would show different results than the studies with high risk groups. For example, while stating that there have not been many studies which concern relationships between neonatal characteristics and later behavior within normal groups, Vaughn, Taraldson, Crichton & Egeland (1980), state that their data suggest that young uneducated mothers may be less skilled in caring for the physical and psychological needs of their babies than middle class mothers, and might be more susceptible to less optimal behavior from their infants. A recent study of high-risk infants in low-risk families (Holmes, Reich, & Gyurke. 1986)

strongly suggests that this is the case; high-risk factors at birth were compensated for by optimal family environments and resulted in more optimal long-term outcomes for the infants than might have been expected.

Further understanding and support for this finding is suggested in the transactional model of Sameroff and Chandler (1975). It would be consistent with their model that mothers with the characteristics shown in this middle class sample, with advantages of health, money, education, age and societal support, would respond to the demands of their relatively less well regulated infants in ways which would support development. The fact that the infant data is being used in combination with maternal and environmental variables and predicts an interactional outcome fits in well with the transactional model, and supplies a good example to support it.

Contribution of the Mother

Although the nurturing qualities of the mothers in this sample are positively related to variation in interaffectivity, it should be emphasized that the group mean for nurturance (sample mean = 52) is essentially the norm for this quality (CPI- Fe mean = 50). This suggests that, as a group, these mother are adequate, average nurturers. In that sense they are related to Winnicott's (1965, 1971) concepts of the "good enough mother", who is able to attune herself to her child's needs.

The ability of the "good enough mother" to compensate when her child has characteristics which are less than optimal suggests that the nature of interaffectivity is reciprocal, with a locus in neither partner, but in the relationship -- in the "space between."

This kind of view of the nature of the relationship also calls to mind the "zone of proximal development" (Vygotsky, 1978), or "the distance between a child's actual developmental level as determined by independent problem solving, and the level of potential development as determined through problem solving under adult guidance..." (p.86) While Vygotsky was describing cognitive development, the social and emotional relationships embodied by the notion of interaffectivity fit well into this spatial model.

Contribution of the Child

Additional support for this position may be found in the strong positive relationship of the age of the child to the child-related components of the interaffectivity measure: ($r = .465$, $p = .002$). As Stern (1984b, 1985c, 1985d) suggests, through the process of affect attunement there is development over time of the child's own concept that feelings can be shared and communicated. In fact, this increasing influence of the child is further evidence of the "good enough mother's" capacity to see her child as a separate individual, to interpret her baby's level of

development, and to adjust her own behavior to permit the baby the maximum possible degree of input into the relationship.

The Contribution of Reciprocal Interaction

In many ways, this kind of reciprocity -- this keeping the scales of the relationship in balance -- is very much an extension of Stern's earlier work (1971,1977). The very early mother-child interaction, where the mother follows the baby's cues, and also mediates the environment for her child, is of course a precursor of attunement behavior. If an infant exhibits behavior which shows that he needs consoling, the "good enough mother" - in this case, the older, middle class mother with at least average nurturing qualities, supported by the structures of her middle class environment, will put forth the extra effort to help her infant reach homeostasis. By meeting his needs, she is in essence following his lead, she keeps the interaction going.

Although other studies (Vaughn, Taraldson, Crichton & Egeland, 1980) have suggested that a poorly organized baby may influence his mother by making her feel inadequate, there are also suggestions that a baby who needs his mother may elicit more interaction. Examples include the Linn and Horowitz (1983) feeding study, where infants classified as "variable" were more likely to be involved in an interaction with a mother classified as "responsive" than were stable

infants. In an example of a descriptive paragraph written as part of the results of the NBAS, Brazelton (1984) describes a child whose behavioral repertoire shows a child who maintained steady states of alertness, motor maturity, self-quieting abilities, and controlled responsiveness to auditory and visual stimuli; he adds the comment "A mother would feel that this was a mature, exciting boy, but she might also feel that he could manage pretty well by himself." (p.75). These examples highlight the dynamic quality of the interactional process. Neither the stable nor mature child will be ignored -- each will get what he needs; but the extra need of a less stable infant might elicit, and continue to elicit, extra responsivity on the mother's part, especially a healthy, middle class, older mother with at least average nurturing qualities. The result could then be, that this relationship will produce a dyad with somewhat stronger qualities of interaffectivity. There may be a parallel in the studies which show that babies who cry a lot early, and are responded to, cry less later, and have more secure attachments (Bell and Ainsworth, 1972).

The finding that the contribution of the child to the development of interaffectivity increases with age is a part of this pattern. The mother with average nurturing qualities will put onto the balance -- that scale which resides not in either party to the interaction, but in the

"space between" -- that which is needed, and allow her child's development to play its role - pull its weight.

The age of the children in this sample adds supporting evidence. Stern (1984, 1985c, 1985d) describes the attunement process as becoming differentiated from imitation during a period between 9 and 12 months. The results - the feelings of connectedness, of sharing on a feeling level - would increase and differentiate (within different domains) as the child increases in age. The range in age of the infants in this sample, from 12 to 32 months, connected with the rise in the child's contribution with increasing age, suggests that this is happening.

Summary

The empirical data have suggested these interpretations:

1) that when their infants have neonatal qualities of relative difficulty with state regulation, normal, stable, older, middle-class "good enough mothers" will respond in ways that result in a partnership higher in affective sharing;

2) that as the child develops the capacity for affective sharing, the reciprocal balance is maintained, but there is a shift, and the child's side of the scale begins to hold more weight than previously;

3) that the nature of interaffectivity is reciprocal, that it exists in neither the child nor the mother, but in

the "space between".

The clinical data, based on the interviews, should provide an enriched view. Using material from the interviews, a case study has been developed for one dyad at either end of the spectrum of interaffectivity. This use of "complementarity" (Cramer, 1986) may illustrate some of the more subjective elements contributing to variation in interaffectivity.

Part Three: Clinical Case Studies

Introduction

Choosing cases to illustrate high and low scores in interaffectivity was more difficult than one might anticipate. Until now we have been talking about the group, and the relationship between variables was on a group basis, not an individual one. The "average" dyad is a statistical construct; no one mother-child pair embodies all those qualities as they appear in mean scores. Nowhere is this more apparent than when looking at the those scoring at the lower end of the group, those falling one standard deviation below the mean in interaffectivity. Table 10 shows the mean and standard deviation for each variable, and where each of these 10 dyads falls. Most striking on the "low five" is the fact that 2 of the 3 non-white mothers appears here, and 1 of the 2 not currently married mothers appears here, as well as the mother with the lowest SES. Similarly, this group contains the only family with a handicapped child (a three year old with Down's Syndrome).

The fact that this group was selected for the original study after being screened as "normal" must be kept in mind. Even the lowest scorers on interaffectivity fall in the upper 2/3 of the possible range of the scale (see Table 5), forming part of a normal distribution in that upper range.

TABLE 10 TABLE OF EXTREMES

DATA ON SUBJECTS FALLING ONE STANDARD DEVIATION FROM THE MEAN

		INTERAFF	MOTH AGE	SES	RACE	MATITAL STATUS	CPI -FE	CHLD AGE	CHLD SEX	# OF CHLD	BIRTH ORDER
TOTAL GROUP	MEAN	80.53	30.1	56.80	92.5%	96%	52.6	18.3	50%M 50%F		1.35
	SD	8.46	3.7	8.25	W	M	7.6	5.73			0.58
LOW GROUP	CASE #										
	1	59.5	29	59.5	O	M	44	15	F	2	2
	2	62	34	58	W	D	50	17	M	1	1
	3	66.5	30	50	B	M	44	13	F	3	3
	4	69.5	27	37	W	M	59	32	M	2	1
	5	69.5	27	66	W	M	53	14	F	2*	2
HIGH GROUP	36	92	32	61	W	M	50	28	M	2	2
	37	92.5	34	50	W	M	50	20	F	1	1
	38	93	29	50	W	M	65	12	M	1**	1
	39	93.5	34	61	W	M	50	13	F	2	2
	40	94.5	30	66	W	M	52	12	M	1	1

* older sibling has Down's Syndrome

** mother pregnant

Although other families in the research sample are experiencing a variety of problems also, this selection probably emphasizes the importance of a constellation of factors that may contribute to optimal or less-optimal features of mother-child relationships, here most specifically to the development of interaffectivity.

With these caveats in mind, one dyad from each of the extremes was chosen for a more in depth study, based primarily on the interview. They are matched in a very rough fashion: the age levels are approximately the same, and they share some life experiences, such as stressful events around the baby's birth. Further similarities and differences will be explored in each case. Besides full details on the perinatal NBAS data, temperament data gathered by the researcher will be consulted, and information from the full relational assessment will be considered. In addition, exploratory data based on Stern's work will also be touched on, and, speculation about the messages the mother is giving the child as to what can be shared (Stern, 1985b), (reviewing the tapes with this as the goal.)

Whether or not any patterns can emerge from such a scanty exploration is problematic. However, the opportunity for future study, using the clinical data, remains. And, there is information in each case illustrating that particular "why". The use of this "complementarity"

(Cramer, 1986) does provide a much broader base for understanding the kinds of behavior observed through the empirical data.

A baby with a very difficult beginning provides a substantive example of the way in which early difficulties can lead to a stronger sense of sharing of feelings, perhaps related to the mother's sense of identification with him. The second example also highlights the power of the mother's own experiences, needs and expectations in the development of the sharable world she helps her infant to develop.

Case One - Charles, age 12 months, and Barbara
(Interaffectivity = 94.5)

Case Two - Ruth, age 14 months, and Laura
(Interaffectivity = 69.5)

(See appendix C for: Case Study Outline and Sources of Information, the NBAS and Bates Temperament Scores for Charles and Ruth, and a Profile of Mother-Child Interaction for each of them.)

Case One - Charles, age 12 months, and Barbara(Interaffectivity = 94.5)

Case Number 40

1. Issues

This case was chosen to illustrate optimal interaffectivity. The salient feature is the converging evidence that the child's contribution to a high degree of interpersonal sharing lay in his early difficulties in being comforted, while the mother's sense of identification was instrumental in the development of a strong bond between them.

2. Family Data

Charles, age 12 months at the time of taping, was born when Barbara was 30 years old. He was the first child, and has remained the only child. The family moved from an apartment in Hyde Park to a house in a middle class suburb within a week after Charles' birth. Charles father began a new job, teaching in a local college at that same time. In addition, Barbara stopped working. This constellation of events provided an aura of stress, particularly the moving date, since there was naturally a great deal of anxiety relating to whether the baby would be late; the moving date was set and inflexible, in contrast to the birth date.

Charles obliged by arriving several days early.

Barbara feels that the changes were for the most part toward positive things, and that the situation now is better, with the only continuing strains being financial (without her previous income) and anxiety concerning her husband's future in his tenure track position.

When Charles was 7-8 months old Barbara began to work 10 hours a week as a research assistant at the same college where her husband teaches and feels that this is working out well, in contrast to an earlier attempt to work at a secretarial position when Charles was about 6 weeks old. That did not work out, largely because Charles cried all the time (and she was probably not ready).

In addition to the strains of moving, job changes, and the birth of an infant, the move meant leaving behind friends who might have been a source of support to the new parents, leaving Barbara with an initial sense of isolation and loneliness.

3. Mother's Family Background

Barbara, age 30, was the oldest of four children very close in age. She reports that she had been a very difficult child, that she had been very active when her mother would have preferred a more docile, calm child. She thinks now that it must have been very hard for her mother, having four children, two years apart. Although she did

not elaborate about her own feelings as this "difficult child", it was clear from her facial expressions, twisting fingers, and general tension that it had been difficult for her, too. It seems a recent realization, perhaps since she has become a mother herself, that things were hard for her mother, and that perhaps this would have been the case whatever her own temperament - that mother's temperament played a role.

Her family lives in Wisconsin, and they see the baby every couple of months. Her husband's family lives in Minnesota, and they see the baby every six months. She feels the support she gets from her parents is "internal." Charles is the second grandchild in her family, the first in her husband's.

In terms of her mother's support for her in her role as a mother, she reports that the support is internal - that is, not of a practical nature, perhaps consisting of advice. She showed discomfort when talking about listening to her mother, who advised her to let Charles cry. She worried that she may have "listened too much," although she still rocks him to sleep.

4. Maternal Data

Barbara has average qualities of patience, warmth, sensitivity, and coping ability (CPI-FE), and should be a "good enough mother" (Winnicott, 1965, 1971).

She appeared to show a very high anxiety level for this group, prior to Charles' birth. However, she has said that the pre-birth period was very difficult in terms of anticipated changes.

5. Child Data

Measures of Charles' behavioral repertoire at birth show that his characteristics were essentially in the normal range. (See appendix C)

The NBAS Range of State cluster (Lester, 1982) is of interest in this group because of its negative relationship with interaffectivity, so a closer look at the items comprising Charles' score in is order, particularly because extreme scores are collapsed in constructing this cluster, thus high and low extremes are masked in individual cases. In Charles' case, he does show a high score for peak of excitement. His score of 8 on this item would indicate a child who screamed in response to stimulation more than twice, and was not easily brought back to a lower state, although some quieting could occur with consoling, it would be with difficulty; a child with this score would always need a finger or pacifier to console him and could not console himself, nor be consoled merely with voice or touch. The other items making up this cluster, buildup, irritability and state lability do not indicate any extreme scores, in fact buildup tends to be low. In Charles' case,

this combination may have meant that he was relatively slow to reach a very upset extended crying state, but that once he did, he was very difficult to comfort.

In a current rating of Charles' temperament, (Bates, 1979) Barbara's scores show an extremely fussy and difficult baby, who has difficulty adapting to new events, people and things, who is active and sociable on the average, and who is extremely unpredictable, in his case particularly around sleeping and waking up and in terms of knowing what is bothering him when he cries or fusses. (See appendix C)

What is noteworthy about this report is that Barbara has described Charles as very difficult for his first six months, and "ideal" now; however, the Bates represents a current report of her perceptions of him, and may have elicited former perceptions.

Charles took his first steps at 10 1/2 months, began to take 2 and 3 steps for 2-3 weeks, and got up and walked at 11 1/2 months. He really started talking at about 11 months, saying "Daddy" at that time, and is adding new words all the time.

Barbara feels that he started to exhibit stranger anxiety at 6 months or earlier, and that it lasted from 6-11 months.

In terms of illnesses, Charles had a series of ear infections from age 7 months to 9 months. He had an

accident when he was 10 months old that involved severe cuts to his fingers and which Barbara characterized as an emergency.

6. Mother/Child

Barbara characterizes Charles as "ideal" now, but describes him as very difficult for the first six months. He cried a great deal and was very hard to comfort. She said that she is glad he is an active child, that she would find it uncomfortable to have a calm baby. However, "it would have been nice to know that it would work out." She feels that his problems with crying and difficulty in being comforted made them close, that it was responsible for the development of a real bond. At the same time, she worries that "maybe he is too dependent on me."

Barbara considers herself an anxious mother, and worries that maybe she is pushing Charles too much. She also expressed problems with "discipline". When he turns on the TV, for example, to get her attention, it makes her angry; however, instead of saying "No," she stops what she is doing and plays with him. She gets angry at what she called "destructive" behavior - playing with the stereo, tearing book jackets - but responds by distracting him. She now removes jackets from books, but worries about ongoing handling of the issue, since her bookcases contain books to the floor level.

General impressions: Charles appears to be cheerful and active. He vocalizes a great deal, is curious and investigative, and points and names objects a great deal. In the taping session, Barbara was natural and warm during the feeding portion, very responsive and good at teaching during the structured play. She would work to get his attention and motivate him with a great deal of animation on her part. During the free play she sat back and watched, keeping a distance; there was little interaction and some degree of what looked like discomfort. She liked the structured activity best, and says that she likes doing that kind of thing with him. In general, there was a certain amount of anxiety on her part, shown in her discomfort in setting limits, in her concern that Charles might be too dependent on her, and in the press of her question at the conclusion of the interview regarding my assessment. Although she expressed concern that she pushes him too much, this was not observed.

7. Dyadic Data

The profile of the Relational Assessment shows the following: (See appendix C)

Areas of Relative Strength and Weakness: Across the board this dyad was rated in the Area of Strength. In only one case did one rater give less than a 4 -- that in the amount of proximal contact.

Patterns: The pattern of the whole is the only one to observe. Scores for affect, mood, attitude, behavior and style were all in the 4-5 range. There was only one item on which both raters gave a score of 4 -- that of maternal anxiety.

8. Interactivity

The interactivity score for this dyad reflects the high functioning shown on the full assessment profile. Both partners show only optimal interactions in all domains, and the subset of scores comprising interactivity indicates that both partners contribute to a strong sense of the sharing of affect and a strong interpersonal bond.

As would be expected for his age level, his functioning is essentially in the action domain, in terms of Stern's(1985) cumulative domains of self: action, feeling and meaning. At the same time, there is no indication that any item on the scale operates only on a behavioral rather than an emotional level. For example, the rating for mirroring indicates that Barbara provides optimal emotional availability to Charles, and that this is true in terms of her reflecting his affect as well as his behavior. Similarly, the rating for structuring and mediating the environment indicates that Barbara modulates affect and stimulation as well as helping him master the tasks.

A viewing of the tape in order to explore the area

that Barbara indicates is sharable, shows a great deal of affective sharing in response to positive activities and to positive affective expressions by Charles. These interchanges particularly feature a matching of intensity, with voice and bodily movement. There is a great deal of energy in these responses on her part, and in the ensuing interactive exchange; it is clearly reciprocal. However, there is little direct response to a quiet expression of distress, when for example, Charles puts his fingers in his mouth and looks wary.

Stern (1985b) has said that a mother often indicates what she will not share by means of a lack of response, showing neither approval nor disapproval, nor interaction of any kind. The most lengthy example of this kind of behavior occurred during a free play interlude. While Charles played in an exploratory fashion, putting nesting cubes together, taking them apart, putting things in them, Barbara sat in her chair, at some distance from him, with no bodily motion, change of facial expression, or verbalization. She was still for a strikingly long time, and the stillness was in sharp contrast to her usual, more energetic response. Perhaps the concern she has voiced around autonomy issues reveals itself in this interaction; perhaps this a struggle she has not resolved for herself.

9. Summary

This 12 month old boy, Charles, and his mother, Barbara, live in a middle class suburban community, where his father teaches in the college, and where Barbara works part time as a research assistant. Barbara characterizes herself as having been a very active child who was very difficult for her mother, and worries that she might listen too much to her mother's advice. She characterized Charles as having been very difficult for the first six months, being very difficult to comfort, but believes that this situation has ensured her bond with him. She thinks he is now "ideal," although she responds to the temperament scale with ratings which place him currently in the difficult category. His newborn assessment showed him to be a child who might have been relatively slow to reach a crying state, but once there, he would have been very difficult to console.

Barbara's own anxieties aside, and the strains of the early days surrounding Charles' birth aside, she has indeed made use of Charles's difficult and trying first six months, and her own nurturing capabilities, to forge a very sensitive interaction, as measured on the scale. Her feelings for her son, perhaps her identification with his difficult behavior (she said she would be uncomfortable with a calm child), have put the scale in balance. Here we have seen development in "the space between" that is very encouraging.

Case Two - Ruth, age 14 months, and Laura(Interaffectivity = 69.5)

Case Number 5

1. Issues

This case was chosen to illustrate a dyad with an interaffectivity score of 69.5, one of the lowest in this group. Salient features include the presence of a 3 year old brother with Down's Syndrome. It appears that Ruth is viewed by her mother as difficult because she demonstrates a need for attention, and that Laura would be happiest if Ruth were a child who put minimal demands on her. Given her high standards and the demands of handicapped child, this view is understandable, but results in a relationship which is somewhat distant, and dominated by value on achievement.

2. Family Information

Ruth, 14 months old at the time of the taping, is the second child of Laura, who was 27 at the time of her birth. She has a three year old brother with Down's Syndrome. Laura, who worked in immunology research has not worked since Ruth was born. Ruth's father has a responsible position that involves many political pressures and sometimes has meant working very long hours. Laura finds

this very stressful because in addition to not spending much time with the children, he becomes very tired and "yells at the children." Overall, she sees her husband as a person who is there when she needs him, cares about her and can boost her spirits when she feels low.

Since the birth of her son, Laura and her husband have been involved in a group that works with handicapped children and their families; the father is now the president of the parents' group. They saw an article about the organization on the day their son was born, and became involved immediately. In a way, this exemplifies the way they have found to deal with tragedy of a handicapped child - they have involved themselves intellectually and put their energy into leadership roles, as well as keeping up with treatments, parent groups, and programs. There is the feeling that all of this activity is an attempt to keep the pain walled off through the means they have developed in their usual, normal relations with the world. That this involves denial is illustrated by the following incident: When I called Laura to ask her if she was willing to participate in this part of the research program, she asked for time to think about it, and mentioned as one of her reservations the fact that she had a three year old. It wasn't until I walked in the door that I knew the three year old had Downs Syndrome.

The family moved from an apartment in Hyde Park to a

house in a middle class suburb at the time of Ruth's birth. At the same time, as mentioned above, Laura stopped working. Although the purchase of a house and the the termination of her job have meant financial strains, the biggest problem for Laura had been the lack of adult company. Aside from her co-workers, her neighbors were a close group of long time friends, and at first she missed the easy companionship. However, she feels that although it is very different staying home with the children, and that it requires much more energy, she finds herself "actually enjoying it", and likes the change.

3. Mother's Family Background

Laura has two brothers, one lives in Atlanta and one in New York. Her mother died eight years ago, and her father lives in Connecticut. Her in-laws live in Indiana. She feels that she doesn't have family support, as such, and that any support they have is mostly from friends in the area.

Her responses to some questions about family relations seem to indicate an extended family continually in a state of tension. Aside from medical problems affecting her father and her father-in-law, she referred to a stressful period involving her father, and a large family conflict surrounding her grandmother's funeral.

4. Maternal Data

Laura has average ratings on the personality characteristics denoting nurturing qualities, patience, sensitivity, coping skills -- she meets the criteria of the "good enough mother" in these aspects. She has high goals for herself, "expects the best from each person" and gives the impression of intensity.

Laura feels that she is very different from her own mother in many ways, although in some ways she feels she is similar. She describes her mother as "a strong woman who always worked, a leader type." She feels her mother didn't teach any "specifically male or female habits" to her, and that she is the same with her own children. Her mother was very strict and both parents believed in spanking very quickly. She feels she doesn't do that too often -- she saves spanking "for the worst, like running in the street or something like that." She feels that she talks a lot to her children, and that since her mother talked a lot more than her father, perhaps that "kind of rubbed off." However, she believes in "disciplining younger. My mother used to tell me that you can't discipline a baby. But I don't believe that's true. I think Ruth does understand, and she has for a long time...Not that she always listens. She understands a lot more than my mother would have thought." She goes on to say that her mother-in-law too believes that Ruth doesn't understand the things she (Laura) says to her, but that she

knows Ruth understands -- "she responds."

5. Child Data

Ruth's behavioral repertoire at birth shows average characteristics, (see Appendix C). For example, Ruth did not reach high points of excitement after stimulation, and appeared never to be upset to the point of crying for at least 15 seconds during the course of the increasing stimulation of the NBAS procedures. She appeared to the examiner to be a very relaxed, interactive baby who sustained alertness and calmness.

Her mother's perception of Ruth's temperament at 14 months characterizes her as very fussy, difficult and demanding, but average in adaptability, persistence and sociability, (see Appendix C). Examples of the characteristics that Laura sees in Ruth are a tendency to do anything to get attention, to need more than an average amount of attention and to become upset more than the average child. Other items would characterize her as fairly compliant at this time, sometimes persisting in doing what she is told in terms of stopping playing with objects and usually paying attention when asked to "come here."

Ruth is very alert and watchful. She walked when she was one year old, having crawled at 5 months, and then pulling herself up to stand at six months. She said her first word, "thanks" at seven months, and from that time on

"really began picking up words and signs." She is a good sleeper, easy to put down and sleeps through the night. There have been no notable problems or illnesses.

6. Mother/Child

Laura characterizes Ruth as "not that easy in a lot of ways." She likes a lot of attention and she complains a lot. She feels that Ruth is easy in some ways -- she's easy to feed and easy to put to sleep and "does have a good personality, but she likes to be entertained and have attention." She feels that Ruth is used to having a lot of attention because she has an older sibling and she is used to getting it from him. She identifies the period when teeth are coming through as the most difficult; then Ruth is extremely grouchy and complains most of the time. When she's not cutting teeth there is a big difference -- she entertains herself a lot better and is a lot better in general."

Laura feels that she didn't have very many expectations before Ruth was born. "After having a child that's handicapped, it changes your attitude a little bit. For the most part I don't look at things in that way any more. I didn't think about expectations." She was looking forward to having another child because she wanted to have two children close together in age. "What I want for her is what I want for both my children - is just for them to

obtain their highest goals and that's all I want to help them do....what ever it is." She had had amniocenteses and knew that she was expecting a girl, and she knew that the baby didn't have any genetic disorders. "And that was all I really needed."

She feels that Ruth reminds her of people in her family in appearance. In her behavior, she reminds her of her son..."she mimics a lot of things he does." Sometimes she reminds Laura of habits that resemble those of both herself and her husband, and at times Ruth does things "she definitely got from my father." She feels that Ruth is really a "good mimicker."

In general, Laura is very involved with her son, his handicap, his therapy, the network of activities that caring for him has involved the family in. She believes that Ruth understands the verbal limits and instructions she gives her, contrary to her own mother's philosophy that "you can't discipline a baby," and contrary to the opinion of her mother-in-law. She attributes Ruth's needs for attention to her liking to be entertained, and does not associate them with the situation of their lives. She appears to have very high expectations for Ruth, and a need for her to be autonomous. However, she was not upset by Ruth's inability to do the tasks for the video taping: "I didn't expect her to follow the tasks, so I can't say that I didn't like what she wasn't doing.." In her response to watching the

videotape, she said "it just reinforced her language to me - that she repeats a lot of words that are said to her. It showed me that emphasis; it gives me an idea where my emphasis is with her too." There seems to be an over-intellectualized attitude toward the children, a fair amount of denial, and a lot of only slightly contained anger, expressed in terms of various family relationships.

7. Dyadic Data

The full profile of mother-child interaction shows an interaction that is less than optimal (see Appendix C). The indications are that the mother shows a fair amount of disapproval or displeasure with Ruth, has very little positive physical contact with her, and that although there is an adequate amount of verbalization, the quality tends to be less than adequate, indicating little extension of language or commenting on activities. In the area of social initiation and responsiveness, Laura's behavior is minimal, and Ruth's social responses and initiation are correspondingly low. Ruth shows periods of withdrawal and some flattened affect, while the affective quality of the interaction tends to be somewhat flat and somewhat constricted. Enthusiasm, cheerfulness and mutual enjoyment are only moderate dyadically, apparently related to Laura's lowered level of enthusiasm. On the crucial item of Mirroring, which indicates the behavioral aspects of the

mother's emotional availability to the child, only some episodes of mirroring are indicated. Laura's style tends to be quite rigid, is moderately intrusive, shows little creativity, and is accordingly predictable and consistent.

Laura's strength lies in her positive voice qualities, and her ability to express positive as well as negative affect, although neither is characteristic. She shows slight depression, withdrawal and anxiety. She shows considerable connectedness with Ruth, but there are indications that this may be more sporadic on a feeling level and more apparent on the behavioral level. She appropriately structures and mediates the environment on most occasions, but there is some indication that this is more apparent on a cognitive than on an affective level.

Ruth's mood is cheerful and pleasant, and she displays no anger or hostility. She focuses and sustains attention appropriately and is skillful in making her wants known most of the time .

Although Ruth and Laura show considerable engagement in the same activity, they display only moderate reciprocity as characterized by contingent responsivity and engagement.

The information from the interactional assessment scale is very much in line with the other indicators - an alert, pleasant child, a mother who is somewhat distant and who relates more strongly on a cognitive than an affective level.

a. Interactivity

Interactivity is reflected in a subset of scores taken from the complete relational assessment. The total score is meant to assess the level at which the dyad shares on a feeling level - how attuned the mother is, and the strength of the sense that something is shared between the partners. Laura and Ruth's score of 69.5 is very low for this normal group. The most striking pattern here shows that Ruth's strength lies in cognitive areas rather than in the social realm, (attentional abilities and communicative competence, rather than social responses or initiations) indicating that this is the domain in which she has learned that interpersonal sharing can take place.

The viewing of the tape for indications of what can be shared show that Laura responds most often and most enthusiastically to performance on Ruth's part. Although Ruth herself expressed pleasure in her accomplishments, clapping or looking up with a smile, Laura's responses were directed at the performance, not at the pleasure. She indicated a lack of sharing when Ruth merely explored with the blocks, pushing them back and forth; this was indicated by a lack of response (Stern, 1985b), neither approving nor disapproving. She gave warm and somewhat varied responses to language and performance, indicating her willingness to share in those accomplishments. These observations

correspond to what an analysis of the ratings on interaction has indicated.

9. Summary

In this family, in which achievement has a high value, the presence of a handicapped child (a 3 year old boy with Down's Syndrome) dominates the mother's life. Laura demonstrates the personality features of an average nurturer, a "good enough mother", and Ruth is alert and cheerful and was seen this way at birth. However, Ruth is seen by her mother as demanding attention and demonstrating a need to be entertained, a child who is not too easy. The relationship between them is somewhat distant and Ruth's language development and regularity in sleeping and eating routines are her most highly valued qualities. It appears that Laura would be happiest if Ruth were a child who put minimal demands on her. (Which, given her high standards and the demands of a handicapped child, is very understandable.) Laura is aware that she values Ruth's language abilities and recognizes that this is where she places the emphasis in their relationship. Although the result at this time appears to be a lower level of affective sharing, the family values of achievement may allow interpersonal sharing in the cognitive domain.

Case Studies-Conclusions

In comparing these two cases, one from either end of the interaffectivity range, it is possible to comment on the ways in which these dyads are alike, the differences between them, and their relationship to the group findings. Most striking though is the fact that the real differences lie neither in their similarities nor differences in observable characteristics, nor in their place in the empirical scheme of things, but in their own experiences, needs and personalities. It is the deeper look which gives us that part of the understanding.

Similarities

Both Barbara and Helen experienced a constellation of changes occurring at the time of giving birth. Each left an apartment where she had built a network of supportive friends to purchase a home in a middle class suburban community. Both stopped working at that same time. As a result of these changes, both families felt increased financial strain.

In addition, neither could count on family help or support at that critical time - Laura's mother having been dead for eight years, and Barbara's mother able to offer only distant support. In both cases, the new mothers wished

to do some things differently from the ways of their mothers. This is more true for Barbara, who mentions only negative impressions of her relationship with her mother. Laura, although claiming some similarities with her mother's style, specifically rejects her mother's tenets about how young a child may be in order to be "disciplined" -- really disputing , in a sense, the dawning of the age of reason.

Both families fall into an upper-middle class socio-economic range, and both women describe an area of stress and ongoing strain in relation to their husband's work. However, both see their husbands as sources of support and closeness.

Each mother falls into the average area of nurturing qualities that enables her to be a "good enough mother," and both women are fairly intense and have high standards. In terms of how they see their children, both of them rate them as very high in the area of being fussy, difficult and demanding, although Barbara states that Charles is "ideal" now, and Laura continues to see Ruth as "not that easy". The characteristics of their "difficultnesses" however, are quite different, and have very different meanings for these mothers.

Differences

Differences between these dyads include the fact that Laura was three years younger than Barbara at the time of

giving birth, and that Ruth is her second child. Also of major importance is the fact that Laura's older child, now age three, has Down's Syndrome. Both the maternal age and birth order are in line with the findings for the group; that is, older mothers, and first children have a positive relationship to the development of interaffectivity. Although the first child in Ruth's family presents unusual demands, there is some evidence that Laura's relationship with her daughter, as a second child, might not be very different in ordinary circumstances. Her valuing of verbal facility and her fairly rigid style, her lack of physical warmth and social initiations with Ruth are suggestive.

There is an additional difference in the way these women view their own mothers. Laura sees her verbal, competent mother, (who died eight years ago) as a role model for herself; she describes her as strong, always working, talking a lot to her children. Barbara, on the other hand wants to be different from her mother. She sees her mother as having been overwhelmed with the raising of four children, and feels that she, particularly, had been a very difficult child for her mother to handle (having been too active when her mother would have preferred a docile child.) She worries now that she might "listen to her too much," and referred to her mother's advice to "let him cry" during Charles' early difficulties. However, she still rocks him to sleep - in proof, perhaps, that she rejects her mother's

advice.

Although both infants had essentially average behavioral characteristics at birth, (as assessed on the NBAS) Ruth's were that way across the board, and she was described as a relaxed interactive baby, who exhibited sustained alertness. Charles on the other hand, exhibited a variable quality of alertness, with responsiveness that was brief and often delayed. In addition, although it took considerable stimulation for him to reach a sustained upset state, he did do so more than twice, and when he did, he reached a very high level of upsetness and was very difficult to calm, always needing a pacifier or finger, never responding to voice or touch alone.

Conclusions

Given the similarities, which are numerous, and the differences, which are not superficial, one can draw conclusions on the differences in interaffectivity -- the way in which the mother and child share on an interpersonal level-- only in terms of the meaning of the child for the mother.

For Barbara, her difficult, inconsolable infant, presented her with an opportunity to build a close relationship - she says she would have been uncomfortable with a calm child; it appears that his difficult behavior was not noxious to her because she could identify with it.

There are indications that there may be problems with autonomy later, but there has been a very good start here, despite, (or, maybe because of) Charles' initial difficultness.

For Laura, Ruth's verbal abilities are very important, and her needs for attention are seen as demands to be entertained. She would like to see Ruth make minimal demands on her, values her regular eating and sleeping habits, and exhibits a need for Ruth to be autonomous. Her high standards, her rigid interactive style, and the demands of her handicapped child put her interactions with Ruth on a more distant level, with the sharing of feelings secondary; interpersonal sharing in the cognitive domain is indicated. Her dreams for her children are stated: "to obtain their highest goals...to help them do that..."

With this view into only two lives, there is a glimpse of the way in which, unexpectedly, a more sensitive relationship may develop when a child has initial difficulties. These two cases do illustrate the negative correlations found when the data was examined empirically: the child who was more difficult at birth has become a partner in a higher level of interaffectivity. The mothers' current perceptions of their children as difficult hides the meaning of that designation and the nature of the difficultness. Charles cried for the first six months, was "inconsolable," and continues to be unpredictable in terms

of regularity, e.g. sleeping. Ruth has always been regular and predictable, is grouchy when teething, and is seen as needing more attention than the average child, and doing anything to get attention. Objectively, the difference in severity of these two kinds of "difficultness" is evident as more than a matter of degree. Subjectively, the meaning to the mothers has been described: for Barbara, the inconsolability of her baby took them down the road to a close bond -- he is now seen as "ideal"; for Laura, the child who started out as calm and interactive, and has a "good personality" yet needs attention, has meant a currently "not so easy" child, particularly in the face of a handicapped older sibling, and has resulted in a lower level of interactive sensitivity (although still within normal limits.).

The clinical examination has highlighted the suggestion that the meaning the child holds for the mother is central, (Cramer,1986; Stern,1987). It suggests the ways in which a "good enough mother" (within her limitations) will be able to put into the sensitive balance of the interaction what her child needs from her. It supports the notion that "interaffectvity" is a reciprocal construct--that it does not fall in either the mother or her child, but in "the space between", as befits an interpersonal concept.

CONCLUSIONS

There has been a great deal of interpretation, and a fair amount of drawing of conclusions in the last chapter. perhaps here it would be appropriate to summarize, to attempt further integration of empirical and clinical results, to consider again the meaning of interaffectivity in context, and to discuss limitations of the study while speculating about implications for future research.

We could begin with the questions posed in the beginning. The mystery of human connectedness, its beginnings in infancy addressed by Stern's conceptualizations of affect attunement and intersubjective relatedness, and the increasing interest in bringing together the observed infant and the clinical infant, have informed the content and design of this study.

Question I: In a normal population, what is the range of variation of observed interaffectivity?

In this study, interaffectivity is defined as a sense of emotional intimacy, connectedness or "being with" experienced between mother and infant, and the ability to share on a feeling level, and was operationalized through aspects of an observed parent-infant interaction evaluated through the adaptation of a scale designed to capture the

parent's and child's experience of each other. It was examined in mothers and their infants between the ages of 12 and 32 months. Thus defined and evaluated, interaffectivity (with a possible range of 20-100) varies from 59.5 to 94.5 (mean = 80.53; standard deviation = 8.46). This kind of variation answers both parts of the question -- there is variation in a normal population (as defined here), and the scale discriminates well within the normal range. Because the scale is designed to show results ranging from pathological to optimal, and because the entire variation falls within the upper three-fifths of the possible range, this result appears to support the assumption, built into the design of the original (Michael Reese) study, that this research sample does represent a normal group.

Question II: What are the factors involved in the development of interaffectivity: specifically, what are the roles and relationships of perinatal precursors such as (a) maternal prenatal personality and (b) infant neonatal characteristics, as well as of (c) the familial, societal context?

The relationships among the variables was assessed through Pearson Correlation Coefficients, and their contribution to the variance in interaffectivity was analyzed through multiple regression analysis. The results seem to indicate that when their infants have neonatal

qualities of relative difficulty with state regulation, normal, stable, older, middle-class mothers higher in nurturing qualities, having their first children, respond in ways that result in a partnership higher in affective sharing.

This may be seen as an indication that interaffectivity exists in neither the child nor the mother, but is a reciprocal process, and exists in a dynamic "space between." Supported by her middle class status, age and maturity, the "good enough mother" is able to compensate for her infant's initial difficulty, and forge a stronger sense of "being with", of affective sharing, of connectedness, with him as a result. This aspect of the relationship, as well as the relationship itself, may be viewed as a balance-scale - when one side is lacking what is needed to keep a balance, an adjustment is made.

In addition, there is a strong positive correlation between the child's age and the child related components of the interaffectivity measure. Stern (1985c) suggests that the age period of from 9 to 12 months represents the emergence of intersubjective relatedness, of which interaffectivity is a part. This relationship between the child's age and his contribution to the interaffectivity score suggests that not only does the child increase in his ability to contribute to affective sharing, (as Stern's conceptualization might predict), but that the "good enough

mother" (Winnicott, 1965, 1971) has the capacity to interpret her baby's level of development, and to adjust her own behavior to allow the baby to contribute to the greatest degree possible. Thus, as the child develops the capacity for affective sharing, the reciprocal balance is maintained, but there is a shift, and the child's side of the scale begins to carry more weight.

The contribution of the familial context, the middle to upper middle class status, offers the structure of societal support. The transactional process works to buttress the existing strengths and supports the mother in her dealings with the child who may offer a difficult challenge.

Question III: How does the quality of interaffectivity relate to and reflect the mother's own fantasies and expectations for her child and for herself as a parent?

The case studies have been an important complement to the empirical data. On one level, they confirm, on the other, they enrich. Yes, Charles was a difficult baby at birth, and Barbara was an older mother having her first child. However, there was something extra there for her - the meaning this "difficult" child had for a mother who herself had been seen as "difficult" by her own mother. The sense of identification, her feeling that she would have been uncomfortable with a docile child, and the bond she

feels his early problems ensured, helped to forge an interaction rich in a sense of connectedness.

In those same terms, yes, Laura was a younger mother having a second child, one who was evaluated very positively at birth for interactive processes. However, there is an older child with Down's Syndrome, and there is Laura's need for achievement and autonomy, so this child is seen as fairly difficult by her mother, and their interaction connects them not on a feeling level, but on a more cognitive one.

The opportunity to reveal some of what lies beneath the observable surface provides more of what Stern has called the quality of the interaction. In addition, it adds to the knowledge of what the mother has at hand to put into the balance of the relationship. As Stern (1985c, 1986) has demonstrated, misattunements may be the result of the mother's needs. The reciprocal process, the idea of interaffectivity in "the space between" is in tune with the notion of intersubjective relatedness.

The Meaning of Interaffectivity in Context

The definition of interaffectivity and its relationship to Stern's concepts of affect attunement and intersubjective relatedness, as well as its place in the mother-infant relationship have been alluded to often. A picture of their relationship, in both a time-line sense and

a global sense has emerged.

The time line has been suggested by Stern (1985c): between the ages of 7 and 9 months, the beginnings of shared attention, shared intention and shared affect may be discerned and between 9 and 12 months, the process of affect attunement begins. This is described as the process through which the mother lets her baby know that his experience has been shared, and the beginning of intersubjective relatedness. Because affect is the earliest experience shared between mother and infant, interaffectivity develops as part of the earliest experience of intersubjective relatedness.

The global aspect is comprehensive. As Stern has suggested, his concept is not a stage theory. What suggests itself is a set of circles, not concentric, but all sharing an outer point (See Figure 1). The large, all inclusive circle, is all of intersubjective relatedness. The first, smallest circle, touching the shared outer point, represents affect attunement; its surface that is within the larger circle touches interaffectivity particularly through its communion functions. Then, surrounding it, also sharing the outer point, but also surrounded by the larger circle, is the affective domain, which includes interaffectivity. Seen this way, it is clear that interaffectivity is but one aspect of intersubjective relatedness and one aspect of the relationship.

Limitations and Implications

There are obvious limits to what can be surmised from a study such as this. This is a relatively small sample, and a very specialized one. However, as has been commented on before, work with normal, middle class samples has not been common, and it is encouraging to find that the environmental, societal factors are supportive of optimal development. Too often, there has been generalization from pathological models.

The negative contribution of the NBAS was surprising, but there have been other indications that babies who may be irritable yet who have mothers with a strong social support system or a prenatal responsive attitude may demonstrate more maternal sensitivity and more secure attachments. Crockenberg and McCluskey (1986), looking at changes in maternal behavior in the first year of life, have found that prenatal maternal responsiveness and social support significantly predicted sensitivity and warmth at 12 months only with the more irritable babies. They find that maternal behavior does change over the first year, and suggest that providing social supports to mothers could affect attachment security. They, too, were looking at a combination of prenatal maternal characteristics, societal supports, and infant characteristics. Both their results

and those reported here speak to looking for interactive outcomes when using the NBAS as a predictor.

Although it has been emphasized (Brazelton, 1984) that the NBAS is an interactive tool and that its effects are on the interaction, many studies have looked for different kinds of effects. Jacobson et al, (1984), in fact, have stated that it is "potentially most useful for attempting to predict subsequent behavioral and cognitive development" (p.342) among others, such as deficits associated with prenatal or perinatal risk factors.

The need for examining the results interactively, with both empirical and clinical tools is one of the implications of this study.

The use of the clinical information elicited by the interviews was very limited in this study. They served here as illustrations, and were good examples of the way empirical results may be enriched. Future directions for research in this area points to more extensive use of interview material. Perhaps using them more extensively would reveal patterns, adding to the value of the observations made here in the spirit of "complementarity" called for by Cramer (1986).

The observation of what mothers are willing or able to share was just touched on here. A future direction planned for this data is to examine it for what each mother is communicating to her child that she considers sharable -

which will then become the subject matter of intimacy.

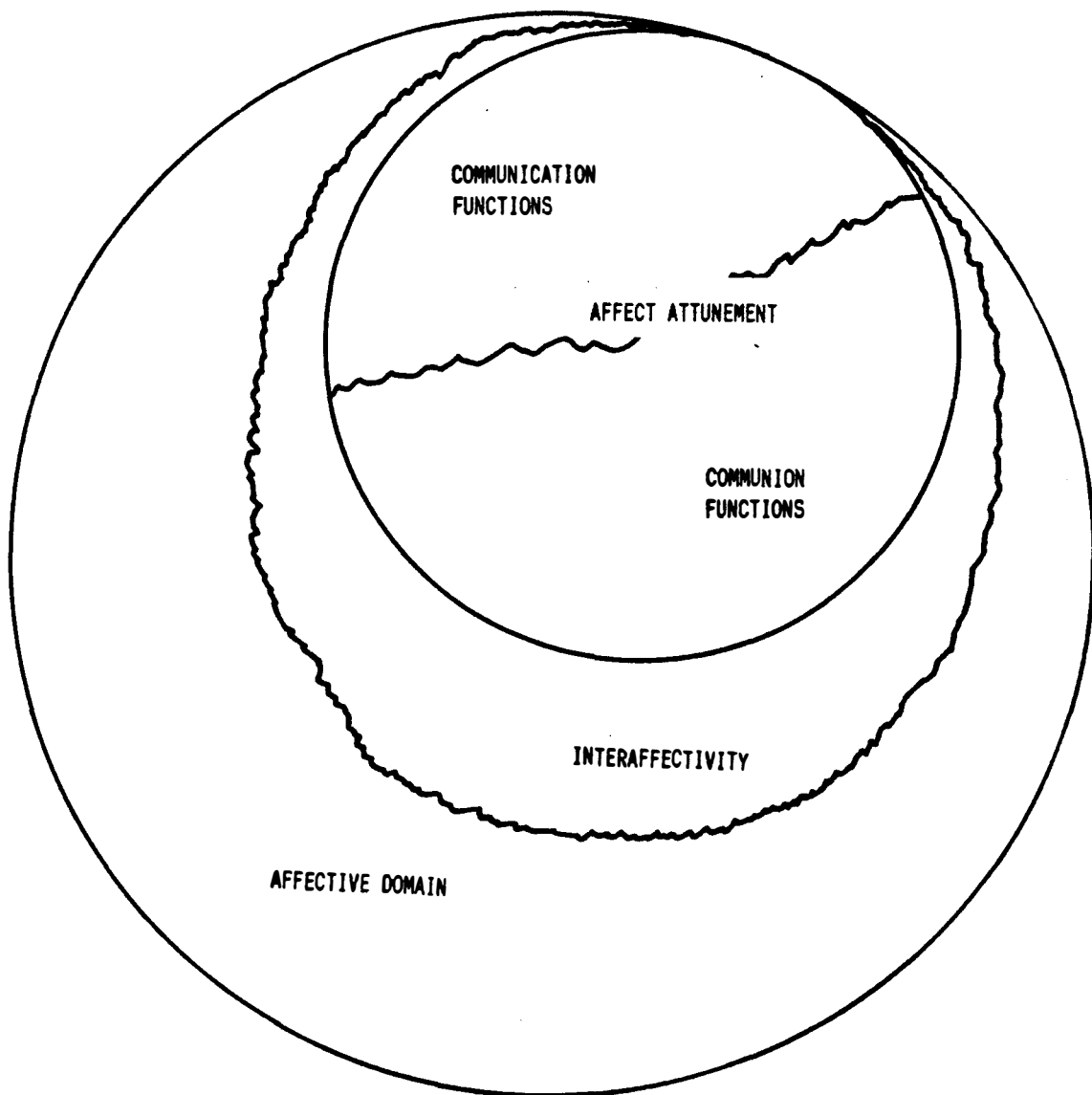
Stern's conceptualization of affective attunement and interpersonal relatedness have opened up new and exciting areas of inquiry. It is fitting that he should point to the future: "The phenomenon of affect attunement sits at the interface between parental fantasy and observable interactional conduct. In being so positioned, it holds promise for investigating these powerful developmental influences that parents bring to the interaction with their infants," (1985d, p.266).

FIGURE 1INTERAFFECTIVITY IN CONTEXT

Functions of Affect Attunement (Stern, 1985d):

Interpersonal communion is the largest category of attunement functions, and includes: "to be with", "to share," "to participate in" and "to join in."

Communication functions include: to respond, to tune, to restructure the interaction, to play, and to teach.

INTERSUBJECTIVE RELATEDNESS

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APPENDIX A



Michael Reese Hospital and Medical Center

Lake Shore Drive at 31st Street
Chicago, Illinois 60616
(312) 791-

Dear Ms.

Once again I want to thank you for helping us so generously with our research efforts. We are now beginning to study the developing relationship between parents and children and want very much to make another home film.

A member of our team, Mrs. Lenore Weissmann would like to come to your home and video-tape you and your child interacting in three 5-minute situations: free play, structured play, and feeding, as well as spend some time talking with you. The visit would last approximately two hours. We will give you a copy of this tape.

Collaborating on this project are Roseanne Clark, Ph.D., child psychologist and research fellow at the University of Wisconsin Medical School, and Lenore Weissmann, M.A., a mature mother, teacher, and Ph.D. candidate in Educational Psychology at Loyola University. They will be in touch with you by letter and phone to give you more details and to plan a convenient appointment time, if you are willing to participate.

Once again, thank you so much for your continued support and interest.

Sincerely,

Peter Barglow, M.D.
Clinical Director, PPI, Michael Reese Hosp.
Assoc. Prof. University of Chicago

Roseanne Clark, Ph.D.
Research Fellow, University of Wisconsin
Medical School, Dept. of Psychiatry

Lenore Weissmann, M.A.
Ph.D. Candidate, Dept. of Educational
Psychology, Loyola University

Consent to Participate in Experimental Research Study

Title of Research Project: Michael Reese Hospital and Medical Center
Mother-Infant Research Project

Investigators: Peter Barglow, M.D., Roseanne Clark, Ph.D., Lenore Weissmann,
M.A.

1. Purpose. The overall goal of this study is to trace the course of normal infant social-emotional development and mother-infant interaction throughout infancy. Psychological, personality, depressive or anxious feelings, affective and behavioral characteristics of both mother and infant will be evaluated with regard to potential contributions to healthy infant development and the quality of mother-infant interaction. The subject dyad has been chosen because of its history in the ongoing project.

2. Statement of Consent. I, _____, voluntarily agree to participate with my child, _____, in the research study, whose overall purposes have been described above. Therefore, I hereby authorize Drs. Peter Barglow, Roseanne Clark and/or Lenore Weissmann, M.A., as well as Michael Reese Hospital staff members working with them under advice and supervision, to perform the following psychological procedures on me and/or my infant:

3. Nature of the Procedures:

a. During the period when my child is between 9 and 48 months old, I will be visited at home by project staff, who will videotape me and my child interacting with each other in three situations, lasting five minutes each. The situations are: a feeding situation, a structured task, and unstructured play.

b. I will be asked to have completed several questionnaires relating to personality and psychological functioning both prior to and at the time of the visit.

c. I will view the videotape with Lenore Weissmann, or other project staff, and discuss the taped episodes and other aspects of parenting. The discussion will be audiotaped.

4. Risks. There are no potential risks in these procedures.

5. Discomforts. The home visit is expected to last approximately two hours. Hopefully the visit will not be inconvenient as project staff is aware of the time demands placed on mothers.

6. Benefits. Knowledge concerning those factors which contribute to healthy infant development and mother-infant interaction may benefit those concerned with fostering optimal growth and development in children. Further, participation in the observation of my infant may contribute to my understanding of infant growth and development in general and, more

specifically, further sensitize me to the capacities of my own infant. I understand that it is possible that I may derive no benefit from the above described procedures, but that information gained from the study may benefit others. I understand that the tape may be used, without identification, for research, education and training purposes. Although individual results will not be made available, I understand that I will have the opportunity to view the videotape with Lenore Weissmann, or other project staff, at which time questions concerning the video can be answered. I understand that a copy of the videotape will be given to me.

7. Alternative Procedures. None.

8. Compensation for Injuries. I understand that in the event of physical injury resulting from the research procedures, the Hospital will provide me with free emergency care, if such care is necessary. I also understand that if I wish, the Hospital will provide non-emergency medical care, but neither Dr. Barglow and his associates, nor the Hospital assumes any responsibility for such care or to provide me with financial compensation.

9. Right to Withdraw. I have been advised that Dr. Barglow and his associates will answer any questions I may have regarding this research study and that I am free to withdraw my consent and to discontinue participation in the project at any time without penalty and that standard treatment for my condition will remain available to me.

10. Guarantees. Dr. Barglow and his associates have not made or represented any guarantee to me as to the results that I may expect from participation in this study.

11. Confidentiality. I understand that information which is obtained in connection with these procedures and which can be identified with me will remain confidential and will be disclosed only with my written permission or as required by law and by the Food and Drug Administration. I understand that this information will be used in conjunction with information collected in earlier phases of the study. My records will be identified by a number rather than by my name, and this number code will be available to only Dr. Barglow, Dr. Clark and Mrs. Weissmann. Viewing of the tapes will be done with complete anonymity.

Date _____ Time _____

Signature of Parent

Signature of Witness

APPENDIX B

SCALE OF MOTHER-CHILD INTERAFFECTIVITY
PARENTAL VARIABLES

1. Depressed, Withdrawn, Apathetic Mood

This may be reflected in flattened or constricted range of affect, lack of animation in facial expression, few or sluggish movements and/or little expression of energy or interest in activities or interaction.

- 1 = Extreme apathy; withdrawal; depression; a picture of lifelessness. Behaviorally characterized by little or no movement; little or no interaction.
- 2 = Depressed; withdrawn affect. Less intense or pervasive than #1, very flat.
- 3 = Moderately depressed or flattened mood.
- 4 = Slight withdrawal or depression; one or two brief instances. Not pervasive mood. FLATNESS
- 5 = No evidence of apathy, depression or withdrawal.
- 6 = N.R.

2. Mirroring

This variable measures the behavioral indicators of the mother's emotional availability to the child. It can be seen in the mother's reflection of the child's affect and/or behavior through imitation, echoing (with infants), gazing, confirming behavior, approval, encouragement, and praise.

- 1 = No evidence of mirroring.
- 2 = Slight evidence (one or two instances of minimal intensity).
- 3 = Some episodes of mirroring (three or four instances).
- 4 = Considerable number of instances.
- 5 = Optimal mirroring characteristic.
- 6 = N.R.

3. Structures and Mediates Environment

This variable attempts to assess the parent as the child's first or auxiliary ego, i.e., a parent's demonstrated capacity to take the role of an adult caretaker as appropriate to her child's needs and to the task. This includes modulating affect and stimulation as well as facilitating the child's acquisition of skills and mastery of age-appropriate tasks. This can be measured by looking at the amount and the way in which s/he gains, helps to focus, and sustains the child's attention to the relevant aspects of the situation. The scaffolding provided by the parent may, with a younger infant, be manifested by good, protective caretaking. With an older child, this may include teaching, demonstrating, clear statements of expectations, and limit setting.

- 1 = No instances of providing structure or mediation of environment.
- 2 = A few attempts to structure/mediate.
- 3 = Moderate amount of structuring/mediating.
- 4 = On most occasions takes role of adult caretaker where this is appropriate.
- 5 = Characteristically takes role of adult caretaker.
- 6 = N.R.

4. Amount of Visual Contact With Child

Look at, gazing. Rater should attempt to differentiate between blank staring and genuine visual regard, i.e., "holding" the child through caring visual contact. Includes frequency and duration of occurrences of looking, gazing, and eye-to-eye contact as situationally appropriate.

- 1 = None.
- 2 = Slight.
- 3 = Moderate amount.
- 4 = Considerable. Not characteristic.
- 5 = Characteristic; frequently looks at or gazes at child when appropriate.
- 6 = N.R.

5. Amount of Verbalization

Amount of talking mother does to child and about child's activities.

- 1 = None.
- 2 = Infrequent.
- 3 = Moderate. Talks approximately half of the time.
- 4 = Considerable. Not characteristic.
- 5 = Frequent verbalizations.
- 6 = N.R.

6. Quality of Verbalizations

The quality of the parent's verbalizations to or about the child. Optimal includes imitating and extending child's verbalizations or infant's vocalizations, questioning and answering child; commenting on child's activities, etc. The key variable is whether or not language is used as communication; the verbal aspect of the mother-child dialogue. The rater should consider only the quality of the verbalizations, disregarding the number of times parent speaks to the child.

- 1 = No instances of communicative verbalizations or facilitation of child's language.
- 2 = Few.
- 3 = Moderate amount.
- 4 = Many. Not characteristic.
- 5 = Most verbalizations are of high quality or characterized by meaningful communication.
- 6 = N.R.

2

7. Social Initiative

Number of times mother initiates social interaction not around task directives, (e.g., gestures; makes faces; initiates vocalizations or plays with infant; initiates conversation or play with child).

- 1 = None.
- 2 = 1-2.
- 3 = 3-4.
- 4 = 5 or more. Not characteristically.
- 5 = Characteristic.
- 6 = N.R.

8. Parent Reads Child's Cues and Responds Sensitive and Appropriately

This variable is composed of parent's ability to accurately observe the child's cues, to understand what the child needs and wants and to demonstrate the capacity to respond appropriately. This involves both empathic awareness and response. Raters should take into account parent's response in relation to child's age and developmental level. (For example, if an infant squirms, or shows discomfort in the way he is held, mother adjusts holding position; if an older infant tugs at mother's skirt, she responds to his need for attention by touching, talking, holding, etc.; if a preschool age child asks questions or seeks mother's attention for something he is doing, the mother responds perhaps providing help, information, reassurance, or attention.) This may also include comforting and soothing a child when s/he is distressed.

- 1 = Insensitive to child; oblivious or unresponsive to child's cues; consistently misreads or misinterprets child's cues.
- 2 = Basically insensitive and/or oblivious to child's cues; minimal responsiveness to child's cues.
- 3 = Demonstrates some capacity to read child's cues and to respond somewhat appropriately.
- 4 = Reads child's cues and responds appropriately and sensitively most of the time.
- 5 = Very empathic; characteristically reads child's cues and responds sensitively and appropriately.
- 6 = N.R.

9. Connectedness

This variable assesses the quality of the parent's engagement; in tune with; genuine interest in child. Parent is aware of and involved with child even when not actively interacting with child. Attentiveness to child; subtly monitoring child; an awareness of child (e.g., mother can be preparing lunch, but simultaneously is aware of child's activities and needs). This evaluates both frequency and quality, i.e., genuineness of involvement. Ingenueness may be manifested by "going through the motions;" superficial interaction, or pretense of

involvement.

- 1 = No involvement; indifferent; distant; totally unaware; rarely even looks at child; unconnected.
- 2 = Very little involvement; makes only brief, fleeting periods of contact; this may also be manifested by "going through the motions" quality of interaction.
- 3 = Moderate, but sporadic or less intense involvement; some periods of connectedness.
- 4 = Considerable but not characteristic involvement/connectedness. Brief, fleeting periods of uninvolvement.
- 5 = Very involved; engaged; connected; in tune with child.
- 6 = N.R.

10. Flexibility/Rigidity

This variable assesses the parent's demonstrated capacity for flexibility ranging from inflexible, controlled, stiff response to infant/child's behavior to relaxed, spontaneous, flexible response.

- 1 = Very rigid, inflexible.
- 2 = Rigid; brief instances of flexibility.
- 3 = Moderate flexibility; some rigidity present.
- 4 = Mostly flexible or easy going.
- 5 = Characteristically flexible; easy going, spontaneous.
- 6 = N.R.

11. Intrusiveness

This variable evaluates the parent's intrusiveness and overinvolvement and focuses on his/her interference and domination of the child. This includes overstructuring, overcontrolling, interfering, overbearing, etc., so that the child's initiative is often thwarted. Child's age and task need to be taken into consideration.

- 1 = Very intrusive; domineering.
- 2 = Frequently intrusive (one or two instances of respect for child's initiative).
- 3 = Moderately intrusive.
- 4 = Slight intrusive behavior (one or two brief instances).
- 5 = Not at all intrusive; may or may not include respecting child's autonomy.
- 6 = N.R.

CHILD VARIABLES12. Apathetic, Withdrawn, Depressed Disposition

- 1=Little or no movement or responsiveness in interaction; flatness or depressed affect.
- 2=Brief, fleeting moments of interaction, interest or energy. Predominantly withdrawn or depressed.
- 3=Some periods of withdrawal; some episodes of depressed or flattened affect. Some interest, energy, relatedness present.
- 4=Slight depression, withdrawal or apathy, or one or two brief periods.
- 5=No depression, withdrawal, or apathy present.
- 6=N.R.

13. Communicative Competence

Child's ability to use gestures and/or language to make wants known.

- 1=Unskillful; inept; makes no attempts to communicate
- 2=Few attempts or not very skillful in communicating
- 3=Somewhat skillful in communicating or able to make wants known some of the time
- 4=Skillful most of the time
- 5=Very skillful; competent in making wants known
- 6=N.R.

14. Attentional Abilities

Situation relevant and age appropriate attention to mother and other stimuli

- 1=Tuned out; distractible; unable to focus and sustain attention
- 2=Brief periods of focused or sustained attention
- 3=Ability to focus or sustain attention approximately half the time
- 4=Can usually, but not always, focus and sustain attention
- 5=Focuses and sustains attention appropriately
- 6=N.R.

15. Social Behavior of Child Responds

Not ratable if there is nothing to respond to.

For infant (under 12 months): reaches towards, touches, looks at, vocalizes to, smiles to, plays with, or otherwise responds to mother's initiatives.

For child (over 12 months): speaks to, touches, smiles at, plays with or otherwise responds to mother's stimulation

- 1=Unresponsive
- 2=Slightly responsive (on one or two occasions or with minimal energy)
- 3=Responsive on several occasions
- 4=Usually responsive, moderate intensity
- 5=Consistently responsive
- 6=N.R.

16. Social Behavior of Child Initiates

For infant (under 12 months): touching, gazing, cooing, reaching towards, offering, smiling, whining, and otherwise seeking interaction

For child (over 12 months): speaking to, touching, showing, asking to play with, and otherwise seeking interaction.

- 1=Child does not initiate social interaction
- 2=Child initiates interaction on one or two occasions
- 3=Initiates interaction on several occasions
- 4=Frequently initiating. Not characteristic
- 5=Characteristically initiating
- 6=N.R.

DYAD VARIABLES17. Flat, Empty, Constricted

- 1-Extremely flat; empty; constricted. Dyadic interaction characterized by low energy level
 2-Predominantly flat
 3-Somewhat flat; somewhat constricted
 4-Slight flatness or constriction evident
 5-No flatness, emptiness or constriction
 6-N.R.

18. Enthusiasm, Arousal, Joyfulness, Mutual Enjoyment, A Sense of Dyadic "Jolie de Vivre"

- 1-No enjoyment and/or enthusiasm
 2-Slight enjoyment and/or enthusiasm
 3-Moderate enjoyment and/or enthusiasm
 4-Considerable enjoyment and/or enthusiasm. Not characteristic
 5-Characteristically joyful and enthusiastic
 6-N.R.

19. Joint Attention, Activity

Mother and child mutually engaged in same event or activity.
 How much are mother and child focused on the same event?

- 1-No joint attention
 2-Slight joint attention
 3-Some joint attention
 4-Considerable joint attention. Not characteristic
 5-Characteristically engaged in joint attention and activity
 6-N.R.

20. Reciprocity

Dialogue, bouts of interaction, turn-taking, characterized by contingent responsiveness and engagement on the part of both mother and child

- 1=None: unconnected
 2-Rare instances of reciprocity
 3-Some instances of reciprocity
 4-Frequently reciprocal; NOT CHARACTERISTIC
 5-Characteristically reciprocal
 6-N.R.

Child's D.O.B _____ Subject Number _____
Child's age _____ Date _____
Interviewer _____

Interview

I. Taping

1. How was it?
2. What was alike or different than it usually is for you and your child?
3. What did you like best?
4. What did you like least or what was the most difficult?
5. Any other comments or questions about the taping?

II. Developmental Milestones

1. Talking?
2. Walking? Other gross motor skills: crawling, etc.
3. Stranger anxiety?
4. Toilet training: (if age appropriate)
 - a. When and if started?

- b. How is it going, or how it went?
5. Autonomy and independence issues (if age appropriate).
6. Illnesses?
7. What were things like when child first born? (Eating, sleeping, regularity, etc.)

III. Temperament, etc. issues

1. What did you anticipate before your child was born? What kinds of fantasies, expectations did you have?
2. How alike or different was it?
 - a. (If not first child, how alike or different from first?)
3. Who does the child remind you of?
4. How would you characterize him/her?
5. Do you think it is a good match?

IV. Mothering (and family issues)

1. What do you remember about being mothered yourself?
2. If not elicited by above question, ask about:
 - a. siblings, place in family

b. family situation, relationships, etc.

3. Was your mother there for you? How?
4. Has your mother been supportive of you in your role as a mother? In what ways?
5. If not elicited by above questions, ask about:
 - a. Where parents live?
 - b. Where husband's family lives?
 - c. How often they see grandparents and other family members?
 - d. Is this a first grandchild? (etc.)
6. How does your own experience of being mothered relate to you in your role as a mother?
7. How available is your husband in terms of supporting you in your role as a mother?

V. Life Events Scale

1. Go into detail especially around following issues:
 - a. Mother's working:
 - 1) What she did before baby was born?
 - 2) Has she returned to work? When? (What?)
 - 3) Child Care? (If appropriate)

- 4) Separation - at the time of returning to work, and as an ongoing issue.
 - 5) Husband's role in sharing caretaking.
- b. Any other issue which has clear importance, such as the meaning of baby's birth to the marriage, or
 - c. Issues which clearly involve a great deal of stress, currently or around the time of the bab's birth.
2. Get as much detail as possible, or as makes sense, on all questions.

CSP 979
NATIONAL INSTITUTE OF MENTAL HEALTH
TREATMENT OF DEPRESSION COLLABORATIVE RESEARCH PROGRAM

Form 24

Life Events Interview (Patient - Pretreatment)

Site: _____ Patient No.: _____ Evaluation Code: 0 4

Evaluation Date: _____ - _____ - _____ Rater: 5 - _____
(Mo) (Day) (Yr) (Code) (I.D.)

The Life Events Interview is used to identify the important events which have happened to the patient in the past 12 months. It is to be completed by the research assistant based on the patient's report. Please see detailed instructions in Procedural Manual.

KEY: Degree of Stress

- 1 = Not at all stressful
2 = Slightly stressful
3 = Somewhat stressful
4 = Very stressful
5 = Extremely stressful

I. EVENTS	IF YES:		Degree of Stress	Date of Event(s) (Mo/Day/Yr)	
	1=Yes 2=No	No. of Events			
<u>Health</u>					
1. Illness (patient)	_____	_____	Event 1: _____	_____ - _____ - _____	(Card 1 28-36)
			Event 2: _____	_____ - _____ - _____	(37-43)
2. Illness (someone close to patient)	_____	_____	Event 1: _____	_____ - _____ - _____	(44-52)
			Event 2: _____	_____ - _____ - _____	(53-59)
3. Death (someone close to patient)	_____	_____	Event 1: _____	_____ - _____ - _____	(60-68)
			Event 2: _____	_____ - _____ - _____	(69-75)
<u>Employment</u>					
4. Events affecting job (patient)	_____	_____	Event 1: _____	_____ - _____ - _____	(Card 2 28-36)
			Event 2: _____	_____ - _____ - _____	(37-43)
5. Events affecting job (spouse or other member of patient's household)	_____	_____	Event 1: _____	_____ - _____ - _____	(44-52)
			Event 2: _____	_____ - _____ - _____	(53-59)
<u>Finances</u>					
6. Events affecting patient's financial situation	_____	_____	Event 1: _____	_____ - _____ - _____	(60-68)
			Event 2: _____	_____ - _____ - _____	(69-75)

79 FORM 24 (Page 2 of 2) (Patient - Pretreatment)

Site: _____ Patient No.: _____ Evaluation Code: 0 4

KEY: Degree of Stress
1 = Not at all stressful
2 = Slightly stressful
3 = Somewhat stressful
4 = Very stressful
5 = Extremely stressful

I. EVENTS (Cont.)	IF YES:		Degree of Stress	Date of Event(s) (Mo/Day/Yr)	
	1=Yes 2=No	No. of Events			
<u>Relationships with Others</u>					
7. Events affecting patient's relationships (immediate family or household)	_____	_____	Event 1: _____	____ - ____ - ____	(Card 28-36)
			Event 2: _____	____ - ____ - ____	(37-43)
8. Events affecting patient's relationships (other relatives, friends)	_____	_____	Event 1: _____	____ - ____ - ____	(44-52)
			Event 2: _____	____ - ____ - ____	(53-59)
<u>Housing</u>					
9. Events affecting where patient lives	_____	_____	Event 1: _____	____ - ____ - ____	(60-68)
			Event 2: _____	____ - ____ - ____	(69-75)
<u>Education</u>					
10. Events affecting patient's educational status	_____	_____	Event 1: _____	____ - ____ - ____	(Card 28-36)
			Event 2: _____	____ - ____ - ____	(37-43)
<u>Crises</u>					
11. Crises or emergencies	_____	_____	Event 1: _____	____ - ____ - ____	(44-52)
			Event 2: _____	____ - ____ - ____	(53-59)
<u>Other Events</u>					
12. Other important events	_____	_____	Event 1: _____	____ - ____ - ____	(60-68)
			Event 2: _____	____ - ____ - ____	(69-75)

II. ONGOING STRAINS

	1=Yes 2=No	Degree of Stress	
13. Serious ongoing health problems (patient)	_____	_____	(Card 28-36)
14. Serious ongoing health problems (someone close to patient)	_____	_____	(30-37)
15. Ongoing difficulties affecting job or ability to work	_____	_____	(32-37)
16. Ongoing financial strains	_____	_____	(34-37)
17. Ongoing difficulties affecting relationships within patient's household	_____	_____	(36-37)
18. Other ongoing difficulties:	_____	_____	(38)

**The
Parent-Infant
Early Relational Assessment**

The purpose of The Early Relational Assessment is to attempt to capture the infant/child's experience of the parent, the affective and behavioral characteristics that each bring to the interaction and the quality or tone of the relationship. This is an assessment of the areas of strength and areas of concern in the parent, the child and the dyad. Profiles may be developed for use in focusing clinical intervention efforts, program evaluation and research with families at risk for early relational disturbances.

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Observation/Videotaping of Parent-Child Interaction

For the purpose of observing the parent-child interaction and to assist in assessing current relationship issues in the dyad, parents and children are videotaped together for four 5-minute segments of 1) feeding, 2) structured task, 3) free play, and 4) separation/reunion.

Instructions to Raters:

This is a global rating instrument to be scored after continuous viewing of the entire five-minute videotape segment of parent-child interaction. It is recommended that the tape be reviewed a minimum of four passes through and that no more than ten items be scored after each viewing.

In determining how to rate each item, on a scale from 1-5, it is important to consider factors such as frequency, duration, and intensity of behavior. Each of these factors or any combination needs to be evaluated for their saliency for any given item. The N.R. (6) rating is used only when a particular item is not ratable.

For information regarding training, use and development of the scale, write:

Roseanne Clark, Ph.D.
Department of Psychiatry
University of Wisconsin Medical School
600 Highland Avenue
Madison, Wisconsin 53792
(608) 263-6096

Procedure and Format

Parent and child should be allowed to play for five minutes, prior to taping, in the area where taping will take place to allow for comfort with equipment and observer. During the 5-minute segments of taped parent-child (p-c) interaction, the camera format should remain constant for each situation. This is for rating purposes. It should be a medium shot allowing rater to observe facial expressions in order to assess affective displays. Parent and child should be seated towards camera as much as possible while still being able to look and comfortably interact with each other.

Situation #1 - Feeding

Parent and child are taped while seated during feeding, a mealtime or snack.

Instructions to mother: "We are interested in seeing you and _____ during feeding/eating together. Please be with _____ just as you usually would."

Situation #2 - Structured Task

Instructions to parent: Instructions and nature of the task are determined in accordance with the age of the child. (In all but the diapering task, parent and child are taped seated at a table.)

0-7 month child:

- (a) Diapering - "Please diaper _____ as you usually would."
- (b) Rattle - "Please see if you can get _____ interested in shaking the rattle. Do whatever you think might get _____ interested."

7-13 months: Materials - two cubes or cups, small block or toy, book.

- (a) "Please hide the block under the cube and have _____ try to find it."
- (b) "Add the second cube and hide the block alternately under each cube within _____'s sight and have _____ try to find it."
- (c) "If time permits, you may read this book together."

13 months-4 years: Materials - twelve colored one-inch cubes and matching cards, book.

- (a) "Please build a tower of four cubes and a bridge of three cubes and have _____ do the same."
- (b) Then have _____ match the blocks to the colors on these cards.
- (c) If time permits, you can read this book together."

4+ years: Materials - all matching cards, twelve colored blocks, and book. Instructions are the same as in previous task, except that the more difficult design matching colors cards are used.

Situation #3 - Free Play

Materials: Toys to choose from should be from suggested standard list. (See Appendix.) Instructions to parent: "This is a free play time with your child. You or _____ may choose the toy(s) that you would like to play with together."

PARENTAL VARIABLES

1-3 TONE OF VOICE

Tone of voice is to be considered a measure of observable affect. This includes intonation, modulation, pitch, and volume. A combination of duration, intensity, and frequency of voice tone are included in these evaluations. For example, in rating flatness in voice, consider for how long a period in the 5-minute segment (duration) the mother's voice was flat, how flat (intensity) was her voice, and/or how many periods of flatness were observed (frequency).

(1) Angry, Hostile Tone of Voice

The extent to which mild annoyance, a hostile edge, and/or anger are present. Volume in voice may be either loud or soft.

- 1 = Extreme anger; explosive bouts; shouting or yelling; pervasive, extensive anger or hostility in voice.
- 2 = One explosive bout or frequent hostility in voice.
- 3 = Occasional or moderate anger in voice.
- 4 = Expression of anger on one occasion or mild annoyance or hostility in voice.
- 5 = No anger in voice.
- 6 = N.R.

(2) Flat, Unemotional Tone of Voice

The extent to which parent's voice lacks inflection, expressiveness, or range of affect.

- 1 = Very flat; no emotion; monotonic.
- 2 = Flat tone of voice is characteristic; brief, fleeting periods of emotion in voice.
- 3 = Some emotion, inflection or change in pitch is present. Characteristic tone is flat.
- 4 = Brief or fleeting periods of flatness. Affective range in voice is characteristic.
- 5 = No flatness in voice. Characteristically expressive.
- 6 = N.R.

(3) Warm, Kind Tone of Voice

The degree of warmth present in tone of voice.

- 1 = Characteristic lack of warmth (e.g., cold distant tone of voice).
- 2 = Brief, fleeting periods of warmth or kindness. Voice characteristically cold.
- 3 = Some warmth or kindness in voice. Voice characteristically cool.
- 4 = Voice usually warm and kind. Brief, fleeting periods of coldness or distance.
- 5 = Very warm. Kind and loving voice.
- 6 = N.R.

4-5 PARENTIAL AFFECT

Affect is a measure of emotion that is expressed verbally, by facial expression, or through gestures. This is an assessment of the frequency of expressed and observed emotion.

(4) Expressed Positive Affect

This may be reflected in the amount of affection (e.g., touching, smiling, hugs) or enthusiasm. Ratings should reflect overall amount of affect, not only that which is directed toward child.

- 1 = None.
- 2 = Slight positive affect (one or two times for a brief period).
- 3 = Moderate positive affect (three or four times for a brief period).
- 4 = Considerable positive affect expressed (five or more times for a longer period than in #3). Not characteristic.
- 5 = Characteristically expresses positive affect frequently and easily.
- 6 = N.R.

(5) Expressed Negative Affect

This may be reflected in negative evaluations and rejecting behavior, turning away, harsh or abrupt sounding voice or behaviors, and scowls or frowns. Ratings should reflect overall amount of affect, not only that which is directed toward child.

- 1 = Considerable negative affect expressed frequently and characteristically.
- 2 = Moderate negative affect expressed 5 or more times for a shorter period than in #1. Not frequently or characteristically.
- 3 = Some negative affect (three or four times for a brief period).
- 4 = Slight negative affect (one or two times for a brief period).
- 5 = None.
- 6 = N.R.

6-10 PARENT'S CHARACTERISTIC MOOD

Mood is a pervasive and sustained emotion that in the extreme markedly colors the person's perception of the world. Mood can be inferred by affect, i.e., an immediately expressed and observed emotion. Mood is to affect as climate is to weather (DSM-III, Spitzer, R., et al. 1980).

(6) Angry, Hostile Mood

This may be reflected in hostile or angry behavior and/or facial expressions; tone of voice; content of vocalizations; posture. Consider intensity and duration of expressed affect.

- 1 = Extremely or characteristically hostile or angry mood, i.e., attitude and affect.

- 2 = Marked expression of anger and hostility; some modulation in intensity and duration. Angry mood not quite characteristic.
- 3 = Moderately angry or hostile. Quality of anger or hostility less intense.
- 4 = Slight annoyance, hostility or brief, fleeting episode of anger. Pervasive mood without anger.
- 5 = No anger displayed.
- 6 = N.R.

(7) Depressed, Withdrawn, Apathetic Mood

This may be reflected in flattened or constricted range of affect, lack of animation in facial expression, few or sluggish movements and/or little expression of energy or interest in activities or interaction.

- 1 = Extreme apathy; withdrawal; depression; a picture of lifelessness. Behaviorally characterized by little or no movement; little or no interaction.
- 2 = Depressed; withdrawn affect. Less intense or pervasive than #1, very flat.
- 3 = Moderately depressed or flattened mood.
- 4 = Slight withdrawal or depression; one or two brief instances. Not pervasive mood. *FLM-7 NLS*
- 5 = No evidence of apathy, depression or withdrawal.
- 6 = N.R.

(8) Anxious Mood

This anxiety should not be inferred, but manifested in such actions as motor tension, heightened motor activity, apprehension, agitation, vigilance, and scanning; also can include facial expressions and content of speech.

- 1 = Extreme, characteristic anxiety is reflected in the amount and duration of above indicators.
- 2 = Considerable anxiety. Less intense or pervasive than #1.
- 3 = Moderate intensity or amount of anxiety.
- 4 = Slight anxiety or presence of one or two brief instances.
- 5 = No anxiety or tension; easy going, relaxed.
- 6 = N.R.

(9) Enthusiastic, Animated, and Cheerful Mood, "Joie de Vivre"

This may be reflected in energy level, facial expression, positive tone and content of verbalizations.

- 1 = Totally unenthusiastic.
- 2 = Slight evidence of enthusiasm; one or two brief occasions of liveliness.
- 3 = Moderate enthusiasm; pleasant.
- 4 = Considerable amount of enthusiasm or cheerfulness present. Not characteristic.
- 5 = Characteristically enthusiastic; animated; cheerful; lively; "joie de vivre."

6 = N.R.

(10) Manic, Hyperexcited Mood

This variable is a measure of mood disturbance evidenced by the presence of constant speech or activity with a driven or frantic quality.

- 1 = Extreme.
- 2 = Considerable.
- 3 = Moderate.
- 4 = Slight.
- 5 = None.
- 6 = N.R.

11-12 PARENT'S EXPRESSED ATTITUDE TOWARD CHILD

Parent's attitude toward child as expressed in content of speech, tone of voice, and/or action. Take into account intensity, duration, and frequency of expressed attitudes.

(11) Displeasure, Disapproval, Criticism

This may be evidenced in mild expressions of displeasure to extreme amounts of criticism and/or negativity including harsh tone of voice, cynical, nasty and/or taunting remarks.

- 1 = Characteristically negative; critical; may include attributing negative characteristics to child; abusive remarks or behavior.
- 2 = Considerable negativity; critical much of the time.
- 3 = Moderately displeased, disapproving and/or critical.
- 4 = Slight displeasure, disapproval, and/or criticism.
- 5 = No evidence of displeasure, disapproval, or criticism.
- 6 = N.R.

(12) Enjoyment, Pleasure

This may range from slight pleasure to considerable enjoyment and a very positive attitude toward child. May include smiles, positive and encouraging statements, playfulness.

- 1 = No enjoyment or pleasure in child expressed.
- 2 = Slight enjoyment, pleasure.
- 3 = Moderate enjoyment and pleasure.
- 4 = Considerable enjoyment and pleasure expressed toward child.
- 5 = Expresses a great deal of enjoyment and pleasure; characteristic.

13 PARENTAL BEHAVIORAL INVOLVEMENT

Behavioral parental interactions with one's child are assessed in a number of areas. Style includes the manner, mode, and method of acting that is characteristic of the parent including posture, action, and affective involvement. Examples are looking, touching, talking, holding, responding,

and initiating.

(13) Mirroring

This variable measures the behavioral indicators of the mother's emotional availability to the child. It can be seen in the mother's reflection of the child's affect and/or behavior through imitation, echoing (with infants), gazing, confirming behavior, approval, encouragement, and praise.

- 1 = No evidence of mirroring.
- 2 = Slight evidence (one or two instances of minimal intensity).
- 3 = Some episodes of mirroring (three or four instances).
- 4 = Considerable number of instances.
- 5 = Optimal mirroring characteristic.
- 6 = N.R.

(14) Structures and Mediates Environment

This variable attempts to assess the parent as the child's first or auxiliary ego, i.e., a parent's demonstrated capacity to take the role of an adult caretaker as appropriate to her child's needs and to the task. This includes modulating affect and stimulation as well as facilitating the child's acquisition of skills and mastery of age-appropriate tasks. This can be measured by looking at the amount and the way in which s/he gains, helps to focus, and sustains the child's attention to the relevant aspects of the situation. The scaffolding provided by the parent may, with a younger infant, be manifested by good, protective caretaking. With an older child, this may include teaching, demonstrating, clear statements of expectations, and limit setting.

- 1 = No instances of providing structure or mediation of environment.
- 2 = A few attempts to structure/mediate.
- 3 = Moderate amount of structuring/mediating.
- 4 = On most occasions takes role of adult caretaker where this is appropriate.
- 5 = Characteristically takes role of adult caretaker.
- 6 = N.R.

(15) Amount of Proximal Contact With Child

Touch, hold, handle. Includes frequency and duration of occurrences.

- 1 = None.
- 2 = Slight.
- 3 = Moderate amount.
- 4 = Considerable. Not characteristic.
- 5 = Characteristic; frequently touches and holds child when appropriate.
- 6 = N.R.

(16) Quality of Physical Contact: Positive

This variable assesses the quality of positive physical contact experienced by child. This may include gentle, sensitive handling, cuddling, caresses, warm touches and hugs.

- 1 = None observed.
- 2 = Few instances.
- 3 = Moderate amount.
- 4 = Considerable; not characteristic.
- 5 = Characteristic; frequently touches and holds child.
- 6 = N.R.

(17) Quality of Physical Contact: Negative

This may range from awkward, abrupt, and/or insensitive handling to intense tickling and/or rough-and-tumble play to physical restraint, slapping, pinching, and/or hitting.

- 1 = Characteristic; frequent negative contact or restraint of child.
- 2 = Considerable. Not characteristic.
- 3 = Moderate amount.
- 4 = Slight.
- 5 = None.
- 6 = N.R.

(18) Amount of Visual Contact With Child

Look at, gazing. Rater should attempt to differentiate between blank staring and genuine visual regard, i.e., "holding" the child through caring visual contact. Includes frequency and duration of occurrences of looking, gazing, and eye-to-eye contact as situationally appropriate.

- 1 = None.
- 2 = Slight.
- 3 = Moderate amount.
- 4 = Considerable. Not characteristic.
- 5 = Characteristic; frequently looks at or gazes at child when appropriate.
- 6 = N.R.

(19) Amount of Verbalization

Amount of talking mother does to child and about child's activities.

- 1 = None.
- 2 = Infrequent.
- 3 = Moderate. Talks approximately half of the time.
- 4 = Considerable. Not characteristic.
- 5 = Frequent verbalizations.
- 6 = N.R.

(20) Quality of Verbalizations

The quality of the parent's verbalizations to or about the child. Optimal includes imitating and extending child's verbalizations or infant's vocalizations, questioning and answering child; commenting on child's activities, etc. The key variable is whether or not language is used as communication; the verbal aspect of the mother-child dialogue. The rater should consider only the quality of the verbalizations, disregarding the number of times parent speaks to the child.

- 1 = No instances of communicative verbalizations or facilitation of child's language.
- 2 = Few.
- 3 = Moderate amount.
- 4 = Many. Not characteristic.
- 5 = Most verbalizations are of high quality or characterized by meaningful communication.
- 6 = N.R.

(21) Social Initiative

Number of times mother initiates social interaction not around task directives, (e.g., gestures; makes faces; initiates vocalizations or plays with infant; initiates conversation or play with child).

- 1 = None.
- 2 = 1-2.
- 3 = 3-4.
- 4 = 5 or more. Not characteristic.
- 5 = Characteristic.
- 6 = N.R.

(22) Parent Reads Child's Cues and Responds Sensitive and Appropriately

This variable is composed of parent's ability to accurately observe the child's cues, to understand what the child needs and wants and to demonstrate the capacity to respond appropriately. This involves both empathic awareness and response. Raters should take into account parent's response in relation to child's age and developmental level. (For example, if an infant squirms, or shows discomfort in the way he is held, mother adjusts holding position; if an older infant tugs at mother's skirt, she responds to his need for attention by touching, talking, holding, etc.; if a preschool age child asks questions or seeks mother's attention for something he is doing, the mother responds perhaps providing help, information, reassurance, or attention.) This may also include comforting and soothing a child when s/he is distressed.

- 1 = Insensitive to child; oblivious or unresponsive to child's cues; consistently misreads or misinterprets child's cues.
- 2 = Basically insensitive and/or oblivious to child's cues; minimal responsiveness to child's cues.

- 3 = Demonstrates some capacity to read child's cues and to respond somewhat appropriately.
- 4 = Reads child's cues and responds appropriately and sensitively most of the time.
- 5 = Very empathic; characteristically reads child's cues and responds sensitively and appropriately.
- 6 = N.R.

(23) Contingent Responsivity to Child's Positive Behavior

This variable measures how quickly and frequently a parent responds based on the child's actions or cues. The key factor in this variable is the rapidity and regularity with which the parent responds to the child's specific behavior. There is the sense that the child feels that his/her actions have an effect on the parent.

- 1 = No evidence of contingent responses.
- 2 = Contingent responses are rare and/or delayed.
- 3 = Some instances of contingent responsivity or somewhat delayed responses.
- 4 = Usually contingently responsive; a few instances of delay or absences of response.
- 5 = Characteristically contingently responsive.
- 6 = N.R.

(24) Contingent Responsivity to Child's Negative Behavior

This variable measures how quickly and frequently a parent responds based on the child's actions or cues. The key factor in this variable is the rapidity and regularity with which the parent responds to the child's specific behavior. There is the sense that the child feels that his/her actions have an effect on the parent.

- 1 = No evidence of contingent responses.
- 2 = Contingent responses are rare and/or delayed.
- 3 = Some instances of contingent responsivity or somewhat delayed responses.
- 4 = Usually contingently responsive; a few instances of delay or absences of response.
- 5 = Characteristically contingently responsive.
- 6 = N.R.

(25) Connectedness

This variable assesses the quality of the parent's engagement; in tune with; genuine interest in child. Parent is aware of and involved with child even when not actively interacting with child. Attentiveness to child; subtly monitoring child; an awareness of child (e.g., mother can be preparing lunch, but simultaneously is aware of child's activities and needs). This evaluates both frequency and quality, i.e., genuineness of involvement. Ingenuineness may be manifested by "going through the motions;" superficial interaction, or pretense of

involvement.

- 1 = No involvement; indifferent; distant; totally unaware; rarely even looks at child; unconnected.
- 2 = Very little involvement; makes only brief, fleeting periods of contact; this may also be manifested by "going through the motions" quality of interaction.
- 3 = Moderate, but sporadic or less intense involvement; some periods of connectedness.
- 4 = Considerable but not characteristic involvement/connectedness. Brief, fleeting periods of uninvolvedness.
- 5 = Very involved; engaged; connected; in tune with child.
- 6 = N.R.

(26) Evidence of Behavioral Disturbances

This variable is a measure of reality-oriented vs. disturbed behavior. The rater should look for evidence of distorted, disordered or confused thinking, or affect inappropriate to the situation. Parent's behavior and affect may also appear to be peculiar (off-target). This variable manifests itself through facial expressions, gestures, speech (content), and actions.

- 1 = Extremely inappropriate; i.e., evidence of psychotic process.
- 2 = Considerable evidence of inappropriate behavior (peculiar but not psychotic).
- 3 = Some evidence of inappropriate behavior and/or affect.
- 4 = Slight (on one occasion) evidence of inappropriate behavior and/or affect.
- 5 = Not at all inappropriate.
- 6 = N.R.

27-30 PATERNAL STYLE

In addition to amount of behaviors the child experiences in interaction with the parent, the parental style of caretaking and being with one's child are experienced as well. The quality of interactions may be reflected in parent's sensitivity and involvement, intrusiveness, flexibility and consistency.

(27) Flexibility/Rigidity

This variable assesses the parent's demonstrated capacity for flexibility ranging from inflexible, controlled, stiff response to infant/child's behavior to relaxed, spontaneous, flexible response.

- 1 = Very rigid, inflexible.
- 2 = Rigid; brief instances of flexibility.
- 3 = Moderate flexibility; some rigidity present.
- 4 = Mostly flexible or easy going.
- 5 = Characteristically flexible; easy going, spontaneous.
- 6 = N.R.

(28) Creativity/Resourcefulness

This variable assesses in the amount of the parent...initiates novel interactions with the child and may include following child, extending and elaborating child's initiations. Rater may infer parent's ingenuity and resourcefulness.

- 1 = Not creative, limited in approach to child.
- 3 = Some indication of creativity; ingenuity; resourcefulness.
- 5 = Very creative; original; resourceful.
- 6 = N.R.

(29) Consistency/Predictability

This variable refers to the predictability for the child of parent's behavior and responses (e.g., clear consistent messages, congruent affect and behavior responses are predictable over time).

- 1 = Very inconsistent; extreme fluctuation in parent's style.
- 2 = Inconsistent; fluctuation more predominant than consistency.
- 3 = Somewhat consistent; some fluctuation evident.
- 4 = Consistent; slight fluctuations.
- 5 = Very consistent; predictable.
- 6 = N.R.

(30) Intrusiveness

This variable evaluates the parent's intrusiveness and overinvolvement and focuses on his/her interference and domination of the child. This includes overstructuring, overcontrolling, interfering, overbearing, etc., so that the child's initiative is often thwarted. Child's age and task need to be taken into consideration.

- 1 = Very intrusive; domineering.
- 2 = Frequently intrusive (one or two instances of respect for child's initiative).
- 3 = Moderately intrusive.
- 4 = Slight intrusive behavior (one or two brief instances).
- 5 = Not at all intrusive; may or may not include respecting child's autonomy.
- 6 = N.R.

CHILD VARIABLES

12-33 CHILD'S AFFECT

(12) Amount of Expressed Positive Affect

In general, not only towards mother. This can be manifested by touches, smiles, enthusiasm, affective giving, sharing, pride in accomplishments, kisses, and hugs.

1=None

2=Slight positive emotion: (one or two times for a brief period).

3=Some positive affect: (three or four times for a brief period).

4=Moderate (positive affect expressed five or more times for longer than 23). Not frequently or characteristically.

5=Considerable; positive affect expressed frequently, easily, and characteristically.

6=N.R.

(33) Amount of Expressed Negative Affect

In general, not only towards mother. This can be manifested by crying, whining, throwing, obstinacy, hitting, scowling.

1=Considerable; negative affect expressed frequently and characteristically.

2=Moderate (negative affect expressed five or more times for a longer period than in #3). Not frequently or characteristically.

3=Some negative affect (three or four times for a brief period).

4=Slight negative affect (one or two times for a brief period).

5=None

6=N.R.

34-37 CHARACTERISTIC DISPOSITION

* Not ratable under 12 months of age

This variable combines affective states and manifestations of temperament.

(34) Angry and Hostile Disposition

- 1-Extreme anger and/or hostility (e.g., rage, protracted temper tantrums, extreme negativity).
- 2-Marked expression of anger. Not quite characteristic.
- 3-Somewhat angry.
- 4-Brief, fleeting episode of anger. Pervasive disposition without anger.
- 5-No anger or hostility displayed.
- 6-N.R.

(35) Apathetic, Withdrawn, Depressed Disposition

- 1-Little or no movement or responsiveness in interaction; flatness or depressed affect.
- 2-Brief, fleeting moments of interaction, interest or energy. Predominantly withdrawn or depressed.
- 3-Some periods of withdrawal; some episodes of depressed or flattened affect. Some interest, energy, relatedness present.
- FLAT-4-Slight depression, withdrawal or apathy, or one or two brief periods.
- 5-No depression, withdrawal, or apathy present.
- 6-N.R.

(36) Anxiety

This can be manifested in heightened motor activity, expressions of fearfulness, self-doubt, questioning, frozen watchfulness, vigilance, scanning.

- 1-Extreme anxiety.
- 2-Considerable anxiety.
- 3-Some anxiety.
- 4-Slight anxiety.
- 5-No anxiety present.
- 6-N.R.

(37) Happiness, Pleasantness, Playfulness, Cheerfulness, Enthusiasm

- 1=None
- 2=Slight ¹⁻²
- 3=Some ³⁻⁴
- 4=Considerable. Not characteristic. 5⁺
- 5=Characteristic
- 6-N.R.

42-47 CHILD'S BEHAVIOR

(42) Communicative Competence

Child's ability to use gestures and/or language to make wants known.

- 1-Unskillful; inept; makes no attempts to communicate
- 2-Few attempts or not very skillful in communicating
- 3-Somewhat skillful in communicating or able to make wants known some of the time
- 4-Skillful most of the time
- 5-Very skillful; competent in making wants known
- 6-N.R.

(43) Attentional Abilities

Situation relevant and age appropriate attention to mother and other stimuli

- 1-Tuned out; distractable; unable to focus and sustain attention
- 2-Brief periods of focused or sustained attention
- 3-Ability to focus or sustain attention approximately half the time
- 4-Can usually, but not always, focus and sustain attention
- 5-Focuses and sustains attention appropriately
- 6-N.R.

(44) Social Behavior of Child Responds

Not ratable if there is nothing to respond to.

For infant (under 12 months): reaches towards, touches, looks at, vocalizes to, smiles to, plays with, or otherwise responds to mother's initiatives.

For child (over 12 months): speaks to, touches, smiles at, plays with or otherwise responds to mother's stimulation

- 1-Unresponsive
- 2-Slightly responsive (on one or two occasions or with minimal energy)
- 3-Responsive on several occasions
- 4-Usually responsive, moderate intensity
- 5-Consistently responsive
- 6-N.R.

38-39 BABY'S TEMPERAMENT

* Not ratable over 12 months of age

BABY'S GENERAL DISPOSITION**(38) Irritability**

Irritable; tense; moody; fussy. May include difficult to care for, difficult to soothe. Raters should keep in mind frequency, intensity, duration.

- 1-Extremely irritable.
- 2-Generally, but not exclusively irritable.
- 3-Moderately irritable.
- 4-Slight irritability.
- 5-No irritability.
- 6-N.R.

(39) Pleasant, cheerful, easy-going

- 1-Not at all.
- 2-Slightly pleasant, cheerful, easy-going (brief periods of cheerfulness).
- 3-Moderately cheerful; somewhat pleasant or easy-going.
- 4-Usually pleasant, cheerful, and easy-going. Not characteristic.
- 5-Characteristically pleasant, cheerful, or easy-going.
- 6-N.R.

40-41 CHILD'S ACTIVITY LEVEL

Activity is amount of fine and gross motor activity. If child is extreme on one scale (#40) or (#41), he is not ratable on the other. Age appropriate level should be taken into account.

(40) Passivity

- 1-Extremely passive; inactive; hypomobile.
- 3-Somewhat passive, inactive.
- 5-Average
- 6-N.R.

(41) Hyperactivity

- 1-Extremely hyperactive; hypermobile.
- 3-Somewhat hyperactive.
- 5-Average
- 6-N.R.

(45) Social Behavior of Child-Initiates

For infant (under 12 months): touching, gazing, cooing, reaching towards, offering, smiling, whining, and otherwise seeking interaction.

For child (over 12 months): speaking to, touching, showing, asking to play with, and otherwise seeking interaction.

- 1-Child does not initiate social interaction
- 2-Child initiates interaction on one or two occasions
- 3-Initiates interaction on several occasions
- 4-Frequently initiating. Not characteristic
- 5-Characteristically initiating
- 6-N.R.

(46) Compliance/Noncompliance; Cooperative/Uncooperative

- 1-Characteristically refuses; ignores; disregards
- 2-Refuses, ignores or disregards most of the time
- 3-Uncooperative, noncompliant some of the time
- 4-One or two instances of noncompliance, predominantly compliant
- 5-Characteristically compliant
- 6-N.P.

(47) Readability

For rater, clarity of child's behavior. Has this child been easy to rate? Are the signals clear?

- 1-Unreadable; unclear; impossible to interpret
- 2-Predominantly unreadable
- 3-Somewhat readable
- 4-Predominantly readable
- 5-Extremely readable
- 6-N.R.

DYADIC VARIABLES

The rater is asked to make a clinical judgment of the quality of interaction of the dyad. In this case, dyadic interaction should be considered as a whole, which is greater and perhaps different than the sum of its parts.

48-51 AFFECTIVE QUALITY OF INTERACTION

The emotional tone of the dyad

(48) Anger, Hostility

- 1-Extreme anger; hostility
- 2-Marked anger; some modulation
- 3-Somewhat angry, hostile. Quality less intense
- 4-Slight or brief episode of anger. Pervasive quality of interaction without anger and hostility
- 5-No anger and/or hostility
- 6-N.R.

(49) Flat, Empty, Constricted

- 1-Extremely flat; empty; constricted. Dyadic interaction characterized by low energy level
- 2-Predominantly flat
- 3-Somewhat flat; somewhat constricted
- 4-Slight flatness or constriction evident
- 5-No flatness, emptiness or constriction
- 6-N.R.

(50) Tension, Anxiety

- 1-Extreme tension or anxiety
- 2-Considerable tension or anxiety
- 3-Somewhat tense or anxious
- 4-Slight tension and/or anxiety
- 5-No tension or anxiety
- 6-N.R.

(51) Enthusiasm, Arousal, Joyfulness, Mutual Enjoyment, A Sense of Dyadic "Jolie de Vivre"

- 1-No enjoyment and/or enthusiasm
- 2-Slight enjoyment and/or enthusiasm
- 3-Moderate enjoyment and/or enthusiasm
- 4-Considerable enjoyment and/or enthusiasm. Not characteristic
- 5-Characteristically joyful and enthusiastic
- 6-N.R.

52-53 MUTUALITY**(52) Joint Attention, Activity**

Mother and child mutually engaged in same event or activity. How much are mother and child focused on the same event?

- 1-No joint attention
- 2-Slight joint attention
- 3-Some joint attention
- 4-Considerable joint attention. Not characteristic
- 5-Characteristically engaged in joint attention and activity
- 6-N.R.

(53) Reciprocity

Dialogue, bouts of interaction, turn-taking, characterized by contingent responsivity and engagement on the part of both mother and child

- 1=None; unconnected
- 2-Rare instances of reciprocity
- 3=Some instances of reciprocity
- 4=Frequently reciprocal. *NOT* CHARACTERISTIC
- 5-Characteristically reciprocal
- 6-N.R.

CONSIDERABLE

CHARACTERISTIC

s. mutuality

APPENDIX B

NBAS CLUSTER SCORING CRITERIA*

BRAZELTON NEONATAL BEHAVIORAL ASSESSMENT SCALE SEVEN CLUSTER SCORING CRITERIA

Items*		Clusters
		Habituation
1. Light.....	Raw score	
2. Rattle.....	Raw score	
3. Bell.....	Raw score	
4. Pinprick.....	Raw score	
		Orientation
5. Inanimate visual.....	Raw score	
6. Inanimate auditory.....	Raw score	
7. Animate visual.....	Raw score	
8. Animate auditory.....	Raw score	
9. Visual auditory.....	Raw score	
10. Alertness.....	Raw score	
		Motor
11. Tonus.....	Recode: 9/1=1; 8/2=2; 7/3=3; 4=4; 5=5; 6=6	
12. Maturity.....	Raw score	
13. Pull to sit.....	Raw score	
15. Defense.....	Raw score	
20. Activity.....	Recode: 9/1=1; 8/2=2; 7/3=3; 4/6=4; 5=5	
		Range of state
17. Peak of excitement.....	Recode: 9/1=1; 8/2=2; 4/3=3; 7/5=4; 6=5	
18. Rapidity of buildup.....	Recode: 9/1=1; 8/2=2; 7/3=3; 4=4; 5=5; 6=6	
19. Irritability.....	Recode: 9/1=1; 8=2; 7=3; 6=4; 5=5; 2,3,4=6	
24. Lability of state.....	Recode: 1,7,8,9=1; 5,6=2; 4=3; 3=4; 2=5	
		Regulation of state
14. Cuddliness.....	Raw score	
16. Consolability.....	Raw score	
25. Self-quieting.....	Raw score	
26. Hand to mouth.....	Raw score	
		Autonomic stability
21. Tremors.....	Recode: Invert: 9=1 (1=9); 8=2 (2=8); etc.	
22. Startles.....	Recode: If 1, drop; otherwise invert 2-9 on 8-point scale	
23. Skin color.....	Recode: 9,1=1; 8=2; 7=3; 6=4; 5=5; 3,4=6; 2=7	
		Reflexes
		An abnormal score is defined as 0, 1, or 3 for all reflexes except clonus, nystagmus, or TNR where 0, 1, and 2 are normal and 3 is abnormal. Reflex score = total number of abnormal reflex scores

* Numbers represent Brazelton scale item number.

APPENDIX BSUBJECT DATA

	INTERAFF	MOTH-AGE	CPI-FE	RANGE	PARITY
CASE 1	59.500	29.000	44.000	4.000	2.000
CASE 2	62.000	34.000	50.000	4.500	1.000
CASE 3	66.500	30.000	44.000	3.250	3.000
CASE 4	69.500	27.000	59.000	2.750	1.000
CASE 5	69.500	27.000	53.000	3.000	2.000
CASE 6	72.000	29.000	62.000	4.000	1.000
CASE 7	73.000	31.000	53.000	4.000	1.000
CASE 8	74.000	27.000	48.000	3.000	1.000
CASE 9	74.000	28.000	46.000	4.500	1.000
CASE 10	75.500	27.000	46.000	3.500	1.000
CASE 11	75.500	27.000	50.000	5.000	1.000
CASE 12	75.500	34.000	53.000	3.750	1.000
CASE 13	76.000	26.000	56.000	4.750	1.000
CASE 14	76.000	23.000	36.000	3.000	1.000
CASE 15	77.500	19.000	53.000	2.500	1.000
CASE 16	78.500	31.000	56.000	3.000	1.000
CASE 17	78.500	35.000	47.000	2.750	3.000
CASE 18	80.000	28.000	59.000	5.250	1.000
CASE 19	81.000	32.000	38.000	2.250	1.000
CASE 20	81.000	28.000	62.000	3.000	1.000
CASE 21	82.500	30.000	47.000	1.750	2.000
CASE 22	83.000	35.000	56.000	1.750	2.000
CASE 23	83.000	35.000	52.000	1.250	2.000
CASE 24	83.000	30.000	38.000	4.500	1.000
CASE 25	83.500	28.000	74.000	3.000	2.000
CASE 26	83.500	31.000	50.000	1.750	2.000
CASE 27	85.500	33.000	58.000	4.500	1.000
CASE 28	85.750	35.000	55.000	4.000	1.000
CASE 29	86.000	37.000	54.000	4.500	1.000
CASE 30	86.000	34.000	50.000	3.000	1.000
CASE 31	86.000	29.000	59.000	1.750	1.000
CASE 32	87.000	32.000	50.000	3.250	1.000
CASE 33	87.500	26.000	56.000	4.000	1.000
CASE 34	89.000	27.000	59.000	1.750	1.000
CASE 35	89.500	31.000	65.000	4.250	2.000
CASE 36	92.000	32.000	50.000	1.750	2.000
CASE 37	92.500	34.000	50.000	4.000	1.000
CASE 38	93.000	29.000	65.000	1.750	1.000
CASE 39	93.500	34.000	50.000	4.750	2.000
CASE 40	94.500	30.000	52.000	3.250	1.000

APPENDIX C

Subject # _____

Case Study Outline and Sources of Information

1. Issues
2. Family Data and Information

Mother	Infant
Age	Age DOB Sex
Occupation and Education	Birth Order

Current Family Situation

 - a) Working
 - b) Stresses
 - c) Husband's role
3. Mother's Background - Family
 - a) number in family, place in family, location of family, other
 - b) memories of own mothering
4. Maternal Data
 - a) CPI-Fe,
5. Child Data
 - a) NBAS Clusters / interpretation
 - b) Bates
 - c) Developmental landmarks problems?
6. Mother/Child
 - a) expectations before birth
 - b) child at birth - like expected?
 first period/first 6 months
 - c) how characterize now
 - d) who reminds her of
7. Dyadic Data
 - a) Relational Profile (Full scale)
 Subscales
 Ind. scales and patterns
 - b) Observation
8. Interaffectivity
 - a) Score - and subscores
 (maternal, child, dyadic) -
 1) interpretation
 - b) What is being shared (Stern)
 - c) Domain of self (Stern)
9. Summary

APPENDIX CNBAS and Bates Scores for Case Studies

NBAS CLUSTER SCORES

Charles' scores, Ruth's scores and the means and standard deviations for this group follow:

Cluster	Charles	Mean	Std. Dev.	Ruth
Habituation	6.750	6.045	1.509	5.750
Orientation	4.50	6.545	1.406	6.167
Motor	4.60	5.198	0.893	5.400
Range of State	3.250	3.306	1.088	3.00
Regula.of State	5.000	5.717	1.193	6.00
Autonomic Stblty	8.000	7.233	1.013	7.500
Reflexes	0.000	2.125	1.556	0.00

Bates Temperament Data:

The Bates ICQ (Infant Characteristics Questionnaire) (Bates, Freeland and Lounsbury, 1979) requires mothers to rate their infant on a number of characteristics, and results in four factors, as follows:

I Fussy-difficult - an infant that is fussy and hard to sooth is seen as difficult, and an infant that is contented and easily soothed is seen as easy.

II Unadaptable - initial and eventual reactions to new events, people and things

III Dull - a negative loading means that mothers see more active infants as more sociable and fun.

IV - Unpredictable - how hard or easy it is predict infant's needs.

Charles' Temperament

Charles' scores reflect the way his mother has characterized his first six months, which is not surprising, since one of the things that this scale measures is the mother's perceptions. (There is considerable conflict in literature about temperament - see Vaughn et al, 1987). Except for Factor III, dull, the factors reflect a large divergence from the mean, as follows:

	Fussy	Unadaptable	Dull	Unpredictable
	29	13	6	13
M	17.77	8.90	5.88	7.32
SD	5.88	4.00	1.85	2.69

Ruth's Temperament

Ruth's scores reflect her mother's characterization of her - as "not so easy" (see Fussy), and somewhat demanding (see Persistent).

Bates Scores for Ruth, on the 13 month norms.

	Fussy	Unadaptable	Persistent	Unsocial
	39	14	10	5
M	28.64	13.82	13.08	6.86
SD	7.43	4.40	3.32	2.53

Profile of Scores for Mother-Child Interaction Scale

Child's age 12 mos Sex M Tape Letter A Subject Number 2
 Date/Profile 2/3/87 Segment Stt Date of Tape 7/3/85 D.O.B.

PARENTAL VARIABLES	Area of Concern 1-2	Needs Attnn 3	Area of Strength 4-5
<u>TONE OF VOICE (1-3)</u>			
1. Angry, hostile voice	_____	_____	<u>5</u>
2. Flat voice	_____	_____	<u>5</u>
3. Warm, kind voice	_____	_____	<u>5</u>
<u>PARENTAL AFFECT (4-5)</u>			
4. Expressed positive affect	_____	_____	<u>5</u>
5. Expressed negative affect	_____	_____	<u>5</u>
<u>Parent's CHARACTERISTIC MOOD (6-10)</u>			
6. Angry, hostile mood	_____	_____	<u>4.5</u>
7. Depressed, withdrawn mood	_____	_____	<u>4.5</u>
8. Anxious mood	_____	_____	<u>4</u>
9. Enthusiastic, cheerful mood	_____	_____	<u>4.5</u>
10. Manic, hyperexcited mood	_____	_____	<u>5</u>
<u>EXPRESSD ATTITUDE TWRD CHILD (11-12)</u>			
11. Displeasure, disapprove, crit	_____	_____	<u>5</u>
12. Enjoyment, pleasure	_____	_____	<u>5</u>
<u>PRNT BEHAVIORAL INVOLVEMENT (13-26)</u>			
13. Mirroring	_____	_____	<u>5</u>
14. Structures and mediates	_____	_____	<u>5</u>
15. Amt. proximal contact	_____	<u>3.5</u>	_____
16. Qual. phys. contact: positive	_____	_____	<u>4</u>
17. Qual. phys. contact: negative	_____	_____	<u>4</u>
18. Amt. visual contact	_____	_____	<u>5</u>
19. Amt. of verbalization	_____	_____	<u>4.5</u>
20. Quality of verbalization	_____	_____	<u>5</u>
21. Social initiative	_____	_____	<u>4.5</u>
22. Reads cues-responds sensitive	_____	_____	<u>4.5</u>
23. Contingent response: positive	_____	_____	<u>4.5</u>
24. Contingent response: negative	_____	_____	<u>4</u>
25. Connectedness	_____	_____	<u>5</u>
26. Behavioral Disturbance	_____	_____	<u>5</u>
<u>PARENTAL STYLE (27-30)</u>			
27. Flexibility/rigidity	_____	_____	<u>4.5</u>
28. Creativity/resourcefulness	_____	_____	<u>4.5</u>
29. Consistency/predictability	_____	_____	<u>5</u>
30. Intrusiveness	_____	_____	<u>4.5</u>

Tape Letter A Subject Number _____

	Area of Concern 1-2	Needs Attntn 3	Area of Strength 4-5
<u>Child Variables</u>			
<u>CHILD'S AFFECT (32-33)</u>			
32. Amt. expressed pos.affect	_____	_____	<u>5</u>
33. Amt. expressed neg. affect	_____	_____	<u>5</u>
<u>CHARACTERISTIC DISPOSITION(34-37)</u>			
34. Angry,hostile disposition	_____	_____	<u>5</u>
35. Apathetic,withdrawn mood	_____	_____	<u>4.5</u>
36. Anxious mood	_____	_____	<u>5</u>
37. Happy,playful,enthus mood	_____	_____	<u>5</u>
<u>BABY'S TEMPERAMENT (38-39)</u>			
38. Irritability	_____	_____	<u>NA</u>
39. Pleasant, easy going	_____	_____	<u>NA</u>
<u>CHILD'S ACTIVITY LEVEL (40-41)</u>			
40. Passivity	_____	_____	<u>5</u>
41. Hyperactivity	_____	_____	<u>5</u>
<u>CHILD'S BEHAVIOR (42-47)</u>			
42. Communicative competence	_____	_____	<u>4.5</u>
43. Attentional abilities	_____	_____	<u>5</u>
44. Social responses	_____	_____	<u>5</u>
45. Social initiatives	_____	_____	<u>4.5</u>
46. Compliance/non compliance	_____	_____	<u>5</u>
47. Readability	_____	_____	<u>5</u>
<u>Dyadic Variables</u>			
<u>AFFECTIVE QUALITY OF INTRACTN(48-51)</u>			
48. Anger, hostility	_____	_____	<u>5</u>
49. Flat,empty,constricted	_____	_____	<u>4.5</u>
50. Tension, anxiety	_____	_____	<u>5</u>
51. Enthusiasm,mutual enjoyment	_____	_____	<u>4.5</u>
<u>MUTUALITY (52-53)</u>			
52. Joint attention, activity	_____	_____	<u>4.5</u>
53. Reciprocity	_____	_____	<u>5</u>

Domain of Self-Action (all these items only.)

Profile of Scores for Mother-Child Interaction Scale

Child's age 14 mos Sex F Tape Letter C Subject Number _____
 Date/Profile 2/18/67 Segment STRUCT Date of Tape 7/18/85 D.O.B. _____

<u>PARENTAL VARIABLES</u>	Area of Concern 1-2	Needs Attnn 3	Area of Strength 4-5
<u>TONE OF VOICE (1-3)</u>			
1. Angry, hostile voice	_____	_____	<u>4</u>
2. Flat voice	_____	_____	<u>4</u>
3. Warm, kind voice	_____	_____	<u>4</u>
<u>PARENTAL AFFECT (4-5)</u>			
4. Expressed positive affect	_____	_____	<u>4</u>
5. Expressed negative affect	_____	<u>3</u>	_____
<u>Parent's CHARACTERISTIC MOOD (6-10)</u>			
6. Angry, hostile mood	_____	_____	<u>4</u>
7. Depressed, withdrawn mood	_____	_____	<u>0</u>
8. Anxious mood	_____	_____	<u>4</u>
9. Enthusiastic, cheerful mood	_____	<u>3</u>	_____
10. Manic, hyperexcited mood	_____	_____	<u>5</u>
<u>EXPRESSD ATTITUDE TWRD CHILD (11-12)</u>			
11. Displeasure, disapprove, crit	_____	<u>3</u>	_____
12. Enjoyment, pleasure	_____	<u>3</u>	_____
<u>PRNT BEHAVIORAL INVOLVEMENT (13-26)</u>			
13. Mirroring	_____	<u>(3)</u>	_____
14. Structures and mediates	_____	_____	<u>0</u>
15. Amt. proximal contact	_____	_____	_____
16. Qual. phys. contact: positive	<u>4</u>	_____	_____
17. Qual. phys. contact: negative	_____	_____	_____
18. Amt. visual contact	_____	_____	<u>0</u>
19. Amt. of verbalization	_____	_____	<u>0</u>
20. Quality of verbalization	_____	<u>(3) (1:1:1)</u>	_____
21. Social initiative	<u>(2)</u>	_____	_____
22. Reads cues-responds sensitive	_____	_____	<u>(4)</u>
23. Contingent response: positive	_____	_____	<u>(4)</u>
24. Contingent response: negative	<u>✓</u>	_____	<u>(5)</u>
25. Connectedness	_____	_____	<u>(4)</u>
26. Behavioral Disturbance	_____	_____	<u>5</u>
<u>PARENTAL STYLE (27-30)</u>			
27. Flexibility/rigidity	<u>(2)</u>	_____	_____
28. Creativity/resourcefulness	_____	<u>3</u>	_____
29. Consistency/predictability	_____	_____	<u>4</u>
30. Intrusiveness	_____	<u>(3)</u>	_____
	<u>4</u>	<u>9</u>	<u>24</u>

Tape Letter C Subject Number

	Area of Concern 1-2	Needs Attntn 3	Area of Strength 4-5
<u>Child Variables</u>			
<u>CHILD'S AFFECT (32-33)</u>			
32. Amt. expressed pos. affect	_____	_____	<u>4</u>
33. Ant. expressed neg. affect	_____	_____	<u>4.5</u>
<u>CHARACTERISTIC DISPOSITION(34-37)</u>			
34. Angry, hostile disposition	_____	_____	<u>5</u>
35. Apathetic, withdrawn mood	_____	<u>(3)</u>	_____
36. Anxious mood	_____	_____	<u>4.5</u>
37. Happy, playful, enthus mood	_____	_____	<u>4</u>
<u>BABY'S TEMPERAMENT (38-39)</u>			
38. Irritability	_____	_____	_____
39. Pleasant, easy going	_____	_____	_____
<u>CHILD'S ACTIVITY LEVEL (40-41)</u>			
40. Passivity	_____	_____	<u>5</u>
41. Hyperactivity	_____	_____	<u>5</u>
<u>CHILD'S BEHAVIOR (42-47)</u>			
42. Communicative competence	_____	_____	<u>(4)</u>
43. Attentional abilities	_____	_____	<u>(5)</u>
44. Social responses	_____	<u>(3)</u>	_____
45. Social initiatives	_____	<u>(3)</u>	_____
46. Compliance, non compliance	_____	<u>3.5</u>	_____
47. Readability	_____	_____	<u>4</u>
<u>Dyadic Variables</u>			
<u>AFFECTIVE QUALITY OF INTRACTN(48-51)</u>			
48. Anger, hostility	_____	_____	<u>4.5</u>
49. Flat, empty, constricted	_____	<u>(3)</u>	_____
50. Tension, anxiety	_____	_____	<u>4</u>
51. Enthusiasm, mutual enjoyment	_____	<u>(3)</u>	_____
<u>MUTUALITY (52-53)</u>			
52. Joint attention, activity	_____	_____	<u>(4)</u>
53. Reciprocity	_____	<u>(3)</u>	_____

INTERAFFECTIVITY IN THE PARENT-INFANT RELATIONSHIP

by

Lenore R. Weissmann

**A Dissertation Submitted to the Faculty of the Graduate School
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INTERAFFECTIVITY IN THE MOTHER-INFANT RELATIONSHIP

This study is concerned with the beginnings of human connectedness. Inter affectivity is defined here as a sense of emotional intimacy, connectedness or "being with" and the ability to share on a feeling level. It is assumed to be a result of the process of "affect attunement" (Stern, 1985) through which a mother lets her infant know his inner experience is being shared. The purpose of this study is to examine inter affectivity between mothers and their infants, its variation, and its relation to what each partner brings to the interaction.

Inter affectivity was operationalized through the coding of specific characteristics of an observed mother-infant interaction. The research sample consisted of 40 middle class mothers (mean age = 30) and their infants (12-32 months of age) previously assessed as normal.

A three part design assessed variation in inter affectivity, related it to perinatal precursors and demographic factors, and illustrated its variation through clinical case studies.

Assessment of variation through the coding of characteristics reflecting inter affectivity resulted in

scores ranging from 59.5 to 94.5 (possible range 20 to 100), showing considerable variation.

Pearson Correlation Coefficient and multiple regression analysis were used to relate neonatal characteristics (NBAS), maternal nurturing qualities (CPI-FE) and demographic factors to observed interaffectivity. The results suggest that when their infants have neonatal qualities of relative difficulty with state regulation, normal, stable, older, middle-class mothers higher in nurturing qualities, with first children, respond in ways that result in a partnership higher in interaffectivity. (These factors accounted for 24% of the variation; $p = .04$.) This suggests a tendency to right an imbalance, which may not be surprising, since the low-risk middle class status and age of the mothers place the dyads in stable supportive environments.

Case studies, developed for a dyad at either extreme, from maternal interviews and other material, were an important complement to the empirical data, both confirming and enriching it. They highlighted the suggestion that the meaning the child holds for the mother is central, and supported the notion that interaffectivity is a reciprocal construct, existing in neither the mother nor her child, but in the dynamic "space between."

APPROVAL SHEET

The dissertation submitted by Lenore Weissmann has been read and approved by the following committee:

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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.

4/13/87
Date

Carol Harding
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