The Impact of Maternal Reflective Functioning on Mother-Infant Affective Communication: Exploring the Link Between Mental States and Observed Caregiving Behavior

by

John Frederick Grienenberger

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

2002

UMI Number: 3063835

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

This manuscript has been read and accepted by the Graduate Faculty in Clinical Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

June 12, 2002
Date

Chair of Examining Committee

July 18, 2002
Date

Executive Officer

Susan Coates, Ph.D.

Peter Fraenkel, Ph.D.

Karlen Lyons-Ruth, Ph.D.

Steven Tuber, Ph.D.
Supervisory Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

THE IMPACT OF MATERNAL REFLECTIVE FUNCTIONING ON MOTHER-INFANT AFFECTIVE COMMUNICATION: EXPLORING THE LINK BETWEEN MENTAL STATES AND OBSERVED CAREGIVING BEHAVIOR

by

John Frederick Grienenberger

Adviser: Professor Arietta Slade

The present study examines the link between maternal reflective functioning and the quality of mother-infant affective communication. Maternal reflective functioning is thought to provide a buffer against the emergence of disruptions in affective communication during times of infant distress. Affective communication is considered as a potential predictor of infant attachment security.

The subjects were forty-four middle-class mothers and their 10-14-month-old infants. The Addendum to the Reflective Functioning Scoring Manual, for use with the Parent Development Interview (Slade, Bernbach, Grienenberger, Wohlgemuth Levy, & Locker, 2001), was used to determine the level of maternal reflective functioning. The quality of maternal behavior was assessed by the Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE, Version 2) (Bronfman, Parsons, & Lyons-Ruth, 1999), which tracks disruptions in affective communication during the Ainsworth Strange Situation procedure (Ainsworth, Blehar, Waters, & Wall, 1978).

Results supported each of the study's major hypotheses. The AMBIANCE measure and the reflective functioning measure had a strong negative correlation. Thus, the level of

disruption in mother-infant affective communication was inversely related to the level of maternal reflective functioning. The quality of maternal behavior was also shown to be a very good predictor of infant attachment. Mothers with high AMBIANCE scores were more likely to have infants classified as disorganized, avoidant, or resistant, whereas mothers with low AMBIANCE scores were more likely to have infants classified as secure. These results are discussed in relation to implications for developmental theory, psychoanalytic theory, and clinical treatment.

Acknowledgements

Several important people have contributed to the development of this study and to my growth as a researcher and a clinician more broadly. One of my core goals was to produce a study that had clear and meaningful implications for clinicians, an ideal that is exemplified by the scholarship of each of the members of my committee. My entire committee aided in this pursuit and provided guidance, interest, and enthusiasm throughout. In particular, Steve Tuber has given me consistent support. His deep understanding of the complexities of human personality, and more importantly his deep appreciation and respect for the unique struggles of each individual human being, has served as a source of inspiration. Most of all, I would like to thank Arietta Slade. She has served as a mentor in the fullest and most complete sense of the word. She has provided the intellectual leadership that has expanded my curiosity toward the world of infant development to the point that it has become an area of passionate interest. She has shared her energy and excitement, which has always made our collaborations lively and fun. She has also helped me to begin to find my own voice as I enter the field, and she has done so in a manner that has been exceedingly generous. Finally, she has become an important friend and colleague who has given of herself in ways that have been deeply kind and caring. In addition to my committee, I would like to thank all of those in my family for their ongoing confidence and support. I would not have been able to sustain this pursuit without their encouragement, belief, and sacrifice. In particular, my wife Annie Wilson has given me so much as both a partner and a colleague. It has been an incredible experience to engage with these ideas with her, as we have entered parenthood together for the first time.

Table of Contents

List of Tables

CHAPTER ONE
Introduction

> "Collaborative and flexible parent-infant dialogues have been termed *open communication* in the developmental attachment literature but this term is subject to misinterpretation. Coherent, or "open" dialogue is characterized not by parental "openness" in the sense of unmonitored parental self-disclosure, but by parental "openness" to the state of mind of the child, including an entire array of the child's communications, so that particular affective or motive states of the child (anger, passion, distress) are not foreclosed from intersubjective sharing and regulation... Collaborative dialogue, then, is about getting to know another's mind and taking it into account in constructing and regulating interactions... Another's mind is a terrain that can never be fully known... Thus, empathy should not be viewed as a simple apprehension of one person's state by another but as a complex outcome of a number of skilled communicative procedures for querying and decoding another's subjective reality" (Lyons-Ruth, 1999, pp. 583-584).

These statements highlight some of the most significant implications that have emerged from developmental theory and research aimed at uncovering the intersubjective foundations of early cognitive and emotional development. Recent theories emphasize the importance of the parental capacity to comprehend the developing mind of the child and to communicate this in a manner that gives the child a sense of his or her own mind. Lyons-Ruth has tied parental "openness" to the state of mind of the child to the quality of the regulatory functions provided by the parent. In other words, the parent must rely on an emerging understanding of the child's mind in order to effectively engage with the child at the level of behavior.

The ongoing struggle to understand the mind of the other lies at the heart of this process. This involves great challenges to the parent, not only in attempting to understand the child, but also in terms of self-reflection. For many parents, the birth of a child can lead to the healthy reorganization of previously established beliefs, defenses, and definitions of self. However, both developmental research and clinical work with

children alert us to the fact that parents are not equally prepared to meet the psychological burdens of parenthood. As a result, there is a great range in the degree to which the parent-child relationship becomes dominated by the emotional needs of the parent versus those of the child.

In the attachment literature, there has been much debate concerning the connection between mental states and observed behavior within attachment relationships. This subject became a major focus among researchers, in part, because of the differences in the way that attachment was measured in children versus adults. The majority of the research examining child attachment has utilized the Ainsworth Strange Situation, which is a behavioral measure. By contrast, most of the research concerning differences in attachment among adults has utilized a variety of measures that evaluate the quality of mental representations of attachment. There have been impressive results supporting the intergenerational link between adult attachment representations and children's attachment behavior. However, the connection between representation and behavior *within* adults has received less attention and remains somewhat unclear.

There is, however, an increasing emphasis in the attachment literature upon the centrality of affect regulation within early caregiving relationships. This has provided a strong theoretical basis for understanding individual differences, at both the behavioral and the representational level, as alternate manifestations of a particular style of affect regulation. The literature in the area of reflective functioning, however, goes a step further. This work suggests that reflective functioning not only evidences the quality of affect regulation, but that it can also help *determine* a person's ability to regulate affect. Painful affect becomes manageable, in part, because the person can see painful feelings,

or disturbing thoughts, as merely mental states, rather than concrete realities, thus opening the possibility for modulation and change over time.

The present study will examine the link between maternal reflective functioning and the quality of behavioral interactions that occur within the context of mother-infant separation. Maternal behavior will be assessed by a measure that tracks disruptions in affective communication. It is hypothesized that reflective functioning is significantly linked to the quality of affective communication, particularly during times of infant distress. This study will examine some of the differences in the way that mothers are able to reflect upon their own thoughts, feelings, and behavior, as well as the behavior of their children and the mental states that underlie that behavior. Furthermore, this investigation will focus on the particular kinds of problematic interactions that can develop when there are deficits in a mother's capacity to regulate her own negative affect or that of her child. It is hypothesized that these deficits will become evident at both the representational and the behavioral level, thus providing an important link between mental states and observed behavior within the mother-infant attachment relationship.

CHAPTER TWO
Literature Review

The present study investigates the connection between the quality of maternal representations of the caregiving relationship, using a measure of reflective functioning, and the quality of observed caregiving behavior, using the AMBIANCE measure. The review of the literature is divided into six broad sections. Although most of this review focuses on the vast body of work that has emerged from the field of attachment, it begins with some of the relevant theory emerging from within contemporary psychoanalysis. This includes a brief overview of the writings of several psychoanalytic theorists who have emphasized the importance of affect regulation within the context of early parent-child relationships. The recent interest in the subject of affect regulation among psychoanalytic authors has been paralleled by developments occurring within the field of attachment. The history of attachment theory is considered next, beginning with the early work of Bowlby and Ainsworth, and continuing through the paradigm shift that began with Main's emphasis on the representational processes that underlie attachment behavior.

The third section takes a closer look at the different methods for evaluating the quality of adult representations of attachment. These include the constructs of narrative coherency, metacognitive monitoring, and reflective functioning. The next section reviews recent empirical work that has evaluated the differences in parental representations of current caregiving relationships. Some of these studies have explored the connection between the quality of parental representations of the child and observed caregiving behavior. The fifth section of the review focuses on studies utilizing the Adult

Attachment Interview in order to test the link between the quality of representations and observed caregiving behavior. The literature review concludes with an examination the AMBIANCE system. This section highlights the appropriateness of this scale as an outcome measure being linked to maternal reflective functioning.

I. The Psychoanalytic Literature

Early psychoanalytic theory, with its heavy focus on drive and fantasy, did not emphasize the role of caregivers in personality formation. Although the mother was seen as playing an important role in terms of her ability to carefully attend to her child's basic biological needs, the particulars of her personality were seen as secondary. The theory emphasized the internal fantasy world of the child, with psychological development being tied to the various psychosexual stages, and psychological conflict emerging as an inevitable outcome of the clash between biological drives and the frustrations imposed by the external world. However, the evolution of psychoanalysis has placed increasing emphasis on the mother's role as an important organizer of the infant's experience. Various factors, including maternal caregiving behavior, maternal attitudes and fantasies, the mother's personality, conflicts, defensive structure, and her own early history, have been described as critical to the child's emotional development (e.g. Benedek, 1959; Bibring, Dwyer, Huntington, & Valenstein, 1961; Bion, 1962; Fairbairn, 1929; Kohut, 1977; Loewald, 1962; Mahler, Pine, & Bergman, 1975; Winnicott, 1965).

More recently, psychoanalytic authors have considered the role of affect in early parent-child relationships. In her classic paper, "Ghosts In the Nursery," Selma Fraiberg (1975) explores the mother-infant relationship to consider whether there is a re-enactment

with the child of the mother's pathological relationship with her own parents. Fraiberg found that it was not the degree of trauma but the mother's inability to internalize the relationship objectively without defensive interference that led to this type of repetition. She saw the essential element as, "the fate of affects in childhood...access to childhood pain becomes a powerful deterrent against repetition in parenting, while repression and isolation of painful affect provide the psychological requirements for identification with the aggressor." (P.195).

Henry Krystal (1988) has also presented a psychoanalytically grounded theory of affect development. According to Krystal, the processes of differentiation, articulation, and desomatizing lead to the capacity to tolerate emotional distress. He sees adequate parenting as a necessary ingredient in this process, and believes that normal human development leads to successful "affect tolerance" in which there evolves an ability to fully experience emotional pain without flight into affect-numbing avoidance. Krystal asserts that affect tolerance is usually compromised by psychic trauma in either infancy or adulthood. He sees early loss as a common source of childhood trauma, which can lead to "alexithymia," or the inability to see emotions as signals. These individuals experience emotions in primarily somatic or unarticulated forms.

Stolorow and his colleagues (Stolorow, Brandchaft, & Atwood, 1987, Stolorow & Atwood, 1992; Orange, 1995) have further elaborated on the subject of affect regulation to emphasize the importance of "the intersubjective field" in the development of affect tolerance. They suggest that parents play a central role in this process as they see trauma as an intersubjective phenomena. What makes affect intolerable is not the intensity of the original affect, but the lack of an understanding and containing response by the caregiver:

"Pain is not pathology. It is the absence of adequate attunement and responsiveness to the child's painful emotional reactions that renders them unendurable and thus a source of traumatic states and psychopathology" (1992, p. 54; see also Coates, 1998; Spezanno, 1993; and Wilson, 1985 regarding the role of the parent in the development of affect tolerance). Furthermore, Brandchaft and Stolorow (1990) suggest that these developmental trauma lead to invariant organizing principles which lie beyond the influence of reflective self-awareness. Therefore, we see one potential mechanism by which such patterns of failed affect regulation are transferred intergenerationally: they lie beyond self-reflection, and thus become reenacted with one's own children.

Each of these theorists has emphasized the role of parenting in the emotional development of young children. Furthermore, each has hypothesized that the child's experience of painful affect must be coupled with the necessary containment in order for development to normally progress. This study will seek to investigate empirically some of the basic tenets of these psychoanalytic theories regarding the negotiation of negative affect within the mother-infant dyad.

II. The History of Attachment Theory

A. Early Foundations

The field of attachment began with John Bowlby (1969, 1973, 1980), who developed the basic concepts of attachment theory in order to account for the impact of the "real relationship" on child development. Bowlby's interest in this subject was inspired by a variety of research efforts including the work of ethologists such as Lorenz (1952) and Harlow (1958) as well Spitz's (1966) studies of infants who had been

deprived of maternal care. Bowlby theorized that the human infant was born predisposed with a set of highly motivated behaviors aimed at maintaining physical safety through proximity to the caregiver. He saw "the attachment behavioral system" as rooted in evolution and motivated by the infant's need for protection from the environment (Main, 1996). Because of this fundamental need, infants are predisposed to seek closeness with the caregiver, especially during times of distress (Belsky & Cassidy, 1994). In addition to safety and proximity, the infant is thought to be seeking a subjective sense of felt security (Ainsworth, 1969; Bretherton, 1987).

While the infant's need for attachment is ongoing, the attachment system is actively engaged only when there is a change in the infant's sense of security. When the infant feels upset, whether by a change in the environment or an internal shift such as the onset of hunger, the attachment system is activated and the infant instinctively seeks the caregiver in order to regain the feeling of security. By contrast, when the infant feels relatively calm and comfortable, the attachment behaviors subside, and the infant is able to resume exploration of the environment.

The mother and the infant repeatedly enact their respective roles in the attachment system throughout the course of the child's development. However, the patterning of these interactions begins to give shape to an "internal working model of attachment" at some point during the later part of the child's first year (Bowlby, 1973, 1982). An internal working model is made up of mental representations of the caregiver, the self, and the relations between the two, and it serves to guide all subsequent interactions with attachment figures. These models of attachment allow the infant to make reasonable predictions as to the mother's particular style of responsiveness and behavior, and

thereby to engage with her in a manner that will maximize the potential for maintaining physical and emotional closeness. As the infant begins to develop an increasingly complex internal working model, the attachment system is seen to exist on both a behavioral and a representational level (Bretherton, 1985). Internal working models are thought to operate largely outside of conscious awareness, and therefore are resistant to change (Bowlby, 1969; Bretherton, 1985).

The second important phase in the study of attachment was spearheaded by the seminal work of Mary Ainsworth (Bretherton, 1992; Main, 1996). Ainsworth and her colleagues (Ainsworth, Blehar, Waters, & Wall, 1978) developed a classic empirical method, known as the "Strange Situation," for examining qualitative differences in mother-infant attachment. They sought to explore both the different patterns of attachment exhibited by infants, and the behavioral contributions of the mother that lead to the formation of these patterns. The Strange Situation takes place in a laboratory setting and involves a series of three-minute segments including two separations from the mother. The paradigm was intentionally designed to stress the infant in order to activate the infant's attachment system. During the final separation, the infant is left alone in the playroom while the mother watches from behind a one-way mirror. Ainsworth found that these infants displayed important differences in behavior at the time of the mother's departure and particularly during the reunion phases. She identified three different categories of infant behavioral response, which she labeled as "secure," "avoidant," and "resistant".

Secure infants openly displayed distress at separation and sought contact with their mothers at reunion. Furthermore, they were relatively easily soothed by the

comforting behavior of the mother, and were then able to resume exploration of the playroom. Avoidant infants, by contrast, showed little overt distress at separation and instead were notably focused on exploration of the environment. These infants showed marked indifference or even rejection of their mothers at reunion. Resistant infants, relative to the other two categories, displayed the greatest amount of distress at separation, which often included angry protest. They appeared preoccupied by their mothers' absence and remained so even after her return. The reunions were characterized by contradictory approach and avoidance behavior and a general inability to utilize the mother in order to alleviate distress. Resistant infants also showed the least capacity for exploring the environment throughout the entire procedure.

In subsequent research, a third insecure pattern was observed. Main and Solomon (1986, 1990) first identified the disorganized pattern of attachment through studying the Strange Situation data of infants who were previously unclassifiable in the three-category system. They noticed a pattern of disorganized, odd, and contradictory behaviors that emerged while in the presence of the caregiver. In attempting to explore the etiology of this pattern, Main and Hesse (1990) found a high degree of unresolved loss and trauma in the mothers of disorganized infants. By unresolved trauma, they were referring to a lack of mourning by the parent, which had led to multiple and incoherent internal working models of attachment. Such models contain unintegrated fear and anxiety. Main and Hesse further postulated that these parents display frightened and frightening behavior with their infants, as the intensity of the attachment relationship stimulates the emergence of dissociated fear from the parent's own early attachment relationships. Subsequently, the infant is faced with an irresolvable paradox in which the parent "is at once the source

and solution" of intense fear and distress (Main & Hesse, 1990, p. 163). This occurs either in cases where the parent is frightened and withdrawn, or hostile and intrusive, as both instances are confusing and scary to the child (Lyons-Ruth & Block, 1996; Lyons-Ruth, Bronfman, & Atwood, 1999a; Main & Hesse, 1990).

In order to explain the differences in infant attachment observed during the Strange Situation, Ainsworth had collected extensive data from home visits that focused on episodes of feeding, face-to-face play, physical contact, and infant distress. She found a significant correlation between the degree of "sensitive responsiveness" of the mother and the attachment security of the infant at one year. Mothers of secure children evidenced more sensitive and contingent responsiveness to their infant's attachment behaviors. By contrast, mothers of resistant infants were inept and unpredictably responsive, and mothers of avoidant babies were insensitive and rejecting of their infants' bids for comfort and physical contact.

Attachment research has not only demonstrated systematic differences in the attachment behavior of infants, but it has also documented an impressive collection of findings regarding the developmental implications that emerge from these differences. Literally hundreds of studies have shown attachment to be a critical variable that has been linked to multiple measures of social and emotional functioning, psychopathology, and resiliency across the lifespan (for further details see Belsky & Cassidy, 1994 or Cassidy & Shaver, 1999). The present study will measure attachment when infants are fourteen months old using the Strange Situation procedure, and these classifications will serve as one of the outcome variables to be considered.

B. The "Move to the Level of Representation"

The study of attachment in recent years has grown from behavioral research utilizing the Strange Situation toward an increasing focus on the role of the mental representations underlying attachment (Main, 1996). This shift was prefigured by Bowlby's (1982) construct of the internal working model as entailing the cognitive organizing process that guides the attachment behavioral system (Slade, Belsky, Aber, & Phelps, 1999). Main and her colleagues (Main, et al., 1985) have expanded on the understanding of the internal working model to include, "not only feelings and behaviors but also attention, memory, and cognition, insofar as these relate directly or indirectly to attachment" (p. 67). The increased focus on representation has allowed for a more sophisticated way of understanding the maternal factors that influence infant attachment. It has also involved the first reliable means of measuring attachment in adulthood, namely the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1985).

The AAI is a semi-structured clinical interview designed to evoke the subject's memories, thoughts, and feelings relating to early attachment relationships, with a particular focus on experiences of rejection, loss, and separation, and the impact of these experiences on personality development. What is especially important about this work is the manner by which attachment is assessed in adults. It is not the person's actual history that determines attachment security, but the way in which that history has evolved into a style of representation in the adult, or as Main put it, a "state of mind with respect to attachment." Main (Main, et al., 1985) found differences in the quality of the attachment narratives of both mothers and fathers that mirrored the attachment styles of their children as previously assessed by the Strange Situation.

At the present time, four different adult attachment categories have been identified. Autonomous (secure) adults see value in attachment relationships, evidence prior reflection concerning attachment experiences, and are able to produce coherent narratives of their early lives. They have access to both positive and negative memories and feelings to back up their semantic descriptions of childhood. These narratives exhibit an appreciation for the complexities of attachment relationships, and therefore tend to avoid either idealization or devaluation of attachment figures. Flexible affect regulation is seen throughout the interview.

By contrast, adults with a dismissing style downplay the impact of early experience in the shaping of personality and behavior. These adults have difficulty accessing early episodic memories, as this style serves to avoid the recollection of pain and disappointment. Instead, early experiences of loss or rejection are reported in a sparse, detached, and often contradictory manner. The resulting descriptions are characterized by an idealization of attachment figures that cannot be substantiated by specific examples, thus producing incoherency in the narrative. These individuals tend to over-regulate negative affect through minimization, avoidance, or denial.

Preoccupied adults have little difficulty recalling early experience. Rather, these individuals are consumed by childhood memories, and often present as either angry or passive in relation to attachment figures. This lack of integration of early experience evidences the prolonged dependency struggles that characterize the preoccupied style. These individuals are unable to organize their life histories into a coherent narrative form. Affect, both positive and negative, is heightened or maximized. These adults are thought to be lacking in the psychic structure required for affect regulation (Slade, 1999).

Finally, some individuals are rated as unresolved or disorganized with respect to loss or trauma (Main & Hesse, 1990). In these interviews, there is a failure to maintain a consistent strategy of attachment that is evidenced by significant lapses in metacognitive monitoring. These lapses have been linked to the sudden reemergence of unintegrated traumatic memories of early loss or abuse. Disorganized narratives may otherwise appear to be similar to those of the three organized categories. However, recent research has suggested that unresolved individuals also rely on dissociation in attempting to regulate overwhelming affect states (Coates, 1998).

C. Attachment and Affect Regulation

Of particular relevance to the present study are the variations in strategies of affect regulation that have been associated with each of the attachment categories. Jude Cassidy (1994; Cassidy & Kobak, 1988) and Roger Kobak (1987; Kobak & Sceery, 1988) have suggested that attachment styles can be understood in terms of differences in the management or regulation of emotional experience, in particular negative emotions such as anger, fear, anxiety, and distress. Secure attachment allows the open display of such difficult emotions without threatening one's attachment relationships. Insecure attachment, by contrast, suggests that the natural and free expression of negative affect is perceived as a threat to relationships. As a result, the infant adopts a strategy that complements that of the caregiver. In the avoidant infant, affect is minimized; in the resistant infant, it is maximized; and in the disorganized infant there is dissociation of affect and a general absence of any coherent strategy of emotional regulation (Cassidy, 1994; Main & Hesse, 1992).

These considerations have also been applied to the various defensive compromises seen in adults (Slade, 1993). Minimizing involves the attempt to distance oneself from negative emotion through rigid cognitive strategies such as rationalization, denial, or idealization. These defenses objectify emotional experience and can be understood as attempts to avoid the conscious awareness of pain or anxiety. Maximizing strategies, by contrast, are characterized by excessive negative emotion and a concomitant absence of structure with which to organize, contain, and integrate that emotion. It is hypothesized in the present study that severe problems with affect regulation are central to the kinds of maternal difficulties that are assessed behaviorally using the AMBIANCE measure. Therefore, it is the mother's tendency to maximize, minimize, or dissociate painful affect, in the extreme, that can lead to the significant problems in mother-infant communication that may become observable during the Strange Situation. Furthermore, it is believed that a mother's reflective functioning may provide an important protective factor that can intercede and help the mother to avoid imposing her own anxieties on her child.

III. The Quality of Attachment Representations

A. Narrative Coherency and Metacognitive Monitoring

The early work of Mary Ainsworth had suggested that it is the mother's sensitive responsiveness that leads to the security of mother-infant attachment. But the question still remained as to what exactly allowed some mothers to respond in a sensitive manner while others struggled to do so. Mary Main's analysis of the AAI led her to consider the importance of a person's mental state in the determination of attachment security. Main

suggested that insecure attachment in adulthood might lead the parent not only to misread the attachment signals of the infant, but also to actively inhibit or otherwise alter the infant's behavior. She reasoned that it was the parent's need to maintain a given state of mind with respect to attachment that determined the parental response. She further suggested that: "Attachment-relevant signals originating externally from the infant and internally from memory may be similar in the 'rules' they evoke for parents who are insecure in terms of their own internal working models of attachment" (Main et al., 1985, p. 100). This argument had profound significance because it was the first explicit attempt within the attachment literature to make the critical link between inner experience and observable behavior.

Main was able to study these "rules" through the application of recent developments occurring in the field of cognitive science. Her work has led to a revolution among attachment theorists who have attempted to explore differences in the representational processes that underlie attachment (Slade, 1999). Main describes narrative coherency and collaborative discourse in the AAI as the most important factors to consider in evaluating the quality of attachment representations (Main, 1991; Main, 1996; Main et al., 1985). In addition to the "overall plausibility" of the narrative, Main's coding system (Main & Goldwyn, 1998) utilizes the four maxims of coherent-collaborative discourse originally identified by the linguistic philosopher Grice (1975). These maxims (quality, quantity, relation, and manner) require that the speaker communicate with the interviewer in a truthful, appropriately succinct, relevant, and clear fashion. Main's system considers violations of these maxims as indicative of incoherency, with specific types of violations being tied to the different forms of insecure

attachment. For example, the dismissing adult's tendency to produce idealized semantic descriptions, while failing to support these with actual memories, is considered as a violation of Grice's maxim of quality ("be truthful and have evidence for what you say").

Main's contribution has also included a thorough investigation of the metarepresentational processes that underlie narrative coherency. She has outlined a theory that details the role of "metacognitive monitoring" as central in attachment security (Main, 1991). Main suggests that a critical phase in the development of metacognitive monitoring occurs in most children between the ages of three and six. Children under three are much more vulnerable to forming the multiple models of attachment characteristic of insecurity. Multiple models result when the acknowledgment or expression of painful affects or memories is experienced as a threat to current relationships (Slade, 1999). Metacognitive monitoring is characterized by a person's capacity to reflect on his or her own representational processes, and when necessary to reevaluate previously held beliefs and convictions (concerning the self, others, or human relationships) in light of new experience. Multiple models of attachment *persist into adulthood* when there are failures of corrective metacognitive monitoring (Main, 1991).

By contrast, singular coherent models are the result of the capacity to integrate the complexities of attachment experience, no matter how painful, without reliance on various forms of defensive obfuscation. Main (1991) describes pilot studies that link attachment security in latency aged children to increased evidence of metacognitive monitoring. When this data is considered alongside those studies that utilize the AAI, it appears that metacognitive monitoring may be both the result of early attachment security

and an important factor in the transformation of previously insecure models to secure ones throughout the course of later development.

B. Reflective Functioning

Main suggests that it is, "only when learners have acquired some appreciation of the fallible nature of knowledge that they can consider their own cognitive processes as objects of reflection" (1991, p. 134). This statement anticipates Peter Fonagy's notion of reflective functioning (RF), and the role of RF as central in the developmental acquisition of affect regulation. Fonagy and his colleagues (Fonagy, Steele, Moran, Steele, & Higgitt 1991; Fonagy, et al., 1995; Fonagy & Target, 1998; Target & Fonagy, 1996) have elaborated on the concept of metacognitive monitoring to include not only the capacity to observe one's own representational processes, but also the ability to reflect on the mental states of one's attachment objects. The theory of RF is also rooted in current research in cognitive science that has examined the child's developmental acquisition of "a theory of mind" or "an intentional stance" (Baron-Cohen, 1995; Dennett, 1978, 1987; Premack & Woodruff, 1978). Fonagy's research considers the developmental achievement of the capacity for "mentalization" as involving an awareness of the nature of complex mental states including attitudes, feelings, intentions, and plans (Fonagy and Target, 1998).

As children develop the ability to mentalize, they begin to see other people's behavior as predictable. Fonagy suggests that RF underlies affect regulation, impulse control, and the experience of self-agency. Individuals who lack RF are unable to step back from their experience and consider the symbolic aspects of another person's thoughts and feelings. Fonagy cites modern psychoanalytic theories of self-development

(e.g. Fairbairn, 1952; Winnicott, 1960; Kohut, 1977; Target and Fonagy, 1996), which assume that the psychological self develops as a consequence of the perception of oneself, in the mind of the other. In other words, the child sees his own thoughts and feelings, his own mind, represented in the mind of the parent. Fonagy (1996), however, has presented a modification of traditional psychoanalytic theories that posit that the child internalizes an image of the containing object. He suggests that the child also perceives an image of herself as an intentional being represented in the mind of the caregiver: "'I think therefore I am' will not do as a psychodynamic model of the birth of the self; 'She thinks of me as thinking and therefore I exist as a thinker' comes perhaps closer to the truth" (p. 84).

Fonagy's theory also considers the concept of containment (Bion, 1962); the idea that the parent not only reflects the infant's internal state but represents it as a manageable image. The parent must not merely demonstrate that she understands the child's feelings, but also must communicate this in a way that indicates that the child can have a similar experience of mastery (Fonagy and Target, 1998). In fact, Fonagy suggests that secure attachment is the direct outcome of successful containment, while insecure attachment evidences failures of containment that differ in terms of the defensive compromises adopted by the caregiver (Fonagy, 1996; Fonagy et al., 1995). In the case of the dismissing caregiver, there is a failure of affect mirroring but there is some evidence of stability and mastery. In the case of the preoccupied caregiver, there is an abundance of affect mirroring but a dearth of the necessary calmness and confidence on the part of the caregiver.

Fonagy (1996) concurs with Main (1991) that a caregiver's capacity for metacognitive control, or reflective functioning, is particularly critical in cases of deprivation, loss, or abuse, as it provides a protective measure against intergenerational transmission of trauma. However, if the parent is lacking in RF, then she will not be able to accurately attend to the child's painful reactions to stressful situations, and will thereby misrepresent the child's affect and intentions. Furthermore, for these children, it is too painful to consider the apparently malevolent intentions of one's caregivers, and thus, the capacity to mentalize is severely impaired. Without the benefit of reflective functioning, the child becomes "caught in fixed patterns of attribution; rigid stereotypes of response; non-symbolic, instrumental uses of affect-mental patterns that are not amenable to either reflection or modulation" (Fonagy & Target, 1998, p. 93). In such instances, the concreteness that was once necessary in order to avoid further devastation to the child becomes the predominant mode of attending to the new experience that is carried forward into adulthood.

IV. Parental Representations of Current Attachment Relationships

The various examinations of the qualitative differences in representations of attachment, described above, have each utilized the AAI as the point of entry. As a result, the great predominance of both the theory and empirical investigation of representational processes in adults has focused on the capacity to represent and reflect upon past experiences from early childhood. Solomon and George (1996; George & Solomon, 1999) have noted that Bowlby (1982) was not only interested in the attachment behavioral system within the child, but that he called for an investigation of the

complementary system that evolves within the caregiver. Solomon and George have attempted to define caregiving as a behavioral system, which, like the attachment behavioral system, is guided by representational processes. They see the caregiving system as rooted in the internal working models that are formed in early childhood; they suggest, however, that it also exists as a separate system in its own right, with its own unique developmental trajectory. The caregiving representational system involves ongoing processes of assimilation and accommodation. The child is assimilated into the previously existing model of attachment, but there is also a process of accommodation to the unique qualities of a given child. As such, parental representations have been understood as dynamic and open to change over time (Slade & Cohen, 1996; Solomon & George, 1996). During the past decade, several research groups have studied the quality, nature, and evolution of representations being formed in the context of current and ongoing parent-child relationships (Aber, Belsky, Slade, & Crnic, 1999; Benoit, Parker, & Zeanah, 1997; George & Solomon, 1989, 1996; Slade et al., 1999; Zeanah & Benoit, 1995).

To date, there are four different coding systems that have been developed to evaluate the quality of caregiving representations; however, they each utilize similar interview formats. George and Solomon (1989, 1996) and Zeanah and his colleagues (Benoit et al., 1997; Zeanah & Benoit, 1995) have adopted categorical approaches to scoring parental interviews, which parallel those used with the Strange Situation (Ainsworth et al., 1978) and the AAI (George et al., 1985). George and Solomon have focused on the parents' representations of the self as caregiver, which are hypothesized to parallel the four major attachment categories. Their sample included 32 middle-class

dyads with six-year-old children. The coding system classifies parental representations as being "secure" (secure-autonomous), "rejecting" (avoidant-dismissing), "uncertain" (resistant-preoccupied), or "helpless" (disorganized-unresolved). The authors report concordance between maternal internal working models of caregiving and child attachment classification in 26 of the 32 cases. Significant concordance was also found between caregiving classifications and adult attachment classifications in 69% of the cases.

Zeanah and his colleagues have developed a coding system that assesses the caregiver's internal representations of the infant. This system is similar to that used with the AAI. It classifies representations of the child as being either "balanced" (autonomous), "disengaged" (dismissive), or "distorted" (preoccupied). Zeanah and Benoit (1995) originally studied 45 middle-class mothers and their one-year-old infants and found significant correlations between the parental classifications and concurrently measured Strange Situation classifications. The degree of concordance ranged from 75% (balanced to secure) to 55% (distorted to resistant). These results were replicated with a different sample of 81 dyads in which the parental interview was administered both prenatally and at 12 months (Benoit, et al., 1997). This study found that the pregnancy classifications predicted infant Strange Situation classifications at 12 months in 74% of the cases. They also found that the prenatal representations were stable in 80% of the cases when compared to the 12-month assessment. An additional study of validity (Benoit, Zeanah, Parker, Nicholson, & Coolbear, 1997) involved clinical samples with matched controls that included infants with failure to thrive, sleep disorders, and other clinical disorders. The authors report that disengaged and distorted classifications are

overly represented in the clinically disordered groupings. Each of the above studies has generated significant support for the notion that a caregiver's representational model of the caregiving system plays an important role in determining infant attachment security. Both the representations of the child (Zeanah and Benoit) and the representations of the self as caregiver (George and Solomon) have been correlated with infant attachment at levels that equal those seen in studies utilizing the AAI.

Slade and Aber and their colleagues (Aber et al., 1999; Slade et al., 1999) developed a somewhat different approach to the measurement and evaluation of parental representations of caregiving. In contrast to the categorical models cited above, the Parent Development Interview (PDI) (Aber, Slade, Berger, Bresgi, & Kaplan, 1985) is scored using a dimensional approach that yields a series of rating scales that assess multiple affective and organizational factors in the representations of the parent-child relationship (Slade, Aber, Cohen, Fiorello, Meyer, DeSear & Waller, 1993). This method of scoring has allowed for the ability to take a more detailed look at specific affective domains that are not necessarily captured in a single categorical rating. It has also permitted investigation of the interrelations across domains, as well as the potential shifting of affective experience during different phases of the child's development. The questions on the PDI invite the parent to explore the child's behavior, thoughts, and feelings, as well as their own thoughts and feelings evoked in the context of parenting. This allows for a thorough investigation of the complex interactions between the mental states and the behaviors of both parent and child. Furthermore, the scoring system of the PDI differs from the other two approaches described above in that it focuses on the parent

and the child in relationship with each other, rather than independent representations of the child or of the self as caregiver.

The PDI studies (Aber et al., 1999; Slade et al., 1999) have sought to address the interrelations among adult attachment representations, caregiving representations, and behavioral indices of observed mothering gathered during home visits. An additional objective was to increase the understanding of the ways in which caregiving representations function to mediate the impact of the mother's state of mind regarding attachment upon observed mothering behavior. This permits examination of the processes of assimilation and accommodation described above, that are hypothesized to be unique to a specific parent-child relationship.

The initial sample included 125 middle and working-class mothers and their first-born sons. Results indicated that mothers judged to be autonomous on the AAI were higher in Joy/Pleasure and Coherence on the PDI whereas dismissing mothers were higher in Anger on the PDI. Furthermore, high Joy/Pleasure and Coherence on the PDI predicted more positive and less negative observed mothering whereas high Anger predicted less positive mothering. Autonomy on the AAI was also predictive of less negative observed mothering. Finally, a mediational analysis was performed in order to evaluate the hypothesis that parental representations of the child mediate the impact of adult attachment on the mother-child relationship. The authors found that the previously established significant relationship between AAI autonomy and negative mothering became insignificant after controlling for the impact of the PDI scores. These results indicate that a mother's caregiving representations play a critical role, perhaps equally

important to the mother's attachment security, in preventing negative cycles from emerging in the parent-child relationship.

In spite of these significant findings, there are certain limitations to the original coding system of the PDI. In particular, it is cumbersome, entailing seventeen different scores in all. This creates challenges in attempting to reach reliability. It also leads to scores which lack the same degree of theoretical grounding that is evident in the categorical approaches which derive more directly from the extensive literature on child and adult attachment classifications. At the same time, the original studies of the PDI had demonstrated the increased explanatory power and flexibility, on both a theoretical and an empirical level, which can be gained by utilizing dimensional scores of multiple affective domains. In order to address these limitations, a single unifying construct was needed which could yield ratings of both individual affective domains and the relative quality of an interview as a whole.

Recently, Arietta Slade has collaborated with Peter Fonagy and Mary Target in order to consider the role of maternal reflective functioning in the caregiving representational system. An addendum to the Reflective Functioning manual for the AAI (Fonagy et al., 1998) for use with the PDI has been developed (Slade, Bernbach, Grienenberger, Wohlgemuth-Levy, & Locker, 2001). This has allowed for the scoring of RF for individual passages relating to specific affective domains. Furthermore, each PDI is given an overall score that is based on both the degree of RF for individual responses as well as the general pattern of RF exhibited when considering multiple affective domains across an entire transcript. The application of RF to the PDI also makes great sense theoretically. The reflective functioning measure, more so than any other existing

measure of representational processes, was explicitly developed with consideration for the centrality of affect regulation.

Fonagy's theoretical model, as well as the results of the initial studies of the caregiving representational system, both suggest that the mother's capacity to coherently reflect upon her own and her child's mental states, will provide a critical role in the mother's regulation of her own negative affect. As Slade puts it, "The mother who is able to reflect upon and thus modulate and integrate her own affective experience will not be dysregulated by her infant or toddler's aggression or other negative affects, because the vagaries of emotion are familiar to her" (1999, p. 581). The present study will utilize the RF coding system of the PDI in order to evaluate the quality of maternal caregiving representations. It is hypothesized that mothers who are high in RF on the PDI will be more comfortable in responding to their children's negative affect, and that this level of comfort will become evident in ratings of maternal behavior based on observations of the Strange Situation.

V. Other Studies Linking the Quality of Representations to Maternal Behavior

Research utilizing the AAI has suggested that autonomous adults are more sensitive and contingently responsive to their infants' attachment signals than those adults in the three insecure categories. A variety of theoretical explanations for this, including those of Main and Fonagy, are reviewed above. Nonetheless, studies attempting to directly examine this hypothesis are relatively scarce. Van IJzendoorn (1995) conducted a meta-analysis of eight studies that examined the relation between AAI classifications and parental responsiveness. He found that the AAI explained about

12% of the variance in measures of parental sensitivity assessed during free-play or instructional activities. The present section highlights some of the relevant empirical data that has linked parental representations of attachment to observed parenting behavior.

Ward and Carlson (1995), in a study of 74 teenaged mother-infant dyads, examined the associations between prenatal AAI classification and measurements of maternal sensitivity at three and nine months postnatally. The maternal behavior ratings applied Crittenden's (1983) sensitivity scale to unstructured play sessions. The adolescents who were judged as autonomous on the AAI provided more sensitive care at both three and nine months than subjects in the three insecure groups. No significant differences were reported between the insecure categories. This study is notable because it was the first to provide predictive validity of the AAI for maternal sensitivity. A similar set of results was found in a North German sample of 44 mother-infant dyads (Grossmann, Fremmer-Bombik, Rudolph, & Grossmann, 1988). In this example, maternal sensitivity measured during the child's first year was correlated with the mother's subsequent security on the AAI administered five years later.

Haft and Slade (1989) examined a sample of fifteen mother-infant dyads to consider the relation between adult attachment and maternal affect attunement. The affect attunement measure was grounded in the theory advanced by Stern (1985), which considers the importance of a mother's capacity to enter into intersubjective dialogue with the affect states of the infant. This involves the mother's ability to match aspects of the infant's state such as the contour, intensity and temporal features of a given display of emotion. The Affect Attunement Scale assessed the degree of "sharedness" based on whether the mother intended to purely share in the infant's experience (a high-order

attunement) or whether she combined sharing with a simultaneous intention to teach or alter the infant's state. Maternal responses could also receive a negative rating on the scale in cases where the mother entered into the baby's experience only intending to mock or scorn the infant.

Mothers judged to be autonomous on the AAI were more attuned during free play, attuned to a range of infant affect, and exhibited a greater number of high-order attunements than did insecure mothers. By contrast, dismissing mothers tended not to attune to their infant's displays of negative affect, and preoccupied mothers randomly attuned to both positive and negative affect states. In other words, the insecure mothers misattuned to infant affect that threatened their internal working models of attachment, and did so in a manner that is consistent with previously hypothesized theories of the dismissive and preoccupied classifications.

Crowell and Feldman (1988) examined a sample of 64 mother-child dyads composed of children with behavior problems and a matched non-clinic group. This study sought to assess differences in mothers' help, support, and quality of assistance during a problem-solving session with their children. The mother's style of assistance was classified into one of three categories matching those of the AAI: promotion of autonomy; confusing or chaotic; directive or controlling. Overall, autonomous mothers were more helpful and supportive than both preoccupied and dismissing mothers. Whereas 62% of autonomous mothers were judged as promoting of their child's autonomy, the preoccupied mothers were either confusing (60%) or controlling (35%). Mothers who were classified as dismissing on the AAI tended to engage with their

children using either directive or controlling styles (78%) or else confusing and chaotic ones (10%).

Each of the above studies has focused on differences in observed mothering that are related to maternal representations of attachment using the original three-category system of the AAI. In order to test the theoretical model of disorganized attachment proposed by Main and Hesse (1990), two studies have examined the impact of a mother's unresolved classification upon the maternal display of frightened or frightening behavior (Jacobvitz, Hazen, & Riggs, 1997, reported in Lyons-Ruth et al., 1999a and Lyons-Ruth & Jacobvitz, 1999; Schuengel, Bakermans-Kranenburg, & Van IJzendoorn, 1999). The Jacobvitz et al. (1997) study included 113 middle-class families. The AAI was administered prenatally and maternal frightened and frightening behavior was assessed eight months postnatally. Maternal behaviors were coded by applying Main and Hesse's scale (1995) to observations of a series of structured tasks that required mothers to interact with their infants. Both unresolved/secure and unresolved/insecure mothers displayed significantly more frightened and frightening behavior than mothers who were resolved on the AAI. A marginally significant difference was also found between unresolved mothers based on whether they were secondarily classified as secure versus insecure.

Schuengel et al. (1999) examined a nonclinical middle-class sample of 85 mothers who had experienced the loss of someone important to them. This study also applied the coding system developed by Main and Hesse (1992b). Maternal behavior was assessed by analyzing four hours of videotapes obtained from two different home visits when the infants were ten to eleven months old. Mothers were instructed to simply follow their

normal routines as if alone with the child. Frightening behaviors included those in which the mother acted in a frightening, frightened, or dissociated manner while interacting with the infant. The results indicated that mothers who were both unresolved and insecure were significantly more likely to display frightening behavior toward their infants. However, unlike the Jacobvitz et al. study, this result did not hold for unresolved/secure mothers. In fact, the unresolved/secure mothers displayed even less frightening behavior than did mothers classified as fully secure. The authors suggest that this finding may indicate that security of attachment representations in the mother, even in cases involving unresolved loss, provides a protective factor against the emergence of frightening behavior with the infant.

In reviewing the work of Schuengel and his colleagues, Coates (1998) has interpreted the results to indicate that the securely attached mothers with unresolved loss may be required to be particularly vigilant relative to fully secure mothers in order to regulate the powerful negative affect that becomes activated in the attachment relationships with their children. An additional explanation is offered by Lyons-Ruth and her colleagues (Lyons-Ruth et al., 1999a; Lyons-Ruth & Jacobvitz, 1999), who suggest that these findings may by related to the relative degree of structure or stress inherent to the type of interactions being observed. In the Jacobvitz study, which found only minor differences between the unresolved/secure and unresolved/insecure groups, mothers were required to interact with their infants during a series of activities that included feeding and changing the babies' clothes. Many of the babies actively resisted being changed by their mothers. By contrast, the Schuengel study recorded unstructured naturalistic observations. The stressful conditions in the Jacobvitz study may have been more likely

to trigger the mother's unintegrated memories of loss or trauma. Furthermore, the unresolved/secure mothers in the Schuengel study could have withdrawn from the infant as a means of behavioral inhibition. Withdrawal, although potentially less traumatic to the infant than dissociation or hostile intrusion, can be quite disorganizing in the extreme. Thus, Lyons-Ruth has speculated that observations of behavior requiring more interaction by the parent may provide a better perspective on the nature of the mother's behavior in the unresolved/secure group. In keeping with this notion, Lyons-Ruth and her colleagues have created an instrument intended to code atypical maternal behavior during the Strange Situation (Bronfman, Parsons, & Lyons-Ruth, 1999). Furthermore, they have included a subscale that codes for maternal withdrawal. These studies will be described in the following section.

VI. The AMBIANCE Coding System: Examining Serious Disruptions in Mother-Infant Affective Communication

For over a decade, Karlen Lyons-Ruth, in collaboration with several different colleagues, has made a number of empirical and theoretical contributions aimed at further understanding some of the most significant problems that emerge in early parent-child relationships. This body of work has examined such issues as child abuse and disorganized attachment, as well as the child and maternal correlates and the developmental trajectories that are associated with early disruptions in the caregiving relationship (Lyons-Ruth, 1996; Lyons-Ruth & Block, 1996; Lyons-Ruth et al. 1999a; Lyons-Ruth, Bronfman, & Parsons, 1999b; Lyons-Ruth, Connell, Zoll, & Stahl, 1987; Lyons-Ruth & Jacobvitz, 1999; Lyons-Ruth, Repacholi, McLeod, & Silva, 1991). Lyons-Ruth and Block (1996) have expanded on Main and Hesse's theoretical model

concerning the maternal behavioral contributions to infant disorganized attachment. In addition to the frightened, frightening, and dissociated behavior described by Main and Hesse (1990; Hesse & Main, 1999), they also consider profound disruptions in mother-infant affective discourse as a potentially important factor in the etiology of infant disorganization. They suggest that such extreme forms of misattunement lead to fear in the infant simply due to the fact that the infant has no way of influencing the attachment figure during times of distress. In contrast to the more or less mutually regulated interactions that characterize organized attachment, disorganized dyads are profoundly affected by the caregiver's need to avoid experiencing unresolved fearful affects as they emerge in the context of the current relationship. In presenting their "relational-diathesis model" of disorganized attachment, Lyons-Ruth and her colleagues have emphasized the extremely unbalanced relational processes that develop as a result of these preoccupations in the caregiver (Lyons-Ruth et al., 1999a; Lyons-Ruth & Jacobvitz, 1999). In disorganized attachment, the needs of the parent come to completely dominate the relationship at the expense of the child's need for adequate attention, soothing, and protection.

These authors note that mental representations of relationships, as they are defined in both attachment theory and psychoanalytic theory, are inherently dyadic. Therefore, the child begins to internalize both sides of the unbalanced relationship, representing not only the helpless child but also the controlling parent. The more pronounced these two roles become, the more contradictory they will be, thus leading to the failures of integration that characterize multiple incoherent internal working models of attachment. Although these types of contradiction may also be apparent in the

organized forms of insecure attachment, they are extreme, and often unmonitored or undefended in the unresolved or cannot-classify categories (Lyons-Ruth et al., 1999a). The notion of the extreme imbalance that emerges in disorganized relationships is particularly relevant to the present study. It is hypothesized that these imbalances, should they exist, will become evident both in terms of the maternal representations that are assessed by the PDI and the ratings of maternal behavior that are captured by the AMBIANCE measure.

Lyons-Ruth et al. (1999a) have noted that these imbalances can take many forms. In some cases, there is overt hostility, coercion, and intrusiveness on the part of the caregiver. In others, the control is much more subtle, as the relationship is inverted through a process by which the parent seems to be helpless, however closer scrutiny reveals a pattern in which, "the end result of the unresponsive stance is to defeat the attempts of the child to jointly regulate the attachment relationship" (p. 39). This second type of parental control may be manifested through either withdrawal or guilt-induction, or by more active forms of role-reversal in which the parent seeks soothing and comfort from the child.

In attempting to operationalize the various forms of maternal behavior that are central in the relational-diathesis model, Lyons-Ruth and her colleagues (Bronfman et al., 1999; Lyons-Ruth et al., 1999b) have developed the Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE) for coding disrupted affective communication during the Strange Situation. The AMBIANCE measure was developed with consideration for three broad and overlapping hypotheses that have been articulated within the attachment literature regarding the parental behavioral correlates to

disorganized infant attachment. Main and Hesse's (1990) hypothesis of frightened or frightening parental behavior has been discussed above. The "failure of repair" hypothesis suggests that the parental response to infant distress must be predictable and responsive enough to provide the infant with at least a minimally effective strategy for eliciting care. This consistency and availability is lacking in disorganized dyads. Finally, the "competing strategies" hypothesis suggests that caregivers who experience a "continuing state of fear" (Main & Hesse, 1990) in the context of attachment needs will also experience contradictory attachment tendencies toward the infant. In a manner that parallels the conflicting approach and avoidance behavior displayed by the disorganized infant, the parent is also likely to feel competing tendencies toward her child. In other words, the caregiver will feel compelled to simultaneously reject and heighten the infant's attachment related affects and behaviors.

The AMBIANCE system contains five subscales that code for the following dimensions: 1) affective communication errors; 2) role/boundary confusion; 3) fearful, dissociated, or disorganized behavior; 4) intrusiveness/negativity; and 5) withdrawal. Specific behaviors are tallied within each of the five dimensions and for each interview as a whole (the AMBIANCE Total score), and scores ranging from one to seven are provided for the overall Level of Disrupted Communication Scale. Finally, each dyad is classified as either "disrupted" or "not disrupted" based on the overall score (the Parental Classification).

The AMBIANCE measure was originally applied to an at-risk sample of 65 low-income mothers and infants (Lyons-Ruth et al., 1999b). The Strange Situation was administered when the infants were 18 months of age. Results indicated that the mothers

of disorganized infants displayed significantly higher levels of overall disrupted communication, with the dimension that coded for affective communication errors being the most important of the five subscales. This study also sought to examine the potential differences in the behavior of mothers of disorganized/secure infants relative to those of disorganized/insecure infants. In order to do so, the mothers' frightened and frightening behaviors based on the Main and Hesse measure (1992b) were analyzed separately from the rest of the behaviors that were coded as part of the disrupted communication score. The findings paralleled the AAI studies conducted by Jacobvitz et al. (1997) and Schuengel et al. (1999), in that the mothers in the disorganized/insecure group exhibited heightened levels of affective communication errors, role confusion, and negative/intrusive behavior in addition to frightening behavior. By contrast, the disorganized/secure group was not distinguished by increased frightened/frightening behavior, but rather these mothers received higher scores on the withdrawal dimension relative to the disorganized/insecure group.

Lyons-Ruth et al. (1999a) have presented a preliminary model that includes two distinct maternal stances within the broader disorganized group. In the "helpless-fearful" subgroup that has been associated with mothers of disorganized/secure infants, the mothers display a mix of non-hostile and superficially responsive behavior that is combined with fearfulness, withdrawal, and disrupted affective communication. The helpless-fearful type, however, should not be confused with the behavior that has been associated with mothers of avoidant infants. Lyons-Ruth et al. (1999a) note that the mothers of avoidant infants in their study, in spite of being cool and dismissive, were nonetheless able to maintain a clear parental stance that lacked the hesitancy and

fearfulness that characterized the disorganized/secure group. The other typology within the disorganized spectrum, the "hostile" subgroup, was associated with mothers of disorganized/insecure infants. These mothers mixed frightening behaviors with disrupted affective communication errors and hostile-rejecting as well as role-reversed behaviors.

The mixture of hostile-rejecting and role-reversed behavior of the hostile subgroup notably exemplifies the "competing strategies" hypothesis, in that this combination of behavior simultaneously elicits and rejects closeness with the infant. Furthermore, a separate analysis was conducted utilizing a "failure of repair" scale that was based on various behaviors that have since been incorporated into the broader AMBIANCE measure. The failure of repair score was also found to be a significant predictor of infant disorganization. Therefore, all three of the hypothesized mechanisms through which parental behavior is thought to engender infant disorganization (i.e. frightened/frightening behavior, competing strategies, and failure of repair) each received empirical support in the original AMBIANCE study (Lyons-Ruth et al., 1999b).

These authors were able to demonstrate cross-situational stability for the maternal behaviors observed during the Strange Situation, as the AMBIANCE measure was significantly correlated in the predicted directions with maternal involvement and maternal hostile-intrusive behavior observed in the context of naturalistic mother-infant interactions videotaped in the home. Furthermore, the AMBIANCE measure was significantly related to the level of infant negative affect observed using these same videotaped interactions. In sum, the AMBIANCE coding system was shown to be a valid measure of the mother-infant caregiving relationship within an at-risk sample. This was seen both in terms of the correlation with maternal behavior outside of the lab as well as

in predicting infant attachment behavior during the Strange Situation and levels of infant negative affect observed in the home.

Lyons-Ruth et al. (1999a) have noted that, "repeated lack of appropriate responsiveness to the *intention* conveyed in the infant's communications could take many forms, including antagonism, withdrawal, intrusive overriding of the infant's cues, or role-reversing focus on the parent's needs..." (Lyons-Ruth et al., 1999a, p. 52, italics added). Thus, the AMBIANCE measure attempts to operationalize the behavioral manifestations of a parent's gross failures to grasp and respond to the intentionality of the infant. As previously noted, the capacity to reflect on the infant's intentionality is central to the theory of reflective functioning that will be measured in relation to the PDI. It is hoped that this unifying construct will lead to a meaningful correlation between the mother's representations and her behavior as both offer a unique perspective into a mother's grasp of her child's affect and intentions.

VII. Conclusion to the Literature Review

Attachment researchers have long considered sensitive responsiveness by the caregiver to play the central role in bridging the security of adult representations of attachment to infant security during the Strange Situation. This perspective can be traced back to the theoretical work of Bowlby, which proposed that the caregiver's mental representation of the child determines how he or she will respond to the child's attachment behavior. Bowlby further suggested that sensitive caregiving is the critical factor that allows the child to form a secure attachment to the parent. The centrality of sensitive caregiving was further validated by the early home observations conducted by

Ainsworth, which helped to explain the differences in children's attachment behavior later observed during the Strange Situation (Ainsworth et al., 1978).

Over the past twenty years, a variety of developments have occurred within the field of attachment. However, researchers are still concerned with many of the same basic questions that were originally posited by Bowlby and Ainsworth: 1) how do individuals differ in terms of the patterns of behavior and mental representation that underlie attachment; 2) how are these patterns transferred intergenerationally; and 3) what is the connection between representation and behavior. The exploration of these questions has increasingly focused on the role of affect regulation. Furthermore, current research has developed increasingly subtle and sophisticated methods for evaluating differences in both the observed behavior and the representational processes that define the different attachment styles. The present study develops out some of the most recent research that has examined differences among caregivers at both the behavioral and the representational level. It is hoped that this study will contribute to an expanded understanding of the connection between representation and behavior, and that the findings will have implications concerning the role of reflective functioning in the processes of affect regulation and impulse control within the context of attachment relationships.

VIII. Statement of the Problem

In the original Lyons-Ruth et al. study (1999b), the AMBIANCE instrument was shown to be a reliable and valid measure of the caregiving relationship within a lower income and at-risk sample of mothers and infants living in or around Cambridge

Massachusetts. The first task of the present study will be to investigate the reliability and the validity of the AMBIANCE measure within a middle to upper middle-income New York City sample. It will be important to see whether mothers of disorganized infants in the present sample exhibit the same degree of disruption in affective communication as was seen in the Cambridge sample. It is hypothesized that the maternal behavioral correlates of infant attachment transcend culture and class to a substantial degree. Therefore, it is predicted that the present study will replicate the original findings regarding the relationship between the AMBIANCE measure and infant attachment classification.

This study was also designed to examine the link between representation and caregiving behavior within mother-infant attachment. More specifically, this investigation will consider the mother's ability to reflect on her own negative affect, as well as the negative affect that is inevitably experienced by her child during the course of early development. It is believed that the mother's reflective functioning plays a central role in her ability to regulate her own negative affect. This, in turn, allows her to respond sensitively to her child's behavior and to begin to form coherent representations of the mental states that underlie that behavior. By contrast, a mother who is unable to reflect upon either her own mental states, or those of her child, will be impeded in her attempt to provide sensitive and responsive caregiving, particularly during times of infant distress. Instead, mothers such as this will need to resort to a variety of defensive efforts that ultimately fail to adequately manage the various kinds of negative affects that become stimulated within the caregiving system. Therefore, an inverse relationship is predicted between the level of RF of maternal caregiving representations and the occurrence of

disruptions in affective communication observed in the context of mother-infant separation.

IX. Hypotheses

1) The AMBIANCE measure will be significantly related to infant disorganization. Mothers of disorganized infants are predicted to have higher AMBIANCE scores than those of organized infants.

2) The AMBIANCE measure will be significantly related to infant attachment. Mothers of insecure infants are predicted to have higher AMBIANCE scores than those of secure infants.

3) The overall RF scores of the ten-month PDI will be negatively correlated with the AMBIANCE measure of the Strange Situation at fourteen months.

4) Passage scores of RF for PDI demand questions focusing on maternal or infant negative affect, as well as difficult relational interactions, will have the strongest negative correlations with the AMBIANCE Level of Disrupted Communication Scale (see the italicized questions from Table 1 for a list of relevant questions).

Table 1: Demand Questions for Scoring Reflective Functioning on the PDI*

Question	Probes
1) What gives you the most joy in your relationship with C (child's name)?	None
2) When do you feel most with C?	None
3) Do you ever feel intensely happy as a parent?	What kinds of situations make you feel this way? What kind of effect do these feelings have on C?
4) Can you describe a time in the last week when you and C really clicked?	How did you feel when that happened? How do you think C feels when the two of you are really clicking?
5) Can you describe a time in the last week when you and C really weren't clicking?	*What are those times like for your? How do you think C feels when the two of you are not clicking?*
6) What gives you the most pain or difficulty in your relationship with C?	*None*
7) Do you ever feel really needy as a parent?	*What kinds of situations make you feel this way? How do you handle your needy feelings? What kind of effect do these feelings have on C?*
8) Do you ever feel really angry as a parent?	*What kinds of situations make you feel this way? How do you handle your angry feelings? What kind of effect do these feelings have on C?*
9) Do you ever feel really guilty as a parent?	*What kinds of situations make you feel this way? How do you handle your guilty feelings? What kind of effect do these feelings have on C?*
10) In and average day, what would you say gives C the most pleasure?	None
11) What distresses C or makes him or her unhappy?	*None*
12) Does C ever have moods or emotions that you sometimes have a hard time making sense of?	*None*
13) Are there times when you feel you don't understand your child?	*None*
14) Are there times in your relationship with C that you feel he or she has the upper hand?	*How do you usually feel during those times?*
15) Does C ever feel rejected?	*None*
16) How do you think C's relationship with you is affecting his or her personality or development?	None

17) Can you describe a routine separation?	*How do you think C feels about this type of routine separation? What kind of reports do you get about his or her response while you are away? How do you think C feels when you return?*
18) What are these routine separations like for you?	*None*
19) Could you describe the kind of separation that might C might experience as more stressful than a routine separation?	*How do you think C feels about these more stressful separations? What kind of reports do you get about his or her response while you are away? How do you think C feels when you return?*
20) What are these more stressful situations like for you?	*None*
21) Has there ever been a time in your child's life when you felt as if you were losing him or her just a little bit?	*None*

*Italicized questions are predicted to have the strongest negative correlations with the AMBIANCE Level of Disrupted Communication Scale.

CHAPTER THREE
Method

I. Subjects

The present study involves secondary data analysis drawn from a larger ongoing study of attachment, the Pregnancy Project, which was designed by Arietta Slade, Ph.D. at the City College of New York. The Pregnancy Project is a longitudinal study that was funded by the National Institute of Child Health and Human Development. The subjects were forty-four first-time mothers and their infants. They were studied from the third trimester of pregnancy through the second year of the infants' lives. All of the mothers were middle-class. The sample was primarily Caucasian (94%). Three of the remaining subjects were African-American and one was of mixed racial background. They were drawn from the New York City area. Their ages ranged from 25 to 40 years, with a mean of 31.4 years. All but three of the subjects were married, and all were cohabiting and in stable relationships at the time of data collection. It was a highly educated group, with roughly 90% having graduated from college and over 50% having completed some amount of graduate study. At the time of initial contact, the employment status of the subjects was as follows: 48% were employed on the professional level, 29% in public service, business, or other white collar jobs, 15% were artists, and the other 8% were either students or unemployed.

Subjects were recruited during pregnancy from locations such as childbirth classes, maternity shops, gynecologists' offices, and exercise classes for pregnant women. Recruitment took place through the distribution of fliers as well as through direct recruitment by research assistants who spoke to groups of women at childbirth and

exercise classes. Advertisements were also placed in local parent newspapers. The Subjects were an average of 31.8 weeks pregnant when they first contacted the project. Participation in the study included three visits to the laboratory during pregnancy and four to six subsequent visits with the baby following birth. There was also a brief postpartum telephone interview at one month. The postpartum visits occurred when the infants were four, ten, fourteen, and 28 months old. The mothers were reimbursed $20.00 for their participation following each visit to the laboratory. Informed consent was provided and Internal Review Board clearance was granted.

The gender ratio of the children was 51% girls and 49% boys. None of the infants had any serious ongoing medical problems. 91% of the mothers breastfed, and at one month, 75% reported that breastfeeding was proceeding smoothly, with the remaining 25% reporting mild feeding difficulties. While 23% of the subjects described some feelings of depression at one month, none reported significant postpartum depression.

II. Setting

The data were collected in a laboratory located at the campus of the City College of New York. The laboratory included two large outer rooms and one smaller inner room. One of the outer rooms was specifically designed for interviewing, with dim lighting, a rug, and tables and chairs. The other outer room held a waiting area with tables and chairs as well as an infant playspace. The inner room was separated into two parts by a one-way mirror. On one side of the mirror there was video camera equipment set up for recording the Strange Situation. On the other side, there was a carpeted playroom that was decorated with posters and supplied with many age-appropriate toys.

III. Procedure

The level of maternal reflective functioning was obtained from the PDI that was administered during the ten-month visit. This visit also included a videotaped segment in which mothers and their babies engaged in free play together. During the next visit, when the infant was fourteen-months-old, the dyad participated in the filming of the Ainsworth Strange Situation (Ainsworth et al., 1978). These videotapes are utilized to determine infant attachment classifications as well as for the scoring the AMBIANCE measure. During that same visit, the AAI (George et al., 1985), the BSI (Derogatis, 1979), Crockenberg's Social Support Scale (Crockenberg, 1981), and the Caretaking Patterns Questionnaire (Slade, 1987) were each administered. Each of the instruments and scoring methods relevant to the present study will be thoroughly described below.

IV. Measures

A. The Parent Development Interview

The PDI (Aber et al., 1985; see Table 1) was administered to mothers during the ten-month visit. The interview was originally designed to assess a mother's representations of her child, herself as a parent, and her relationship with her child. Therefore, the PDI elicits representations derived from a current and ongoing relationship with a specific child. It is a semi-structured clinical interview containing 45 questions that take approximately 90 minutes to administer. The interview includes questions that ask the mother to describe times when the child may have felt distressed or rejected. There are also questions that are similar to the AAI, such as asking for five adjectives to describe the child, and then the reasons a given adjective was chosen. Other questions

focus more directly on the mother's relationship with her child, including what makes it pleasurable or difficult. The mother is also asked to describe times when she "clicked" and times when she "didn't click" with her child. Next, she is asked to describe herself as a parent, stating strengths and weaknesses as well as answering questions regarding specific feeling states such as happiness, neediness, guilt, anger, and joy. The mother is also asked about her thoughts and feelings relating to separations from her child. There are also several questions that ask about how she has been impacted as a parent by experiences with her own parents. Finally, the mother is asked about her spouse and the ways in which her relationship with her husband or partner has been impacted by the birth of the child.

Many of the questions throughout the PDI have secondary probes that allow for thorough exploration of the way in which each member of the mother-infant dyad is impacted by the feelings and behavior of the other. One question, for example, asks the mother, "Do you ever feel really angry as a parent?" This is followed, if necessary, by the following probes: 1) "What kinds of situations make you feel this way?"; 2) "How do you handle your angry feelings?"; and 3) "What kind of effect do these feelings have on your child?" In order to evaluate the overall quality of maternal representations, the PDI will be scored for the mother's reflective functioning using the following coding system.

B. Measuring Reflective Functioning

The Addendum to the Reflective Functioning Scoring Manual, for use with the PDI (Slade, Bernbach, Grienenberger, Wohlgemuth Levy, & Locker, 2001; see Appendix A), will be used to score the mother's reflective functioning. Although RF has been

extensively studied and scored in reference to the AAI, it has yet to be formally applied to the PDI. The original RF scale, however, was designed with the intention that it be relevant to other narrative data sets such as the PDI (Fonagy, Steele, Moran, Steele, & Higgitt, 1993). The addendum for the PDI follows the same definition of RF that was outlined by Fonagy and his colleagues (Fonagy, Target, Steele, & Steele, 1998) in the Reflective Functioning Manual Version 5.0 for application to the AAI.

In one major study of reflective functioning conducted at the London Parent-Child Project (Fonagy et al., 1991), RF was scored on the AAI with a sample of 100 mothers and 100 fathers. Four judges were utilized to code the maternal AAI's and three to code the paternal interviews. The mean correlation coefficients between judges were .67 for the maternal AAI's and .83 for the paternal AAI's. There were several correlations found between RF and various dimensions of the AAI that are coded using the original scoring system developed by Main and Goldwyn (1998). The correlation that is most relevant to the present study was between coherency and RF. These correlation coefficients were .90 for maternal AAI's and .92 for paternal AAI's. Significant correlations were also found between both maternal and paternal RF scores using prenatal AAI's and subsequent secure classification of the child using the Strange Situation ($r=.51$ for mothers and .36 for fathers). The above study, as well as a number of subsequent studies that are summarized in the RF manual, has demonstrated the construct of reflective functioning to be both reliable and valid across multiple samples.

RF on the PDI can be assessed under the following four broad categories: 1) awareness of the nature of mental states; 2) the explicit effort to tease out mental states underlying behavior; 3) recognizing developmental aspects of mental states; and 4)

mental states in relation to the interviewer. It is an eleven point scale ranging from -1 (negative RF) to 9 (full or exceptional RF). Scoring is based on a thorough reading of verbatim transcripts made from audiotapes of the PDI. Individual passage scores are derived for responses to each question on the PDI. In a similar manner to the scoring of RF on the AAI, each individual passage score is considered to be either a "demand" question or a "permit" question. The PDI has been divided into 21 demand questions and 24 permit questions (see Table 1 for a complete list of demand questions). Demand questions are those deemed to explicitly elicit the subject's RF. Permit questions are those that may lead to the demonstration of the capacity for RF; however, these questions are less evocative of responses that require the subject to focus on mental states. In addition to the individual passage scores, an overall score is determined for each interview as a whole. This score is based on the pattern of RF that has been demonstrated across a range of different domains. Therefore, in order to obtain a high overall score, the mother must be able to reflect on her own mental states, those of her child, and the complex interactions between mental states and behavior that occur within the context of the continually developing parent-infant relationship.

The four judges who coded RF on the PDI were advanced doctoral candidates in clinical psychology. Arietta Slade, Ph.D., Director of the Pregnancy Project and first author of the RF manual, directed training on the scale for the PDI. Training lasted for over one year. After the final coding phase had begun, reliability was checked at regular intervals. Inter-rater reliability of the RF scale was achieved for both the individual passage scores and the overall interview scores using intraclass correlation coefficients. The ICC (2, k) ranged from .78 to .95 with a mean of .88 for individual passage scores

within each of the fourteen interviews that were checked for reliability. The ICC (2,k) for overall RF across these same interviews was .87.

C. The Ainsworth Strange Situation

The Strange Situation is a standardized videotaped experimental paradigm that includes eight segments that are each approximately three minutes in length. The infant is exposed to a number of stressors that are designed to elicit his or her attachment behavioral system. The sequencing of the Strange Situation is arranged so that the infant experiences increasingly stressful situations. The stressors include being introduced to an unfamiliar setting and an unfamiliar adult, separation from the mother while in the presence of the stranger, reunion with the mother, being left alone in the playroom, re-exposure to the stranger, and finally, reuniting with the mother after being left alone.

The Strange Situation has been widely regarded for its reliability and validity as an assessment measure of infant attachment. The present study utilized the Strange Situation coding procedures (Ainsworth et al., 1978; Main & Solomon, 1990) in order to determine the quality of the infant's attachment to his or her mother. Infants were assigned to one of the four primary attachment classifications: Secure, Avoidant, Resistant, or Disorganized. Within each of these four groups, further subgroups could also be assigned, however data analysis in the present study will be based only on the primary classifications.

Jude Cassidy, Ph.D. and her research team at Pennsylvania State University determined Strange Situation classifications. Dr. Cassidy is a nationally recognized attachment expert who has published numerous papers that have utilized the Strange

Situation. All coders were trained to reliability by Dr. Cassidy. The rate of agreement for the attachment classifications was 65%.

Since its inception, the vast majority of studies using the Ainsworth Strange Situation have focused exclusively on the child's behavior. More recently, Lyons-Ruth, Bronfman, and Parsons (1999) have argued that the Strange Situation also provides an optimal opportunity to observe the maternal caregiving system in action, as this procedure is the best validated assessment technique known to activate the infant's attachment behavioral system. Maternal behavior during the Strange Situation is particularly interesting because it provides a window into the manner by which the mother regulates, or fails to regulate, her child's negative affect or distress. Lyons-Ruth and her colleagues have developed a coding system for evaluating maternal behavior during the Strange Situation. This system is described below.

D. Atypical Maternal Behavior in the Strange Situation

The Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE, Version 2) (Bronfman et al., 1999; see Appendix B) will be used for coding disrupted affective communication during the Strange Situation. This system considers all episodes of the Strange Situation for which both the mother and the infant are present. The AMBIANCE measure was developed in order to assess the various types of maternal behavior that have been hypothesized to be associated with infant disorganized attachment. Several different scores are derived for a given protocol. These include the following: 1) tallies of the total number of atypical behaviors (AMBIANCE Total) as well as subtotals for each of the five dimensions of disrupted affective

communication; 2) Level of Disrupted Communication Scale which is a qualitative score ranging from 1 ("High normal") to 7 ("Disrupted communication with few or no ameliorating behaviors;" and 3) Parental Classification, a bivariate classification of either Disrupted or Not Disrupted affective communication. The Parental Classification is based on the Level of Disrupted Communication score, with scores of 1 to 4 being considered "Not Disrupted" and 5 to 7 considered "Disrupted."

The AMBIANCE measure is made up of the following five dimensions: 1) Affective Communication Errors; 2) Role or Boundary Confusion; 3) Fearful, Disoriented, Dissociative, or Disorganized Behavior; 4) Intrusiveness or Negativity; and 5) Withdrawal. Each of the five dimensions contains specific lists of approximately 30 commonly identified behaviors that were drawn from actual Strange Situation protocols during the development of the scale. These lists are not exhaustive, and the coder is permitted to consider additional atypical behaviors as they emerge during the course of coding a given tape.

The AMBIANCE measure was originally applied to a sample of 65 low-income mothers and infants (Lyons-Ruth et al., 1999b). Approximately half of the sample was drawn from referrals made by a home-based intervention service. 66% of the mothers were supported by public assistance, and 45% were single parents. Therefore, the sample was intentionally designed to over-represent dyads considered to be "at-risk." This study utilized three coders, and intraclass correlation coefficients ranged from .73 to .76 for the subtotals within each of the five dimensions. The coefficient for the overall Level of Disrupted Communication Scale was .93.

The results of this study included the findings that mothers of disorganized infants exhibited increased rates of disrupted affective communication, with the means across all five of the subscores occurring in the predicted direction. The strongest correlation was seen in relation to the qualitative score for the overall Level of Disrupted Communication Scale, $T(40)=2.15, p < .05$. Significant correlations were also found between the AMBIANCE Total score and a 9-point scale that measured the level of infant disorganized attachment behavior, $r = .39$, $p < .01$.

The two coders of the AMBIANCE measure in the present study are both advanced doctoral candidates in clinical psychology. Elisa Bronfman, Ph.D. and Karlen Lyons-Ruth, Ph.D., two of the three principal authors of the AMBIANCE scale, trained both coders. Training began with an intensive weekend seminar. Following this, the coders continued to train together over a six-month period utilizing Strange Situation tapes with narratives and scores that were previously completed by Dr. Bronfman. Finally, both coders blindly and independently completed the scoring of 19 tapes that were previously scored by the expert coder. Successful levels of agreement with the expert codes were reached in the case of both coders ($r = .76$ and .77), and permission was given to begin coding the present sample. Inter-rater reliability within the present study was checked at regular intervals. The ICC (2,1) was .83 for the Level of Disrupted Communication Scale and .85 for the AMBIANCE Total score.

The reliability and validation analyses reported by Lyons-Ruth and her colleagues suggest that the AMBIANCE measure can be utilized in a meaningful way to identify the significant disruptions in affective communication that often occur in cases of infant disorganized attachment. However, one could argue that these scales have utility that

extends beyond the scope of infant disorganization. Although it is likely that some atypical behaviors may be observed even in secure dyads, the quantity and quality of disrupted affective communication is quite dramatic in dyads that score on the higher end of the AMBIANCE scales. In light of this assertion, the present study will use this scale in two different ways. To begin, the AMBIANCE measure will be utilized as a predictor of both infant attachment security and infant attachment disorganization. These analyses will help to determine the appropriateness of this measure within a middle-income sample by contrast to the at-risk sample that was used in the original study. The next analysis will utilize the AMBIANCE measure as a dependent variable in its own right, rather than using it exclusively as a predictor of infant attachment. It is hypothesized that the level of disrupted affective communication will be meaningfully correlated with ratings of maternal reflective functioning.

CHAPTER FOUR
Results

Hypothesis One

The forty-four infants in this study were classified as Secure, Avoidant, Resistant, or Disorganized using the Strange Situation coding procedures (Ainsworth et al., 1978; Main & Solomon, 1990). The distributions were as follows: twenty-three Secure (52%); seven Avoidant (16%); four Resistant (9%); and ten Disorganized (23%). The first of the two major research questions addressed the relationship between maternal disrupted affective communication and the infant's quality of attachment. The study's first experimental hypothesis predicted that mothers of disorganized infants would have higher AMBIANCE scores than mothers of organized infants. When collapsing the three organized categories (Secure, Avoidant, and Resistant) in order to consider the impact of maternal behavior on infant disorganization, the ANOVAs were significant ($p<.013$ Level of Disrupted Communication; $p<.003$ AMBIANCE Total) (see Tables 2 and 3). These analyses produced a large effect size of .88 for the Level of Disrupted Communication and a very large effect size of 1.04 for the AMBIANCE Total.

Table 2: AMBIANCE Level of Disrupted Communication by Infant Disorganization* †

	N	Mean	Standard Deviation
Organized	34	3.03	1.40
Disorganized	10	4.50	2.07
Total	44	3.36	1.67

*p< .013
†Effect Size = .88

Table 3: AMBIANCE Total by Infant Disorganization* †

	N	Mean	Standard Deviation
Organized	34	9.53	8.30
Disorganized	10	20.50	13.29
Total	44	12.02	10.56

*p< .003
†Effect Size = 1.04

Hypothesis Two

The study's second hypothesis predicted that mothers of insecure infants would have higher AMBIANCE scores than mothers of secure infants. When collapsing the three insecure categories (Avoidant, Resistant, and Disorganized) in order to consider the impact of maternal behavior on infant attachment security, the ANOVAs were also significant ($p<.014$ Level of Disrupted Communication; $p< .023$ AMBIANCE Total) (see Tables 4 and 5). These analyses produced moderately large effect sizes of .73 for the Level of Disrupted Communication and .68 for the AMBIANCE Total. The above results provide strong support for the first two hypotheses, and thereby indicate that negative maternal caregiving behavior assessed by the AMBIANCE measure is inversely related to child attachment. Mothers with high AMBIANCE scores are more likely to have infants with disorganized and insecure attachment styles, and mothers with low AMBIANCE scores are more likely to have infants with organized and secure attachment styles.

Table 4: AMBIANCE Level of Disrupted Communication by Infant Attachment Security* †

	N	Mean	Standard Deviation
Secure	23	2.78	1.35
Insecure	21	4.00	1.79
Total	44	3.36	1.67

*p< .014
†Effect Size = .73

Table 5: AMBIANCE Total by Infant Attachment Security* †

	N	Mean	Standard Deviation
Secure	23	8.61	8.41
Insecure	21	15.76	11.56
Total	44	12.02	10.56

*p< .023
†Effect Size = .68

Hypothesis Three

The second major research question considered the relationship between maternal reflective functioning and maternal disrupted affective communication. The study's third experimental hypothesis predicted that the AMBIANCE measure would be inversely correlated with the overall RF score. Table 6 shows the results of Pearson correlations between maternal RF and both the Level of Disrupted Communication Scale and the AMBIANCE Total score. The AMBIANCE Level of Disrupted Communication Scale was significantly correlated in the predicted direction with overall RF ($r = -.474$, $p<.001$). Based on Jacob Cohen's (1988) criteria, this correlation represents a large effect size. The AMBIANCE Total score was also significantly correlated in the predicted direction with overall RF ($r = -.387$, $p<.005$). This correlation represents a moderately large effect size. These results support the third hypothesis, and thereby indicate that negative maternal caregiving behavior is inversely correlated with maternal reflective functioning. Maternal RF assessed when infants are ten-months-old is predictive of maternal AMBIANCE scores when infants are fourteen-months-old.

Table 6: Correlations of the AMBIANCE Measure with Overall RF

	RF
AMBIANCE Level of Disrupted Communication Scale	r =-.474** p<.001 N =44
AMBIANCE Total score	r =-.387** p<.005 N =44

**Correlation is significant at the p< .01 level (1-tailed).

Hypothesis Four

This study also sought to examine the relationship between maternal disrupted affective communication and maternal RF at the level of the specific questions that were asked during the PDI. The fourth hypothesis predicted that those PDI demand questions that required mothers to reflect on either maternal or infant negative affect, or to reflect on difficult relational interactions (see italicized questions listed in Table 1), would have the strongest negative correlations with the AMBIANCE Level of Disrupted Communication Scale. Therefore, there were fifteen PDI demand questions in all that were hypothesized to have significant correlations with the AMBIANCE Level of Disrupted Communication Scale. However, upon closer scrutiny of the data set, it became evident that two of the demand questions (questions nineteen and twenty from Table 1) were not asked in approximately one-third of the interviews. Therefore, the analysis described above will be based on a total of nineteen demand questions, with thirteen predicted to have significant correlations with the Level of Disrupted Communication Scale of the AMBIANCE measure.

It should be stated that from a strictly empirical basis, a sample of this size does not support running nineteen separate correlations. However, from a theoretical perspective, it seemed worth considering which of the questions were correlated with the AMBIANCE measure and which were not. Nevertheless, the results of these analyses can only be speculative. Furthermore, two of these correlations (questions eight and fourteen) did reach significance levels that can be considered as legitimately significant findings after using Bonferroni's correction, which determines a more stringent significance test by dividing the $p<.05$ significance level by nineteen (or the number of correlations being considered). In this

case, the correlation would have to produce a significance level of $p<.003$ in order to be meet the Bonferroni criteria.

Table 7 shows the correlations between each of the nineteen RF passage scores being considered and the Level of Disrupted Communication Scale of the AMBIANCE measure. Eight of the thirteen italicized questions had significant correlations, and two additional questions represented trends, just missing the .05 cutoff with significance levels of $p<.066$ and $p<.069$. This group also included two questions that met significance after the Bonferroni correction. By contrast, five of the six non-italicized questions had insignificant correlations with the Level of Disrupted Communication Scale. In general, the questions that focused on negative affects or difficult relational interactions were the questions that tended to have the strongest negative correlations with the Level of Disrupted Communication Scale of the AMBIANCE measure. This analysis provided moderately strong support of the fourth hypothesis. The implications regarding the three questions that were exceptions to this pattern will be explored in the next chapter.

Table 7: Correlations of the Level of Disrupted Communication with RF Passage Scores

RF Question:	Level of Disrupted Communication
Describe a time when you and C really were not clicking?	r = -.341** p<.012
What gives you the most pain in your relationship with C?	r =.003 p<.493
Do you ever feel really needy as a parent?	r =-.182 p<.124
Do you ever feel really angry as a parent?	r =-.465** † p<.001
Do you ever feel really guilty as a parent?	r =-.154 p<.159
What distresses C or makes him unhappy?	r =-.234* p<.066
Does C have moods or emotions you Have a hard time making sense of?	r =-.297** p<.028
Are there times when you feel that you don't understand your child?	r =-.239* p<.069
Are there times in your relationship that you feel he has the upper hand?	r =-.459** † p<.001
Does C ever feel rejected?	r =-.384** p<.006
Describe a routine separation and how C felt about it?	r =-.403** p<.004
What are these routine separations like for you?	r =-348** p<.014
Has there ever been a time when you felt as if you were losing him?	r =-.349** p<.011
What gives you the most joy in your relationship with C?	r =.103 p<.253
When do you feel the most with C?	r =.035 p<.412
Do you ever feel intensely happy as a parent?	r =-.095 p<.270
Can you describe a time when you and C really clicked?	r =.087 p<.287
What would you say gives C the most pleasure?	r =-.002 p<.494
How do you think C's relationship with you is affecting his personality?	r =-.333** p<.016

Italicized questions predicted to have negative correlations with significance of p<.05

**p<.05, *p<.10 (trends)

†Meets p<.05 after Bonferroni adjustment for limited sample size relative to the number of correlations being considered.

CHAPTER FIVE
Discussion

I. The Four Hypotheses

This study was designed to test two fundamental questions and four specific hypotheses focusing on the maternal contributions to the mother-infant attachment relationship. The first question addressed the connection between maternal caregiving behavior and the quality of infant attachment. It was hypothesized that ratings of maternal disrupted affective communication would be significantly related to infant outcome, with greater disruption leading to the infant disorganized and insecure patterns of attachment. The second question addressed the connection between maternal reflective functioning and maternal affective communication. It was hypothesized that the overall capacity to reflect on the caregiving relationship, and in particular the ability to reflect on negative affects or difficult relational interactions would be inversely related to the level of disrupted affective communication.

In order to explore the first question regarding the link between maternal caregiving and infant attachment, maternal behavior during the Strange Situation was rated using the AMBIANCE measure of disrupted affective communication. This measure was originally designed with the explicit intention of identifying the patterns of maternal behavior that have been theorized to be among the causal factors leading to infant disorganized attachment. The first hypothesis predicted that high AMBIANCE scores would be related to infant disorganization, and the results confirmed this prediction. Both the AMBIANCE Level of Disrupted Communication Scale and the AMBIANCE Total score produced significant findings and large effect sizes in relation to infant disorganization. Mothers of disorganized

infants displayed more than twice as many instances of disrupted communication than did mothers of organized infants, and the overall seriousness or severity of these behaviors, in conjunction with their frequency, led to significantly higher scores on the qualitative scale of disrupted affective communication.

The second hypothesis proposed that the AMBIANCE measure would predict not only disorganized attachment but also infant insecurity more broadly. This hypothesis was also confirmed by the results, as mothers of insecure infants had significantly higher AMBIANCE scores than mothers of secure infants. However, the effect sizes for the secure/insecure analysis were below what was seen in relation to infant disorganization, thereby indicating that the AMBIANCE measure is a somewhat better predictor of infant outcome when it is applied exclusively to infant disorganized attachment.

This is the first time that the AMBIANCE measure has been applied outside of the original Cambridge sample, and the results not only replicate the original findings, but also suggest that this measure has utility that extends beyond low SES and "at-risk" samples. Why would the behaviors that are identified by the AMBIANCE measure have a greater probability of being observed among mothers of both disorganized and insecure infants? Lyons-Ruth and her colleagues have developed a measure that covers a tremendously wide range of problematic caregiving behaviors. At one end of the spectrum can be found the intrusive, controlling, and punitive behaviors that are often the easiest to identify in the videotapes. These represent the various types of upsetting interactions that are often seen in public settings such as the grocery store: things like yanking a child by the wrist, harsh or punitive voice tone, or critical and mocking statements. At the other end of the spectrum are the fearful, dissociated, and withdrawn behaviors. These are often more subtle, such as when

the mother averts gaze, sets a crying infant down too quickly, or repeatedly tries to interest a distressed infant in toys as a means of avoiding closer contact. In some instances however, the frightened and withdrawn behaviors are more dramatic, such as when a mother completely ignores her screaming infant for an extended period of time or passively allows the infant to engage in dangerous behavior. Finally, there are all of the behaviors that do not neatly fit under either the hostile/intrusive heading or the fearful/withdrawn heading. These include affective errors and misattunements, such as anxiously laughing while the infant is distressed, as well as the role reversed behaviors in which the mother seeks rather than provides attention or reassurance from the infant. In spite of the breadth of behavior covered by the AMBIANCE measure, there is a significant degree of theoretical cohesion, and therefore it is a measure which can be reliably coded and which has lead to meaningful results.

The AMBIANCE measure was based on three underlying theoretical constructs that come together within Lyons-Ruth's "relational diathesis model" of infant disorganization. These include the "frightened/frightening" hypothesis, the "failure of repair" hypothesis, and the "competing strategies" hypothesis. Each of these hypotheses is incorporated to varying degrees within each of the five AMBIANCE dimensions. The first of the three hypotheses, originally proposed my Main and Hesse (1990), asserts that infants become scared when they are confronted with parents who are themselves frightened, frightening, or dissociated in the context of their infant's attachment behavior. This is because the infant is faced with an irresolvable paradox in which the caregiver "is at once the source and the solution" of the infant's distress. The maternal behaviors that are the most relevant to the frightened/frightening hypothesis are captured by the AMBIANCE measure within

Dimension 2 (Role/Boundary Confusion), Dimension 3 (Fearful, Disoriented, Dissociative, or Disorganized Behavior), Dimension 4 (Intrusive/Negative Behavior), and Dimension 5 (Withdrawal).

The failure of repair hypothesis suggests that infant disorganization can emerge from the repeated failure on the part of the caregiver to provide a minimal level of responsiveness to infant distress or discomfort. These infants are left to flounder in isolation with their painful affect, and thus there is a failure to develop an organized strategy of attachment, as the infant is essentially unable to influence the attachment figure in any consistent or predictable way. The behaviors that typify failure of repair tend to be found within Dimension 1 (Affective Communication Errors) and Dimension 5 (Withdrawal).

Finally, the competing strategies hypothesis states that caregivers with unresolved loss or trauma may themselves experience dramatically contradictory urges toward their own infants, notably the wish to both elicit the infant's attachment behavior as well as to push the infant away. This combination of behavior leaves the infant constantly guessing which parent he is going to encounter: will it be the loving and inviting mother or the withdrawn, angry or distancing mother. This style of parenting is best captured within Dimension 1 (Affective Communication Errors) as well as within various combinations of behaviors such as inviting infant approach and then criticizing (Dimension 4) or withdrawing (Dimension 5) from the infant.

In summary, the AMBIANCE measure has demonstrated complex yet theoretically cohesive patterns of parental behavior that are highly predictive of infant disorganization, and to a lesser degree of infant insecurity. These findings, in conjunction with those of Lyons-Ruth and her colleagues (1999b), indicate that the AMBIANCE measure has validity

within both at-risk and normal samples of mother-infant dyads. After further establishing the validity of the AMBIANCE measure within the current sample, it becomes important to understand some of the factors that contributed to the differences in behavior that were observed among these mothers. This leads to the second major research question, which considers the impact of maternal reflective functioning on the occurrence of disruptions in mother-infant affective communication.

In order to examine this question, ratings of reflective functioning were based on interviews that asked mothers to reflect on their relationships with their children. The third hypothesis predicted that maternal RF would be inversely correlated with the AMBIANCE measure. The results confirmed this hypothesis, as both the Level of Disrupted Communication Scale and the AMBIANCE Total score had highly significant correlations with overall RF. The Level of Disrupted Communication Scale had a large effect size, as it was able to account for approximately 23% of the variance in maternal RF. These results represent the first time that a measure of reflective functioning has been directly connected to ratings of observed caregiving behavior. How can we understand these results?

Fonagy has created a theoretical model of the caregiving relationship that elaborates on Mary Main's (1991) concept metacognitive monitoring. Whereas Main had emphasized the importance of the caregiver's ability to "think about one's own thinking," Fonagy shifted the emphasis to the importance of thinking about both thoughts and feelings in both the self and the other. Therefore, Fonagy's model of reflective functioning has helped to clarify the intrinsically dyadic and affectively driven nature of attachment representations. Lyons-Ruth's relational diathesis model of attachment is equally guided by an appreciation for the dyadic nature of affect regulation. Whereas the AMBIANCE measure tracks "affective

communication" at the level of maternal behavior with the infant, the RF scale of the PDI tracks the mother's ability to communicate about her infant's affect in the context of a semi-structured clinical interview. But why would the ability to communicate with a stranger be so closely linked to the quality of affective communication between a mother and her infant. We must ask once again, what is the connection between representation and behavior within this particular context?

Both Fonagy's theoretical model, and the instruments that were developed to measure reflective functioning (Fonagy et al., 1998; Slade et al., 2001), have closely attended to the ongoing interplay between mental states and behavior. In fact, one way to understand the relevance of reflective functioning is to focus on the relative permeability of the border that exists between the realm of thoughts and feelings and that of action. When we are able to step back from our experience, if even just for a moment, we can begin to appreciate the constantly shifting nature of our internal states. This can be tremendously helpful in attempting to regulate and integrate impulse or emotion through symbolic elaboration rather than resorting to concrete enactment. In fact, fourteen of the sixteen mothers (88%) with scores above the mean on the RF scale had scores below the mean on the AMBIANCE measure. The highly reflective mothers in this sample were able to describe the fluid and constantly changing nature of their emotional experience in relation to their children, and the results suggest that this capacity to step back and look within provided these women with a buffer against enactments of disrupted or unintegrated responses to their children's distress.

This is only part of the picture however. Not only were highly reflective mothers more likely to have low ratings of disrupted affective communication, but mothers with high AMBIANCE ratings were more likely to have low RF scores as well. Of the mothers who

were classified as "disrupted", meaning that they were given a score of 5 or above on the AMBIANCE scale, 67% had scores below the mean on the reflective functioning scale. The reflective functioning scale taps into the mother's ability to contemplate the mental states of her ten-month-old child. But how can anyone know what is going on within the mind of a preverbal infant? Certainly none of us have conscious memories of what we were thinking or feeling at that age. This task requires the mother to struggle to comprehend the ambiguous and largely unknowable experience of the infant, and to do so within the context of the emergent mother-child relationship. The mother must be intensely curious about her child in order to embody what Winnicott (1957) described as the "primary maternal preoccupation." The behaviors that are identified by the AMBIANCE measure are characterized not by preoccupation with the mental states of the child, but rather by distortion or distancing from the child's experience. These mothers have become highly dysregulated by their children's distress and the underlying vulnerability that is exposed by that distress. The hostile/intrusive as well as the frightened/withdrawn behaviors that lead to high AMBIANCE ratings evidence not only the breakdown of parental affect regulation, but also an active retreat from the infant's internal states. Therefore, the inverse correlation between RF and AMBIANCE can also be explained by the fact that mothers who behave in grossly insensitive ways with their infants will be less likely to be able to contemplate their infant's minds as they will be driven to deny or distort the impact of these negative behaviors on the infant's well-being. These mothers may also project their own feelings of hostility onto the infant and react defensively to the threat they perceive within the child. The highly significant negative correlation between RF and disrupted affective communication provides

further evidence of the reciprocal link between the quality of maternal representations and the quality of maternal behavior within the mother-infant attachment relationship.

In attempting to further deconstruct the significant relationship that had been demonstrated between overall RF and the AMBIANCE measure, specific predictions were derived regarding the strength of the correlations that would be observed for each of the RF passage scores. The fourth and final hypothesis had predicted that the PDI demand questions that required mothers to reflect upon their own negative affect, negative affect in the child, or difficult relational interactions, would be the most closely tied to the AMBIANCE measure. Thirteen questions were predicted to have significant correlations with the AMBIANCE Level of Disrupted Communication Scale. The results indicated that eight of the thirteen questions being considered followed the predicted pattern and two other questions represented trends in the predicted direction.

The questions that focused on negative affect or difficult interactions were far more likely to have the strongest negative correlations with the AMBIANCE measure. For example, the three questions with the largest correlations were as follows: "Do you ever feel really angry as a parent?;" "Are there times in your relationship that you feel your child has the upper hand?;" and "Describe a routine separation and how your child felt about it." By contrast, the three questions that were the least predictive of AMBIANCE were the following: "What gives you the most joy in your relationship with your child?;" "When do you feel the most with your child?;" and finally, "Can you describe a time when you and your child really clicked?" Thus, it appears that what is most important in preventing disruptions in affective communication is the ability to reflect on experiences that are either difficult or uncomfortable.

This result not only follows directly from the theory of reflective functioning described above, but it makes great intuitive sense as well. The AMBIANCE measure is based on observations of mother-infant interactions during the Strange Situation. This procedure was designed in order to activate the infant's attachment behavioral system by presenting him with a novel, stressful, and unexpected separation from his caregiver. In addition to the more generalized emotional reactions such as anxiety or distress, the Strange Situation is also thought to engender feelings of fear, anger, or rejection in some infants. Therefore, it provides an excellent opportunity to observe the way that mothers respond to these negative affects in their infants, and it makes sense that the PDI questions that focused on infant negative affect would have such strong correlations relative to those that inquired about issues such as infant pleasure.

The Strange Situation also provides a view of the way that mothers respond to stressful situations more generally. Mothers are observed from behind a one-way mirror and the entire procedure is videotaped. This is a stressful experience for many mothers, as they are not only worried about their infant's discomfort, but also about the way they will be perceived by the experimenters. It could be argued that this might lead mothers to inhibit the overt display of hostile, withdrawn, or fearful behavior; however, these results suggest that caregiving responses within this context have significant variability. In other words, it is difficult if not impossible to "fake" the emotional tenor of the caregiving relationship when mothers are forced to contend with a stressful separation from the infant, and it can be argued that being observed only places greater stress on the mother's overall experience. Therefore, it was hypothesized that the PDI questions such as "Describe a time when you and your child were not clicking" or "Describe a routine separation and how your child felt about it" would

have the strongest correlations as opposed to those such as "Can you describe a time when you and your child really clicked?" The results confirmed this prediction.

There was one additional subset of PDI questions that had somewhat different results from what had been predicted. Only one of the four questions that focused on parental negative affect had a significant correlation with AMBIANCE. The questions that asked about parental "neediness," "guilt," and "pain" were not significant. By contrast, the question that asked about parental anger had the strongest negative correlation out of all the demand questions in the entire interview. Maternal hostility is a central construct in the AMBIANCE measure, and it would have been striking if this question had not reached significance. The other three parental affect questions, however, ask about feelings that may be easier for most mothers to acknowledge. Perhaps most importantly, pain, neediness, and guilt may be less relevant to the particular experiences that are evoked while participating in the Strange Situation procedure.

There was one question not originally identified by the fourth hypothesis, ("How do you think your child's relationship with you is affecting his personality"), which was significantly correlated with the AMBIANCE measure contrary to our predictions. Although this is a relationship question, it does not focus upon difficult interactions; therefore, a relationship between this question and the AMBIANCE measure was not expected. However, unlike the two relationship questions that focus on solely positive interactions, this question is phrased in a more neutral manner. It may have in fact elicited more relevant material because it opened the door for parental representations regarding both positive and negative interactions. Furthermore, this question is evocative to many mothers because it

directly inquires about the impact of the mother's caregiving on the child's emotional development.

In summary, the results regarding each of the nineteen demand questions suggest that mothers who are more reflective about difficult interactions and negative affects, particularly those of the child, will be less likely to exhibit disruptions in affective communication when they are confronted with these experiences *in vivo*. The quality of representations matters, and these results suggest further that representations are domain specific. In order to produce an integrated behavioral response to infant distress, or to a separation experience, the mother must draw upon an understanding of her child's mind in that particular context. These results underscore both the importance and the utility of representational measures that allow for dimensional coding of discrete domains of experience rather than relying exclusively on categorical measures of attachment organization.

II. Clinical Implications

The findings of this study lead to a number of important implications regarding clinical intervention with young children and their parents. The parent-infant psychotherapy literature has been greatly divided regarding the most appropriate point of entry for the treatment of disturbances in early caregiving relationships. Some approaches have emphasized the need to address parental representations and attributions, while others have focused exclusively on interventions aimed at helping parents to behave in more sensitive and responsive ways.

The present study utilized qualitative measures of both maternal behavior and maternal representations; and these measures were highly correlated with each other.

Maternal behavior was also found to be predictive of infant attachment. A related study utilizing the same sample (Slade, Grienenberger, Bernbach, Levy, & Locker, 2001) examined the link between maternal RF and infant attachment security and found a significant relationship and a large effect size. RF just missed significance when analyzed in relation to infant disorganization. Therefore, RF and AMBIANCE are not only related to each other, but each has been linked to infant attachment. RF is a somewhat better predictor of infant attachment security and AMBIANCE is a somewhat better predictor of infant disorganization within the present sample. These results suggest that maternal behavior and maternal reflective functioning are both critical variables that contribute to largely overlapping yet also distinct patterns of infant outcome. This indicates that in general, interventions need to address both behavior and representation in order to have the greatest impact. However, the results also indicate that representations and behavior are highly linked with each other. Should effective interventions at the level of representation be expected to lead to improvement at the level of behavior? And how would behavioral interventions impact maternal representation?

The present study has tested the relationship between RF measured at 10 months and the AMBIANCE measure at 14 months, and thus the results and the discussion have primarily described RF as a predictor of the maternal behavior. Furthermore, the attachment literature has tended to see maternal behavior as determined by internal representations rather than the reverse. However, it is important to note that the temporal sequencing in the present study is not equivalent to a direct causal link beginning with RF and ending with behavior. Rather, this is a correlational study that cannot determine the direction of influence.

However, a review of the data on a subject by subject basis points to a complex pattern which fits nicely with some of the theoretical literature regarding reflective functioning.

In the previous section it was reported that 88% of subjects with scores above the mean on the RF scale had scores below the mean on the AMBIANCE measure. This indicates that reflective functioning plays a critical role in affect regulation, and thus it is inversely related to disruptions in affective communication. However, it is also true that only 47% of subjects with low RF scores had scores above the mean on the AMBIANCE measure. Although high RF may greatly limit severely problematic caregiving behavior, low RF does not necessarily lead to disrupted affective communication. Fonagy (1996) has written that reflective functioning is particularly important in families that are contending with deprivation, loss, or abuse, and he has data that supports the increased importance of RF in such cases. RF may be somewhat less important when both the history of the caregiver and the current living situation are less stressful. In those instances, an average or even slightly below average reflective capacity may be enough to limit the development of more serious problems in the caregiving relationship such as those that are identified by the AMBIANCE measure. This does not imply that RF becomes irrelevant in such a context, and in fact RF may be a slightly better predictor of infant attachment within the less disturbed range when compared to ratings of maternal behavior using the AMBIANCE measure. It does suggest that low RF is not *necessarily* a sign of more severe problems depending on other potential stressors such as socioeconomic status, family history, or physical health.

Although low RF does not necessarily lead to disrupted maternal behavior, high AMBAIANCE ratings are very often correlated with low reflective functioning. This finding can be explained by a consideration of the psychological defense mechanisms that may be

evident in subjects who receive high AMBIANCE scores. The AMBIANCE measure was developed with a clear appreciation for the central and often predominant role of hostility within disorganized attachment relationships. The "hostile/intrusive" style and the "helpless/fearful" style can both be understood as evidencing massive difficulties with aggression. The former represents a defense that was first identified by Anna Freud, which she termed "identification with the aggressor." This kind of pathological identification was central in Selma Fraiberg's (1980) work with "parents who, earlier, in the extremity of childhood terror, formed a pathological identification with the dangerous and assaultive enemies of the ego" (p. 194).

The latter group represents a defensive reaction to similar childhood traumas that has been less emphasized within the psychoanalytic literature until more recently. This group has received systematic examination from both attachment researchers such as Main and Hesse (1990) and Liotti (1992, 1995) as well as psychodynamic theorists such as Bromberg (1998) and Brothers (1998), all of who have sought to understand the phenomenon of dissociation. The "helpless/fearful" subgroup can be understood as exhibiting a desperate attempt to avoid any acknowledgement of aggression in either the self or the other through defenses such as dissociation, avoidance, and withdrawal (It should be noted that the distinction between these two groups with respect to defense is not always clear-cut, and in fact, identification with the aggressor can also be understood as relying on the dissociation of the experience of pain or vulnerability). Both of the styles described by Lyons-Ruth reflect attempts to contend with aggressive impulses and negative affects primarily through concrete enactments with the child, and low reflective functioning is one of the outcomes that can emerge from these kinds of defensive processes.

Another explanation for the occurrence of low reflective functioning within these groups was provided in the previous section. Mothers who act in grossly insensitive ways will be even more driven to deny or distort the impact of such behaviors on their children's experience. It is easy to imagine a vicious circle in which negative behavior leads to the shutting down of mentalization, which in turn leaves the mother without the benefit of reflective functioning when encountering new and difficult situations with the child in the future. The question remains, however, as to whether to prioritize representation or behavior when devising a treatment plan for a particular parent-infant dyad.

The results of this investigation point to the importance of careful assessment in attempting to answer the above question. This assessment should begin by considering the overall quality of the behavioral interactions within the dyad as well as the capacity for symbolization that is available to the caregiver. In cases that involve more serious levels of disruption in mother-infant affective communication, behavioral interventions should be considered first in order to help stabilize the dyad. Out of control behavior on the part of either the infant or the parent may serve to greatly challenge and even to counteract the process of mentalization. If the behavioral interactions within the dyad are less problematic, then representational interventions (perhaps in conjunction with behavioral ones) should be strongly considered. Representational interventions can allow for greater depth and complexity that can begin to address the subtleties within the relationship that so often lead to quite serious problems.

However, it is also important to consider the caregiver's capacity for symbolization. With more concrete or less verbal thinkers, behavioral interventions may provide a better way to begin to speak about the parent-child relationship that can later be combined with

representational interventions. Finally, the mother's capacity for symbolization can help to determine what kinds of representational interventions to begin with. It is often not appropriate to begin with multi-generational interpretations that attempt to link the mother's childhood to the current problems with her own child. The theory of reflective functioning paves the way for a greater range of representational interventions that can begin with conscious attributions and move to increasingly unconscious material (Slade, 1999). This last issue will be discussed further in a later section.

A. Current Models of Parent-Infant Treatment

The various parent-infant psychotherapy approaches that currently exist tend to emphasize either behavioral interaction or parental representation due in great part to the historical and theoretical paradigms from which they originally emerged (Stern, 1995). Parental representations are typically seen as the crucial element in the treatment approaches that developed from within the psychodynamic perspective that began with the work of Selma Fraiberg (1975) (see also Cramer & Stern, 1988; Lebovici, 1988; Seligman & Pawl, 1984; Stern-Bruschweiler & Stern, 1989). By contrast there are a number of approaches that emerged from educational or behavioral perspectives that begin with the mother's interactive behavior (e.g. Clark & Siefer, 1983; Field, 1982; McDonough, 1992, 2000). Just as in the adult psychotherapy research, there is great debate as to the most effective treatment, and outcome studies have been hard pressed to demonstrate the relative superiority of one approach over the other.

One study, conducted by Daniel Stern and his colleagues with a middle socioeconomic sample (Cramer, Robert-Tissot, Stern, Serpa-Rusconi, De Muralt, Besson,

Palacio-Espasa, Bachman, Knauer, Berney, & d'Arcis, 1990), is particularly relevant. This study compared a psychodynamic model (brief mother-baby psychotherapy) developed in Geneva by Bertrand Cramer and Francisco Palacio-Espasa (1993) with a behavioral approach (interaction guidance) that was developed by Susan McDonough (1992, 2000) in the United States. Brief mother-baby psychotherapy stands out among the various psychodynamic approaches for its exclusive focus on the mother's representational world and early memories, as this model is based on a classical psychoanalytic perspective that views the infant as a transference object for the mother. The interaction guidance model, by contrast, does not address maternal representations, as its goal is to affect the quality of the caregiving relationship by fostering positive maternal behavior. The outcome variables included qualitative measures of maternal representations and maternal behavior at one week and six months post-treatment. The researchers were surprised to find that both treatments had an equally positive impact on both the representational and the behavioral outcome measures. In reviewing these results, Stern (1995) concludes, "It appears as if the system minimizes that specificity of the initial influences. It is not that all paths lead separately to Rome (the symptom); rather, all paths quickly join together to forge one inevitable highway, the altered system" (p. 153). These results make great sense in relation to those of the current study which found a high correlation between representation and behavior, however it is not clear whether equal treatment outcomes would have been found with a more disturbed or a more disadvantaged sample. Furthermore, we do not know whether the treatment effects could be maintained over an extended period of time as the children progressed through different developmental phases.

In a major meta-analytic review evaluating the impact of attachment-based interventions addressing either maternal sensitivity or maternal representations, van IJzendoorn and his colleagues (van IJzendoorn, Juffer, & Duyvesteyn, 1995) concluded that short-term behaviorally oriented interventions were the most effective in relation to immediate changes in infant attachment behavior, and further that more positive infant behavior may have a "sleeper effect" leading to a positive impact on maternal representations at some point in the future. However, the authors also concluded that treatments relying exclusively on behavioral interventions might ultimately have a limited impact on parental representations, thus failing to interrupt the intergenerational cycle of insecure attachment. Further research was recommended comparing behavioral and representational interventions within a longitudinal design in order to test the long-term impact on both parent and child outcome.

In attempting to integrate the parent-infant treatment outcome research with the results of the current investigation, it becomes clear that our developmental and clinical models need to account for the reciprocal and bi-directional influence that occurs between representation and behavior within early attachment relationships. All things being equal, any effective intervention that addresses one part of the caregiving system can be expected to have a positive impact on other components of that same system. However, this does not mean that either mode of intervention will be equally effective at a particular moment with a particular parent-infant dyad. Furthermore, the van IJzendoorn meta-analysis has indicated that the impact of behavioral interventions on maternal representations over the long-term remains uncertain. Therefore, intervention models that are able to address multiple levels of the caregiving system offer both the greatest flexibility in determining the most effective

point of entry with a particular dyad as well as the most promise in attempting to create long-term change. Perhaps more importantly, multi-pronged approaches open the potential for cross-modal interventions that more thoroughly encompass the ongoing ebb and flow between the representational and the behavioral domains of the caregiver's experience.

An excellent example of a multi-pronged approach can be found in the infant-parent program of the University of California at San Francisco. During recent years this program, which was founded by Selma Fraiberg, has further evolved through the work of Alicia Lieberman, Jeree Pawl, and their colleagues (Lieberman, Silverman, & Pawl, 2000; Lieberman & Zeanah, 1999; Pawl & Lieberman, 1997; Seligman, 1994). Fraiberg's original model has been adapted to include recent developments in psychoanalytic theory, infancy research, and attachment theory, which each highlight the centrality of real-life relational events in determining the organization of internal experience. These adaptations have led to an increasingly wide range of interventions that have been necessary in order to address the impact of the deteriorating social conditions found in the lives of the urban poor (Seligman, 1994). The current model utilizes interventions focused on any number of domains including child behavior, parent-child interaction, parental representations, child representations, and the parent-therapist relationship. Lieberman and her colleagues (2000) argue that this broader base of interventions is particularly necessary when working with parents who have experienced the kinds of ongoing and pervasive trauma that so often damages the capacity for symbolization.

Interventions providing developmentally appropriate behavioral guidance, direct support, and advocacy can help to stabilize the chaotic and disruptive daily experience that is the reality of many underprivileged families who are referred for parent-infant treatment.

These interventions can help create the space necessary for the mother step back and observe her own and her child's internal experience. Without such concrete interventions, it may be unrealistic to expect the caregiver to move beyond the enactive mode of response that has become necessary for her day-to-day survival within a harsh and unpredictable social and material context. In addition, a caregiver who lacks the capacity for mentalization is prone to seeing her own internal experience as the only possible reality that exists, rather than as a mental state that is uniquely subjective and likely to change over time. Therapeutic inquiry regarding the caregiver's thinking is thus likely to be experienced as an accusation or invalidation of her ability to accurately comprehend reality (Seligman, 2000). In such cases, behavioral interventions may be the most appropriate and effective points of entry into the caregiving system. If effective, these interventions can "create windows within which parents can experience themselves and their infants differently from what their internal expectations would have suggested" (Seligman, 1994, p.489), thereby initiating the potential for important changes in the mother's representational world. Together, shifts at both the behavioral and the representational levels can significantly alter the trajectory of the caregiving system, thereby opening new possibilities for the child's emotional development.

B. Interventions Specifically Aimed at Enhancing Parental Reflective Functioning

The above discussion has focused on interventions aimed at the caregiver's "representational world" in the broadest sense. The theory of reflective functioning provides a new way of conceptualizing the quality of representations, and relatively little has been written regarding the clinical implications of this emergent construct. With one notable exception (Slade, 1999) the existent literature has primarily focused on interventions aimed

at enhancing reflective functioning in adult patients (Fonagy, 2000; Fonagy et al., 1995; Slade, 1999) and child patients (Coates, 1998; Fonagy & Target, 1998). However, the present study provides evidence of the further need to develop interventions that specifically target the caregiver's capacity to reflect on the infant's mental states and the parent-infant relationship more generally. Such interventions have great potential for both parent-infant psychotherapy as well as parent guidance work with the caregivers of older child patients.

Arietta Slade (1999) has provided several clinical implications, in the format of an extensive case study, which stem from the theory of reflective functioning. It is important to highlight one of the core concepts of that paper which is central to this discussion. In describing the treatment of a young boy and his mother, Slade identifies a steady progression in her work with the mother, beginning with conscious representations and moving toward increasingly unconscious and sensitive material. The initial interventions were aimed at making the child's experience and behavior more meaningful to his mother. This involved an identification of the biologically based regulatory difficulties that underlay his tantrums. As the mother began to understand "what it felt like to live in his skin" (p. 811), she was subsequently more able to explore her own behavioral responses to him, and the affect states that impacted her response. The work then progressed to an exploration of his responses to her affective experience. It was only after the extensive work aimed at helping the mother to elaborate the representations of her son, that she was able to begin to consider that her own thoughts and feelings could have an impact on him. The final stage involved making historical connections between her early experience with her own parents and the way that she was now mothering her child. This final phase comes closest to what was first described by Fraiberg as the attempt to exorcise "the ghosts in the nursery." These interventions

became possible only after the extensive articulation and elaboration that had taken place regarding the mother's representations of both her own mind and the mind of her child. This basic model of mental states can be understood as a prerequisite that allows the caregiver to make use of the more traditional kinds of intergenerational interpretations that are grounded in psychoanalytic theory.

In discussing the implications of the theory of reflective functioning for adult psychotherapy, Fonagy (2000) contends that the ultimate goal of treatment is to help the patient find meaning in their own and other people's behavior. He suggests that the therapist's technical efforts and therapeutic stance should be guided by an attempt to help the patient locate himself within the mind of the therapist as an intentional being. In other words, the patient must experience the therapist as someone *who thinks about him* as a thinking and feeling person. It is the patient's internalization of the therapist's interest in mental states that fosters the patient's developing curiosity toward the contents and mental processes within his own mind.

This same notion can be applied to our work with parents. Not only can the parent-infant or child therapist demonstrate interest in the mental states of the parent, but she can also show this same curiosity regarding the mental states of the child. The parent and the therapist can struggle together, within the context of a safe and containing relationship, to understand the child's thoughts, feelings, motivations, and behaviors. As in any good treatment, it is the therapeutic process itself, in addition to the insight that has been gained, that becomes integrated into the patient's personality and can be utilized in an ongoing way. The theory of reflective functioning, with its emphasis on the process of mentalization and

the qualitative range of representational capacities that exists across individuals, has paved that way for new and innovative interventions with young children and their caregivers.

III. Some Broader Implications

The reciprocal influence that has been demonstrated between reflective functioning and affective communication suggests further important implications for psychoanalytic and developmental theories. These findings underscore the centrality of negative affect in human functioning. Previous research has struggled to find strong connections between representational processes and observable behavior, perhaps because it has tended to focus on less stressful forms of interaction such as unstructured free play or naturalistic observation. By contrast, the present study has shown a robust relationship between representation and behavior because it has intentionally focused on interactions that are known to be stressful, and thus, the quality of maternal behavior while under stress has been linked to the ability to think about difficult or negative affects.

Henry Krystal (1988) has written about patients who suffer from alexithymia, or the inability to see their own affects as signals. These patients find affect intolerable, and seek to avoid it by whatever means necessary. The current study demonstrates the importance of recognizing and tolerating painful affect not only in oneself, but also in the other. This leads to a further elaboration on the conceptualization of alexithymia, one in which affectively laden mental states, in either the self or the other, are experienced as if they were real threats to the basic well-being of the individual. It is not simply that the child's distress stimulates similar feelings in the mother, but rather that the mother distorts or projects onto the child's experience, and the child's mental states are then felt as if they were real, concrete, physical

threats. Thus, the maternal response will likely be characterized by fearful withdrawal, counter-aggression, or dissociation in order to defend against traumatic impingement upon the basic integrity of the self. Psychoanalytic theorists have described these kinds of behavioral enactments as driven by an underlying dread that has variously been referred to as annihilation, disintegration, or fragmentation anxiety (Bromberg, 1998; Brothers, 1995; Coates & Moore, 1997; Davies & Frawley, 1994; Kohut, 1984; Scharff & Scharff, 1994; Shane, Shane, & Gales, 1997; Winnicott, 1960). This kind of anxiety, by its very definition, is uncontained, unsymbolized, and unavailable to reflective modulation.

But why would the child's mental states be so disorganizing to the mother? One explanation can be found in the psychoanalytic theory of narcissism (e.g. Kohut, 1977). These dyads may be characterized by a lack of differentiation between the mother and her child. In essence, the child may serve as a narcissistic extension of the mother, and thus when the child becomes distressed, it is overly disruptive to her. Furthermore, current psychoanalytic theories of intersubjectivity (e.g. Aron, 1996; Benjamin, 1988, 1998) have focused attention on the patient's "recognition" of the other. A fully developed capacity for intersubjectivity is characterized by the recognition of the unique subjectivity of the other as separate from oneself. These considerations are clearly applicable to the present discussion, as difficulties with the recognition of the infant's unique and separate subjectivity lie at the core of low maternal reflective functioning.

A somewhat different psychoanalytic theory of intersubjectivity, which has been proposed by Robert Stolorow and his colleagues (e.g. Stolorow & Atwood, 1992; Stolorow et al., 1987), is also applicable. Stolorow has developed a theory, grounded in contemporary advances in philosophy and the natural sciences, which highlights the impact of the observer

on the observed. Stolorow's notion of intersubjectivity emphasizes the inextricable nature of the subject from its context. This model presents a radical critique of the classical notion of the "isolated mind" of the infant developing with relatively little impact from the interpersonal surround. Although Stolorow does not reject the notion of dynamic intrapsychic experience, he sees the intrapsychic as existing within, and highly impacted by, the broader environmental context. For the infant, this context is largely limited to the immediate family, with the mother typically playing the central role. Thus, for the mother to fully appreciate the intersubjective nature of the parent-child relationship, she must be able to acknowledge the profound influence that is inherent in what she does, how she thinks, and who she is with her child. Mothers with low reflective functioning are unable to grasp the powerful impact that their thoughts, feelings, and behaviors can have on the infant's emotional experience.

The above discussion concerning the application of two different models of intersubjectivity theory to the parent-infant relationship brings attention to an important paradox that is fundamental to the maternal experience. This paradox involves the challenges inherent in the mother's attempt to reconcile the simultaneous separateness as well as interconnectedness between her own mind and the mind of her child. Therefore, the difficulties that can emerge in attempting to fully engage with the mental states of the infant (at either the representational or the behavioral level) may be related to the mother's struggle to fully appreciate the strength of intersubjective experience while at the same time remaining aware of the fact of her infant's separate existence.

The theory of reflective functioning provides one possible explanation of the manner by which some mothers are able to contend with this paradox. If the mother is able to

gradually develop an appreciation for her infant's mental states, then she will become increasingly aware of the uniquely subjective manner by which her child experiences the world. This will enhance her awareness of his separateness, which can ultimately help her to tolerate the intensity of the closeness that is necessary for the optimal development of the infant's emergent selfhood.

Psychodynamic treatment has always sought to address the gaps in a patient's narrative or the content that remains unspoken or avoided, as such markers have been understood to represent important areas of psychic conflict that are in need of interpretation and elaboration. However, interventions based on psychodynamic theory have often been criticized for failing to emphasize the problematic behavior of the patient. These findings illustrate the powerful connection between a person's inner world and their observable behavior in the external world. This provides indirect, yet substantial support for exploratory treatments, particularly those which seek to enhance the patient's ability to reflect on mental states in both themselves and in others.

IV. Suggestions for Future Research

This study has helped to clarify the reciprocal nature of reflective functioning and affective communication within the mother-infant caregiving system. The quality of both maternal representations and maternal behavior has also been linked to differences in the quality of infant attachment. These findings have been discussed in relation to developmental theory, psychoanalytic theory, and parent-infant psychotherapy. However, the results of this correlational study do not provide definitive answers regarding the direction of influence between representation and behavior across the course of child

development. As noted elsewhere (Slade et al., 1999; van IJzendoorn et al., 1995), future studies should utilize longitudinal experimental designs with multiple measurement points in order to better understand the bi-directional influences of representation and behavior within the caregiving system.

Finally, the theory of reflective functioning that forms the basis of this study predicts that the quality of maternal representations is particularly important in the presence of certain risk factors such as deprivation, loss, or abuse within the family. Therefore, future research should seek to address the role of factors such as maternal psychopathology and socioeconomic status in determining the relative salience of reflective functioning and maternal behavior in relation to infant outcome.

Appendix A: Addendum to Reflective Functioning Scoring Manual for use with the Parent Development Interview

Addendum to Reflective Functioning Scoring Manual (Fonagy, Steele, Steele, & Target, 1998)

For use with the Parent Development Interview (Aber, Slade, Berger, Bresgi, & Kaplan

Arietta Slade
Elizabeth Bernbach
John Grienenberger
Dahlia Wohlgemuth Levy
Alison Locker

The City College and Graduate Center
of the City University of New York

Final Version
January 2001

We are most grateful to Mary Target and Peter Fonagy for the many ways in which they helped in the process of preparing this manual.

Address for correspondence:
The Psychological Center
The City College of New York
NAC Room 8/130
138th Street and Convent Avenue
New York, NY 10031

Email: aslade@snet.net
Phone: 860-350-8789
FAX: 860-350-2570

I. Introduction

This manual is intended for use as an adjunct to the Reflective Functioning Manual (Fonagy, Steele, Steele, & Target, 1998), and specifically for the scoring of Parent Development Interviews (Aber, Slade, Berger, Bresgi & Kaplan, 1985) for reflective functioning.

An adult's capacity for reflective functioning (RF) was originally assessed on the basis of his or her responses to the Adult Attachment Interview (George, Kaplan & Main, 1984); this is an instrument which assesses the quality of an adult's representation of his childhood attachment experiences. However, mentalization is thought to be a capacity that can be assessed in a variety of ways, including but not exclusive to the Adult Attachment Interview (AAI). The goal of this addendum is to help raters become familiar with indices of reflective functioning in parents' representations of their relationship with their babies, as assessed using the Parent Development Interview (PDI).

The PDI was developed to assess the quality of a parent's representation of his/her relationship with his/her child. It is a semi-structured clinical interview that takes about an hour and a half to administer and that probes a variety of aspects of the parent's, typically the mother's, view of herself and her child (See Slade, Aber, Belsky & Phelps, 1999, and Aber, Belsky, Slade & Crnic, 1999, for further details.)

In this manual, we adhere to the definition of mentalization and reflective capacity proposed by Fonagy, Steele, Steele, & Target, 1998. However, it will be our aim in the sections that follow to describe the particular issues regarding the scoring of reflective capacity as assessed through parental descriptions of an ongoing, current, and developing relationship with the child. Such descriptions are inherently different from those parents give of their relationships with their own parents on the AAI; by definition, such descriptions refer to relationships that were formed many years hence, and to incidents and memories in the long ago past. By contrast, the PDI asks parents to describe their current relationship with the child, by providing examples from ongoing everyday life. In that sense, the PDI, particularly when it is used with the parents of infants or toddlers, provides a view of a relationship that is currently <u>being formed</u>, and that is <u>still evolving</u>. In addition, it is a relationship that evokes strong feelings and reactions <u>in the present</u>. In contrast to the AAI, which evokes prior and relatively solidified representations, the PDI is presumed to tap into experiences that are live and immediate, and into representations that are still being constructed.

It is important to note that reflective functioning in parents is necessarily assessed using development as a backdrop. It is much easier to figure out what a two or three year old is thinking and feeling than it is to figure out what a six or twelve month old is thinking or feeling. Indeed, the latter is -- under many circumstances -- quite difficult, if not impossible. Of course, deducing the mental state of another is always complex; what we wish to emphasize here, however, is that complexity must be assessed within the context of development.

In order to score the PDI for RF, raters begin by reading the interview as a whole. Raters then reread the interview, and code specific demand questions (see pp.25-30) for level of RF. Section II describes indices of mentalization to be found in the PDI. As described by Fonagy et al. (1998), the scoring of RF depends upon the close reading of interview passages for indices of the subject's awareness of mental states. Once demand questions have been rated and the interview has been reviewed a second time, the interview is assigned an overall RF score. We will describe the specific guidelines for coding demand questions and assigning overall scores in Section V.

II. Mentalization and the Parent Development Interview

In the sections that follow, we will provide examples from PDI transcripts of what Fonagy et al.(1998) refer to as mentalization. The RF Manual defines the indicators of reflective function as 1) an awareness of the nature of mental states, 2) the explicit effort to tease out mental states underlying behavior, 3) recognizing developmental aspects of mental states, and 4) mental states in relation to the interviewer. These will be described below as they are manifested in the PDI.

A. Awareness of the nature of mental states

This general category assesses the subjects' awareness of the characteristics of mental states in themselves and others; this awareness is reflected in their explicit reference to the distinctive characteristics of mental states, as listed below (see Fonagy et al., 1998). Please note that this list is neither exhaustive, nor are these categories mutually exclusive.

1. The opaqueness of mental states. The opaqueness of mental states is most often manifested in the mother's indication that she cannot be sure of her child's mental state, and that indeed, she may well have to guess at or speculate as to what the child is thinking. For example, in response to a question about whether there are times she doesn't understand her child, a mother remarks: "Uh, sometimes when I'm feeding her and she doesn't seem to be wanting anything. She's eating, she's pointing to something else, but then you give it to her and she obviously doesn't want that either. It can be really hard to know exactly what she is feeling so I often have to try different things until I get it right." Other indications are the mother's linguistic expression of uncertainty: "I think he must have felt badly", "I don't know how much she really understands about that at this stage" or "I guess so....but I couldn't be sure."

2. Mental states as susceptible to disguise. Instances that demonstrate the awareness that the child may experience different emotions than the ones they display. It is important to note that until 12 months, and probably not until 18 months, children are not capable of intentionally disguising their emotions. This is not to say that children will not express emotions that might upset the caregiver; indeed, such patterns are undoubtedly learned over the course of the first year. However, the disguise of emotions is unlikely to occur before the middle of the toddler period, and thus, references to such disguise in the transcript will most likely refer to the mother's awareness that she disguises her feelings in relation to her child. For

example, the mother might try not to let him see that she is guilty, angry, etc., as in the following instance. Describing her anger at her five-month-old, a mother says: "It was a horrible time of the day, it was terrible for me, and it was terrible for him and I didn't know where to put my anger. I can't yell at him, can't do anything like that. So, ah... I just sort of suppressed it, and I don't think he really sensed my irritation."

3. Recognition of the limitations on insight. This is similar to opacity, for it refers to the subject's trying to read another's state of mind, all the while explicitly noting the limitations inherent in doing so. "Well, in a vague sort of way it probably makes her, you know, uncomfortable, I'm not sure exactly how." Or, "She gets sort of mad, but I'm not really sure if that's really what the issue is, or why she's reacting that way, she can be hard for me to figure out sometimes."

4. Mental states tied to expressions of appropriate normative judgments. When a parent makes reference to what would be a commonly expected reaction to a specific situation. For example, "I felt a little bit frustrated with her, but I also knew that it was that she was uncomfortable because she was teething". Thus, she attributes changes in herself and in the child to what are normal reactions to the situation of her increased distress in response to teething.

5. Awareness of the defensive nature of certain mental states. This will likely occur only when mother is describing her own mental state, unless child is over two years of age. Specifically, it refers to the recognition that people (oneself, or the child) tend to modify their mental state in order to reduce anxiety.

B. The explicit effort to tease out mental states underlying behavior.

Parents high in reflective functioning will engage in the attempt to identify possible mental states that may account for their child's behavior, and do so in a fashion that leads to accurate or plausible conclusions concerning links between mental states and behaviors of the self and others. This is clearly a critical aspect of responsive parenting, for it allows the parent to make sense of what is going on inside the child's mind, and respond accurately and sensitively.

1. Accurate attributions of mental states to others The plausible causal account of behavior in terms of mental state; the child's behavior is understood as a function of his or her mental state. "We weren't clicking from my point of view because she just wasn't responding to me and wasn't calming down, and she was probably getting more frustrated because she was wondering why Mommy wasn't holding her".

2. Envisioning the possibility that feelings concerning a situation may be unrelated to observable aspects of it Mother recognizes that affect is inconsistent with the external situation, and this discrepancy is explicitly recognized rather than shown. For instance, in response to a question about her own needy feelings, a mother responded, "If my husband is away for the weekend, and I'm alone with her,

by the end of the weekend I really need his help and support, sometimes I just, at the end of a day, even if I haven't been with her, I just need to know there's some affection there from her... I guess the things that trigger it are probably when I've been away from her, and when, I'm tired and worn out from work." Here, the mother recognizes that her mental state can be attributable to her husband's absence, rather than anything specific that has occurred with the child.

3. Recognition of diverse perspectives Parent explicitly recognizes that she and her child may perceive a given behavior differently. "I think Amy felt a little deserted by me when I left. But then she eventually calms down ... I think she's frustrated because she's wondering why I'm not with her, because she doesn't know it's because she's driving me crazy."

4.Taking into account one's own mental state in interpreting others' behavior. The parent recognizes that his or her interpretation of an event might have been distorted by what he or she was thinking at the time. For example: "Sometimes I feel like I want a hug, but she pushes me away. Even though I know she is just exploring and having a great time, I sometimes feel like she's rejecting me, and I feel hurt and angry. But that's my problem!"

5. Evaluating mental states from point of view of its impact on behavior of self and/or other. Parent recognizes the role their own mental states might have had on the behaviors of him or herself as well as upon the child. For instance, "Sometimes, I'll pick her up and she obviously didn't want to be picked up, because she was in the middle of something, and I interrupted her and it was me who had the need to pick her up, not the child, and so I'll put her back down again, and then she'll be fine."

6. Freshness of recall and thinking about mental states. Parents give the impression of thinking spontaneously and vividly about their own and the child's thoughts and feelings. This is different from speaking in a clichéd way, and there is something currently thought, and real to the subject that makes it feel alive to the rater. This may be marked by a change in the subject's perspective during the course of the interview. For instance: "Recently he has had trouble letting me leave. He screams and hangs on my coat. I get angry at him because I feel like he is manipulating me. But now that I am talking about it, I realize that he must be frightened. And I guess it's been hard for me to think about it in that way."

C. Recognizing developmental aspects of mental states

This is a particularly important aspect of reflective functioning in a parent. A parent's capacity to recognize that a child's mental states, as well as their capacity to express emotion, change over time, is intrinsic to sensitive responsiveness and reflective awareness. Fonagy et al. (1998) refer to the developmental aspects of mental states having many aspects, particularly thinking "intergenerationally", and speaking to family dynamics. These aspects

of reflective functioning will rarely come up in the PDI; however, there are many questions that ask subjects to reflect upon their children's changing capacity to regulate, contain and express emotion. This is particularly important with infants and toddlers, whose feelings are often difficult to read, and whose capacities for regulation and clear expression are quite limited.

1. The struggle to comprehend the child's developmental level and constantly evolving capacities. In contrast to the AAI, the PDI probes for the capacity to reflect on a current relationship with a child who is in the throes of developmental changes. The reflective parent should be actively searching for understanding of their child as opposed to having a more fully elaborated picture that is indicative of mentalization on the AAI. It is often an example of reflective functioning when a parent acknowledges the struggle to understand their child, a task made difficult by the fundamental differences in emotional and cognitive capacities between adults and children. The reflective parent is able to imagine what it feels like to be a young child while at the same time recognizing that this inference is limited by their inherent developmental disparity. This is particularly relevant in coding PDI's for pre-verbal infant - mother dyads. Therefore, it is very important that the rater take into consideration the child's age and developmental level. When a parent is able to reflect on the child's cognitive or emotional developmental capacities it should be considered an example of reflective functioning. For example, "Well, I know you are supposed to understand that a baby this age does not understand that they can't just do everything that they want all the time, I think that when he has an impulse or a desire to have something, it is the only thing in the world to him at that moment, he is not thinking whether it is good for him or not, that is my job. But I wanted him to understand it at that moment, right then. I didn't want to have to wait until he was grown up to understand that."

2. Taking a developmental perspective. Awareness of developmental changes in certain mental states. This is a particularly important form of reflective functioning in a parent, as it reflects his/her capacity to recognize age related changes in the child's perspective and expressive capacity. For instance:
"I try to figure out how and when to discipline her consistently in a way that's meaningful for the age she's at, because she's still very young, she still doesn't really know, why she shouldn't do certain things, she doesn't know why she's not supposed to pick up her dish and not dump it over. I think she is moving in that direction though, because sometimes she does it and then she looks to see how I will react. At this point, she is noticing that I might have a certain reaction, which is something that is a new development."

3. Taking an intergenerational perspective, making links across generations
An awareness of the intergenerational exchange of ideas, feelings and behavior; that is, parents recognize that their own thoughts and feelings influence their parenting behavior and hence their child's experience of himself and others. This understanding must be explicit and specific, and not merely of an explicit and general

kind. For example: "When she's hungry, and wet, and crying, I feel so anxious and upset and stressed, even though I know it'll all be over in a few minutes. I remember my Mom used to get really upset when we'd get wild and hyped up... so I try to calm myself down because I don't want Sally to feel that way... I hated it!"

4. Envisioning changes of mental states between past and present, and present and future. A key factor of reflective functioning is manifested when speakers consider changes in mental states over time. For instance, a mother may reflect on changes in her own feelings over the course of parenthood or changes in the child's mental states across time. For example: "The first few months were so hard, I wasn't sure that I could ever be good at this. I think I felt like I had lost so much of myself, and I didn't yet feel like I do now. You know, now when I get home from work and he runs up to see me with a big smile, I feel like his mom. He is excited to see *me*, and that feels so good.

5. Envisioning transactional processes between parent and child. This refers to the recognition that the child affects the parent's mental state, and the parent affects the child's mental state, that there is an interaction between the two mental states. For instance: "We were up in the bedroom one day, and she had these toys that stack, like they're cups that stack, and she loves when I put them up and she knocks them down. But this one time, maybe because it was early in the morning, I just kept stacking them, and she'd knock them down and she'd shriek and, I think I did this for maybe half an hour, and she was just shrieking the whole time... I felt good because I knew that she was happy... and she was definitely happy because it was much longer than I normally would do the same activity with her, but I just kept doing it. It was almost like the more I did it the happier she got, so the more I'd want to do it, because she was getting happier. We were both feeding off of each others excitement in a really nice way." Here the mother's mental state is clearly influenced by her baby's mental state, and vice versa.

6. Understanding factors which developmentally determine affect regulation Parents indicate their awareness of the importance of their capacity to regulate, or reduce, the infant's arousal; they recognize that the child's emotional state is dependent upon their capacity to serve this homeostatic function. For instance, in talking about what she does when child is upset, mother responds, "I try to figure out what it is that's making her angry and do something about it, if it's something that I can do something about. Often I will try to let her know that I understand that she is upset, but also that it will be o.k., that mommy is here with her. But, sometimes I'll pick her up and she obviously didn't want to be picked up, she was in the middle of something and I interrupted her and it was me who had the need to pick her up, not her, and so I'll put her back down again, and she'll be fine." Here, mother recognizes that she can be a regulator (solve the baby's problem and reduce her arousal level) and also that she can inadvertently be a dysregulator (upset the child further by picking her up when that is not what she wants).

7. Awareness of family dynamics Parent shows an awareness of the interdependence of mental states within the family system. This kind of awareness is not often elicited by the PDI, largely because the interview focuses upon the individual parent-child relationship, and not upon family dynamics.

D. Mental states in relation to the interviewer.

These are fully described in the Fonagy, et al. (1998) Reflective Functioning Manual, and will not be manifested differently during the administration of the PDI.

III. General considerations

When coding a PDI there are several general guidelines involved in determining whether a statement is truly reflective. Outlined below are considerations which are specific to coding the PDI.

A. Only explicitly reflective statements qualify for high ratings.

A careful distinction should be made between explicitly reflective statements and statements which evocatively describe a child in rich detail but lack references to the child's mental state. Often raters confuse a mother's elaborate description of the child's preferences, characteristics and behaviors for reflective function. For example, the following statement does not contain explicit reference to mental states, "He's very verbal and very physical...He loves animals. From the time he was a tiny tiny baby he just loved animals...He's physically small, but I think that has benefited him in that he has learned to walk very early...and he is just, you know he is a bundle of joy to everyone."

B. Learned, rote or clichéd statements do not qualify for high ratings.

Parents may respond to questions in a manner that contains mental state language, however this should not be considered reflective if the content of their statement is learned or clichéd. Common examples on the PDI include clichéd statements about childhood or parenting. The exception to this rule is found in those instances in which a commonly used expression is subsequently supported and elaborated by original understanding or personal experience.

For example, if a mother were to say, "He's very attached to me. He really needs his mommy at this age", this would not be considered evidence of reflective function. However, if she were to say, "His attachment to me is particularly strong at this age, and I have noticed that lately it is difficult for anyone but me to soothe him", it would qualify as a reflective statement. Another example of a clichéd statement: "I mean she's demanding because any baby is demanding."

C. Reference to personality or a relationship, in the absence of specific reference to mental states, does not qualify for a high rating.

Narratives on the PDI often involve explanations that utilize personality trait language or behavioral descriptions. This should not be considered reflective unless the statements are explicitly linked to a context such as the parent-child relationship. For example: "She has a very good disposition, calm, not very excitable...I'd say she's very good for a baby...she's not cranky a lot...she's not a hard baby."

D. Diagnosis should not be accepted as shorthand for mental states.

The use of diagnostic terminology, or reference to mental illness, should be considered very carefully, and on the whole rated low, if this is the sole explanation for the child's behavior, and the specific mental states of the child and other persons affected are not specified. For example, if a mother were to say, "You know he's got ADHD, so it's very hard to get him to slow down and follow directions." This statement would not be considered reflective unless she also described how her own and her child's perceptions and beliefs were influenced by the behavior associated with the psychiatric condition.

E. Hypothetical responses should not be considered reflective.

Occasionally, a parent may reflect upon feelings that she can imagine experiencing in a hypothetical situation. This may occur if the interviewer erroneously deviates from the structure of the interview and asks the parent to imagine situations in which she may feel angry, guilty, etc, or if the parent is feeling particularly defensive.

> Responses that are purely in the hypothetical are not scorable. For example: "I guess I would feel guilty as a parent if I could not give him all the love and the things he deserved; if I didn't have enough time for him. I would feel guilty if I went on tour and left him with someone else or if I put my career before him or something like that."
>
> A hypothetical response is, however, scorable if it is linked to current, actual feelings and events. For example: "I can imagine feeling guilty when leaving him if he didn't love the babysitter as much as he does. The fact that he seems so happy when he is with her means that I can leave for work in the morning and not feel quite as guilty."

F. Lapses into the second or third person should be carefully evaluated.

In reflecting upon her child's emotions, a parent may sometimes fluctuate between using "s/he" as her subject to "you" or "they". This is one way to defend against or distance oneself from uncomfortable feelings that have been stirred up. For example: "I think they sense approval and disapproval and happiness and sadness, and they can't put a name to it, but I think they definitely respond to those things, and when he sees me happy or my husband happy he knows that I'm secure, things are fine."

If a parent consistently lapses into the use of "you" or "they", as in the above example, she should be penalized at least one point for that response (see Coherence, below). However, if the lapse is fleeting and brief, the parent should not be penalized. An accurate assessment of these lapses in language can only be made with a close reading of all interviews.

G. Coherence should be evaluated.

Coherence is a construct defined and developed by Mary Main. In her view, coherent discourse must meet each of Grice's maxims: relation, manner, quantity, and quality. The notion of coherence, which Main describes fully elsewhere (1991, 1995), provides a means to consider the fluency of narrative. Incoherent narratives are characterized by contradictions, inconsistencies, oscillations, lapses in reasoning, shifts in person, irrelevancies and intrusions into or disruptions of the story. When a parent's response to a question is incoherent, or becomes incoherent in a way that "spoils" the response, the score should be lowered by at least one point. Please note that an individual who is of at least average reflective capacity may well be slightly incoherent in first formulating or arriving at a response. However, this is usually quickly resolved, and the response will become coherent.

H. Use of affectively laden words should be assessed carefully.

Parents will sometimes use affectively laden words, such as "radiantly" happy. It is important for the reader to assess whether these words suggest a higher order of reflectiveness, or are simply adjectives meant to convey intensity: "very happy", "really feels loved", etc. For instance, whereas "radiantly" would not necessarily enhance reflectiveness or add meaning to the response, "engrossed in each other" applies reflection upon mutuality and interaction, and would convey a higher level of reflectiveness.

IV. Illustration of negative or limited reflective functioning

As noted elsewhere in this addendum, subjects being given the PDI are asked to reflect on an ongoing, rapidly changing relationship. Thus, the type of mentalization which is evoked on the PDI may differ in a variety of ways from that seen on the AAI. In the sample which was used to develop this addendum we saw many instances of limited reflective functioning, however, they tended to exemplify only several of the nine subtypes described by Fonagy, et al. (1998) in the RF manual. More often, what is evident in the limited RF found on the PDI is simply an absence of explicitly reflective responses as opposed to a hostile rejection of RF or a bizarre response. For example, parents' representations of their relationships with their children are often described in behavioral or physical terms. Furthermore, we have yet to see any clear examples of negative RF. In light of this, it should not be assumed that these other negative and limited RF subtypes do not apply to the PDI. What follows are examples of the types of limited RF we have seen.

A. Rejection of RF

Some parents may feel intruded upon or become defensive when asked to discuss their relationships with their children. Common types of reactions include:

1. Hostility towards the interviewer: Interviewer: "Do you ever feel really angry at your child?" Parent: "Well, there is not a whole hell of a lot you can do when you have a kid who screams all the time."

2. Incongruent responses that lack credibility: Interviewer: "Do you ever feel really angry at child?" Parent: "Not now, no. I never really did before. When he cried all the time during the day I used to get very angry."

3. Evasive responses that serve to avoid the subject matter of a given question: Interviewer: "Does child ever hurt or disobey you?" Parent: "No. Gee, the interview goes fast when you answer no."

B. Unintegrated, bizarre or inappropriate RF

A category of low reflective functioning, particularly rare on the PDI, is seen in narratives which leave raters confused in their attempt to understand the attribution of mental states. This broad category can be broken down into two subtypes.

1. The failure of the subject to provide adequate elaboration as to the cause or effect of a given mental state. There is a lack of recognition that affective states are generally connected to beliefs.

2. Responses in which there is interference from inappropriate cognition or bizarre attributions. In these instances, it is not the mental state which is bizarre but the attribution given to the mental state.

C. Disavowal of RF

The responses that fall into this category are similar to those found in the rejection of RF. The difference lies in that with disavowal of RF there is an absence of mentalization but the response contains no overt hostility, which implies that they have not perceived the question as an attack. The parent's response will seem passive and evasive. For example: Interviewer: "Do you ever feel guilty as a parent?" Parent: "No, no."

D. Distorting or self-serving RF

As discussed in the RF manual, it is common to find evidence of self-serving distortion in a given narrative. This can be understood to derive, in part, from a basic human tendency to strive towards cohesion and organization of self-representation. Although such distortions are certainly seen with the PDI as well, there is one difference worth noting in the

area of "highly egocentric recollections." Examples of this type may occasionally be found with the PDI, and include any statements which place an overwhelmingly egocentric spin on the interpretation of mental states in a given situation. This can be seen in instances in which the parent overestimates their impact on the thoughts, behaviors, or feelings of their child. For example, if a mother of a young infant were to state that her son always sleeps through the night because he wants to make his mother happy. At the same time, such examples are rare because of the huge role that parents do in fact play in the lives of their young children.

This category of low reflective functioning is significantly connected to the process of memory. This is because the distortions described on the AAI in the original RF manual are often examples for which the subject has gradually developed idiosyncratic and self-serving explanations for events gradually over time. There may be selective recall of self-enhancing memories while selectively forgetting other occurrences that provide counter evidence for a rigidly held self-perception. As a result of the central role of memory in this process, we have seen few examples of this type of narrative on the PDI. This does not mean that this category is irrelevant for the PDI, but simply that it may be less prevalent. Another issue may be the sample of PDI's from which this addendum was derived. It is possible that distorting or self-serving RF is more prevalent with other populations.

E. Naïve or simplistic

In this category, RF language may be present but it is one-dimensional and has been reduced to a social cliché. It will not reveal mixed emotions, or a complex understanding of mental states, nor will it take into consideration more than one perspective. There is no sense of freshness to the response, nor does it sound like the subject is engaged in a current, inquisitive struggle to understand the mental state of herself or her child. In some instances there may be a connection drawn which indicates the impact that the parent has upon the child, or the reverse, but there is a failure of elaboration and thus a lack of true reflectiveness. For example: "I mean because she is good... I feel that at least for right now, as of ten months, she's the way she is probably because of the way I am, you know and my husband..."

F. Overly-analytical or hyperactive RF

Some interviews may appear initially to be highly reflective and complex, but in fact turn out to contain insights that are forced and lack real meaning. These subjects may be able to produce extensive elaboration on a given topic without evidencing any additional understanding. These interviews may contain frequent use of jargon that is presented as if it were original insight.

G. Excessive focus on personality and behavior

Some PDI interviews received repeatedly low scores for reflective function; these interviews are characterized by dominance of personality trait language or behavioral description. This is particularly seen when a parent is discussing the child. These interviews may be characterized by an incapacity to imagine the affective experiences of the child and

the impact which affect has on thoughts, feelings and behaviors of the parent. Conversely, some parents may be unable to acknowledge that their own thoughts and feelings impact the experience of their child, insisting instead that their overt and obvious behavior is the only thing that the child can sense. The most common examples of this type of interview are seen in those cases where there is not necessarily a denial of the child's inner life, but for whatever reason, the narrative never seems to go beyond descriptions of the relationship which are limited to behavioral or personality terminology.

V. Rating Passages

A. Rules for identifying passages: Demand vs. permit questions

The Fonagy et al. (1998) manual makes a distinction between demand and permit questions: (1) those that demand that the subject demonstrate his or her capacity for reflective functioning, and (2) those that permit the subject to demonstrate his or her reflective capacity, but do not explicitly ask the subject to use mental state language. There are a limited number of demand questions on the AAI; however, many of the questions on the PDI could be considered demand questions, as the parent is asked to respond directly in terms of his/her mental state. For the purposes of our research, we have made the following distinctions: 1) demand questions that most explicitly pull for reflective functioning within the context of the parent-child relationship 2) demand questions that do not pertain directly to the parent-child relationship (but instead pertain to the marital relationship, the mother's relationship to her own parents, etc.) and 3) permit questions. These distinctions can obviously be modified in line with particular research questions. Lists of the breakdown for questions on both the Infant and Toddler PDI are appended.

In terms of scoring, the entire interview should first be read. Once you are an experienced coder, you can begin to think about codes on this first read-through. However, it is very important that scores not be assigned until the second read-through, when specific demand questions should be reread and a score assigned to each demand passage. (Obviously, research groups will vary in the demand questions they choose to score.) It is critical that all of the demand questions as well as their probes be read and scored. Also, any probes to questions (other demand as well as permit) that require the subject to respond in terms of his/her mental state should be scored as demand questions. For instance, when the mother is asked "how did you feel?", "How do you think your baby felt", the response should be scored as a demand question. Third, the entire interview, including permit questions, should be reviewed. Passages in response to permit and other demand questions that demonstrate especially high or low RF should be noted and scored.

B. Guidelines for rating identified passages.

The ten scale points, including the negative one rating, are defined below. Raters should assign individual scores for all relevant demand questions by following the definitions and guidelines stated in previous sections of this manual. The quality of reflectiveness within a response may vary. A parent may become more reflective as the response develops. The rating of a given passage should be based on the most reflective statement contained

within the passage. However, if the response becomes bizarre or the parent undoes the reflectiveness previously demonstrated, then the score must be lowered relative to this shift in quality. For example, a parent may state a certain feeling and then take it back or deny it.

A parent should not be penalized for providing a response that does not answer the question. For example, if a parent is asked about the child's feelings and then responds by describing his or her own feelings in a reflective way, full credit should be given.

It may be tempting to read into a given response and to give credit or penalize for things that are not explicitly stated. For example, a parent may describe negative or disturbing feelings towards his or her child in quite a reflective manner. This may elicit a negative response in the rater who may then be tempted to lower the score. Responses should, however, be rated purely for mental state language rather than the affective content. An exception to this rule is seen when the response seems false, not believable, or extremely defensive. In these instances, the score should be lowered. An average rating on the PDI is a 5. Therefore, a reasonably perceptive and sensitive parent will, for the most part, receive scores in the 6-8 range.

Note: For purposes of clarity, all scores in the manual that refer to individual passages will be in plain type whereas overall scores will be underlined.

-1 Negative RF

A response that receives a score of '–1' must have one of the following features:

1. It must be distinctively anti-reflective (i.e., hostile or actively evasive, usually because the question is perceived as an assault or attack).
2. It must be bizarre (impossible to understand without making the assumption of irrationality on the part of the subject).
3. It must be inappropriate in the context of the interview (i.e., complete non-sequiturs, over-familiarity, or gross assumptions about the interviewer).

The following responses would score a '–1':

"He's just a baby so how could we possibly be alike? You've met him. I don't see how you could possibly ask me that question."

"When she gets like that it's like the devil's in her. She gets that glint in her eye and tries to control me. She's just out to get me so I must do everything I can to squash away this evil in her."

0 Rating

The following response would score a "0":

In response to the "feeling really angry question", and mother said: "Not at her. Not at her, I feel angry at... I get angry at my husband and his lack of attentiveness to me... but I don't get angry at the baby... I don't ever recall thinking like... I mean we've had moments when we just say, like "Stop crying or we're going to throw you out the window.." but I don't mean it. But it work... my style is, not that I sh, I, we say a lot of stuff illiterally, I don't mean it. You know, like "shut up, or we're going to beat the shit out of you." You know, I would never touch, lay my hands on my kid...(Well, when you say it, do you feel angry?). No (You're not angry at all?) You know, it's like the act of saying like, shut up or I'm going to kill you is um, it's like a steam release device for me, but I never worry, oh my God, I'm gonna lose control. (What kind of effect do you think those feelings have on the baby?) These days with the teasing stuff when she's fussy, I don't think it makes much difference at all and I verbally am angry at myself, I'm supposed to realize this, you know, and have more patience."

1 Absent but not repudiated RF

A response that receives a score of '1' must have the following features:

1. It must be passively rather than actively evasive.
2. It must be accompanied by little or no hostility.
3. It must contain no evidence of an awareness of mental states; an explicit effort to tease out mental states underlying behavior; a recognition of the developmental aspects of mental states; or an awareness of the interviewer's mental states.
4. The interviewer must be no better off in terms of the knowledge of the mental state of the subject after having read the response, than he or she was before reading it.

A '1' response may also include concrete explanations of behavior which serve to avoid references to mental states (i.e. explanations may be sociological, excessively general, or framed in terms of external, physical circumstances). Responses may contain self-serving distortions (recollections which are highly egocentric, self-aggrandizing or extraordinarily arrogant claims to insight).

The following responses are examples of a '1':

"(What do you like most about your child?) It's nice being around him and to watch him do things."

"I never feel guilty as a parent."

2 Rating

"For her, when the stroller comes out, it means we're going outside."

"(How is your relationship affecting his personality?) He's taking on a lot of qualities and adjusting to a lot of things that he is forced to adjust to because of our lifestyles. He's a well traveled baby. I think it's making him a very outgoing person."

The above examples are not considered 'negative RF' since they do contain a vague reference to mental state, but these references are too limited and inexplicit to be considered 'questionable or low RF'. Reader can "fill in the blanks" to infer mental state, but mental state is not explicitly described. A score of '2' is therefore assigned.

3 Questionable or low RF

For a response to receive a score a '3' it must:

1. Contain some suggestion of mentalizing efforts on the part of the subject.
2. Be devoid of any element that makes reflective functioning explicit (e.g., it never reflects mixed emotions, conflict or uncertainty about beliefs and feelings of others).

The response may frequently make use of mental state language such as "happy", "sad", "loved", or "secure" without making clear or explicit that the subject genuinely understands the implication of their statement (e.g., the parent fails to elaborate upon these statements), may appear somewhat clichéd, banal, superficial, or 'canned', or may be excessively deep and detailed yet unconvincing and/or irrelevant to the task.

The following responses are examples of a '3':

"Well, I think our relationship is helping her develop in the way she's supposed to be, because of the stimulation and the way I interact with her. So far her personality is pretty even, a pretty good personality so far I'd say for a baby....well just that it's good that I'm able to be home with her and not have to work right now...I'm good for her, I should say, I guess".

"When I'm around he wants me and not her and it's a crying situation".

"Well, I must be doing something right because he's a great child".

"A couple of times in the middle of the night when he's had a bad bout with teething and he wants to nurse a lot, he puts his little fingers in my mouth and he, I feel so guilty because all I want to do is just snap those little fingers up with my teeth, takes every ounce of control I have not to bite those little annoying fingers."
(Note: This answer would be a 5 if not for mother spoiling it with her very aggressive and disturbing answer.)

4 Rating

"I'm a calm parent, which is I think where she gets her disposition, and so is my husband, we're very calm, and I think that's why she is."

"She's very expressive in nonverbal ways. You can tell the difference between happy sounds and angry sounds. There are a lot of things she does physically to communicate what she needs. She can point to things or if she's tired, she'll rub her eyes."

In the above examples, mental state language is used in a slightly more sophisticated manner than in a response that would be considered 'questionable or low RF' but they are not elaborated or convincing enough to be 'definite or ordinary RF'. A score of '4' is therefore assigned.

5 Definite or ordinary RF

For a response to receive a score of '5', it must:

1. Contain some element which makes reflection explicit (e.g., explicit reference to the nature or properties of mental states - how mental states relate to behavior, or mental states in relation to the interviewer.)
2. Not be a cliché. This does not imply that the response need be sophisticated.

The following responses would be given a score of '5':

"I think she gets bored sometimes when she is confined, and when she decides she wants out, she gets really unhappy."

"He was very upset, and I could tell he didn't understand why I wouldn't take him back from the babysitter."

6 Rating

" I can sense that he wants to get up, and then I will pull him up by his hands, and then he laughs, he thinks that's great fun. I think he feels very trusting for one thing, that I'm not going to let him go."

"She's going through a phase where she wants me to hold her, but I don't want to hold her when she is whining. So we weren't clicking because she wasn't responding to me and wasn't calming down, and she was probably getting more frustrated because she was wondering why mommy wasn't holding her."

The above responses contain reflective statements that are more explicit and elaborated than responses considered 'definite or ordinary RF', but they do not meet criteria for 'marked RF'. A score of '6' is therefore assigned.

7 Marked RF

In order to be given a score of '7' a response must contain some feature which makes reflection explicit (i.e. explicit reference to the nature or properties of mental states, how mental states relate to behavior, or mental states in relation to the interviewer.) In addition, a response must meet at least one of the following five criteria:

1. The passage is sophisticated (it must contain at least two indices of mentalization as listed in Section II, pages 3-8).
2. It is unusual or surprising, casting an original perspective (which is nonetheless readily understandable).
3. It is complex or elaborate, described in unusual detail with indication that multiple mental states attributed to a person are considered in relation to one another.
4. The response places mental states within a causal sequence. The respondent considers how the mental states arose, how they influenced behavior and what impact they have on subsequent perceptions, beliefs, and desires.
5. When the response contains an acknowledgment of a particularly painful situation, appropriate thoughts and feelings are described.

The following responses would merit a '7':

"Sometimes when she does something that she knows I'll think is funny, she'll look at me and really smile or laugh. Then I laugh with her and I know that she knows she's done something to get us playing and that makes me feel good."

"I feel really happy when she smiles and laughs. Oh! And when she runs to greet me when I walk in the door after work. I pick her up and she gets all excited, which makes me melt, and she waves her arms around. I think moments like that make her feel loved and secure.

8 Rating

"It's amazing to me how much this new genetic combination creates a completely third person. Her feelings of being loved and cared about and feeling secure give her a foundation to do the kind of exploring that she does; she knows that she has a sort of comfort place in the world. So I think my role is to help her feel that way."

"Well, there are sometimes when... no, actually a better example would be last weekend. She began teething and nothing seemed to make her feel comfortable or happy. She didn't' want to be held, and she didn't want to play, and she really didn't want to do much of anything. I couldn't figure out what to do to make her feel better. It really affected all of us, and we were exhausted and depressed by the end of the day."

The above responses meet all the criteria for 'marked RF' and just one of the two criteria for 'full or exceptional RF'. A score of '8' is therefore assigned.

9 Full or Exceptional RF

In order to be given a score a '9' a response must:

1. Show the above features of a '7' to an unusually high degree (this response would be in the top 10% or less) *or* the response must be given for a particularly charged and emotionally difficult subject in which maintaining even ordinary levels of reflective functioning could be considered exceptional.
2. Have a strikingly personal character, enabling the rater to feel confident that it is experienced as personally significant and meaningful. Responses that are given a '9' frequently demonstrate full awareness of important aspects of all protagonists within an interaction. The protagonists are placed in relation to one another in terms of their feelings and beliefs and these are sufficiently complex and elaborate to convince the rater of their accuracy.

Examples of a '9' response are given below:

"Oh, I feel guilty all the time, and my ways of handling it are not always so productive. I feel really guilty for leaving her and going to work and I think about it a lot during the day when I'm gone. It makes me feel terrible, and I think my guilt has a big impact on her. In a vague way, I think it makes her uncomfortable. I think sometimes I need her more than she needs me. I need her to be attentive when we're together, and I think sometimes I force her to do things in this concentrated time we have, and she may feel that she's getting sort of pushed,"

"Sometimes she gets frustrated and angry in ways that I'm not sure I understand. She points to one thing and I hand it to her, but it turns out that's not really what she wanted. It feels very confusing to me when I'm not sure how she's feeling, especially when she's upset. Sometimes she'll want to do something and I won't let her because it's dangerous so she'll get angry. I may try to pick her up and she obviously didn't want to be picked up because she's in the middle of being angry and I interrupted her. In those moments it's me who has the need to pick her up and make her feel better, so I'll put her back down."

"When he was sick, he was waking up at night so in order to get him to stop waking up we had to let him cry. I couldn't stand it. I mean I was sure that he'd never love me again and that he hated me and that I was the meanest person in the world and that he couldn't believe I couldn't hear him. I mean we don't let him cry ordinarily. During the day we would always try and pick him up, try to figure out what's wrong, or soothe him. So it's definitely the only time of betrayal. I know that he always likes me in the morning so he's not holding this against me. But my feeling is that he must just be so angry and so upset and not understanding because it's so unlike us."

Summary: Rating Passages

In order to clarify scoring criteria, a single response will be traced from a '3' to a '9':

Score of 3: He's happy.

Score of 4: He's happy because I'm happy.

Score of 5: He's happy because he pulled himself up in his crib for the first time.

Score of 6: He's happy because he pulled himself up in his crib for the first time, which made me feel very happy and proud.

Score of 7: He's happy because he pulled himself up in his crib for the first time, and I was watching, and I think he could see my face and sense how proud and happy he made me which made him feel even happier. Knowing that he felt so good about what he accomplished made me feel overjoyed.

Score of 8: Sometimes I feel like we're really connected, like he can tell what I'm feeling and that affects how he's feeling. Oh, I know! The other day he pulled himself up in his crib for the first time, and he looked so proud and happy which made me feel proud and happy. And I think watching my reaction really intensified his experience and made him feel even happier.

Score of 9: Sometimes I feel like we're really connected, like he can tell what I'm feeling and that affects how he's feeling. Oh, I know! The other day he pulled himself up in his crib for the first time, and he looked so proud and happy which made me feel proud and happy. And I think watching my reaction really intensified his experience and made him feel even happier. Even though I know I can't really tell what he's thinking, I just have this sense that my feelings have a real impact on him, which can be both wonderful and scary because I realize how important I am to him.

C. Rules for aggregating reflective-functioning ratings into a single score for each Parent Development Interview.

The "global" or "overall" score should reflect an attempt to capture, through an assessment of the range of scores and their relation to each other, what it "typical" of the parent. Like the designation of a diagnostic classification or attachment category, the global score should be that which best fits the balance among of range of scores, as judged by the rater. It is impossible to design a mathematical formula for assessing typicality, because the presence of high or low scores must always be considered in context.

A number of questions are included in the overall RF scoring. While this number creates a fair amount of "noise", as even highly reflective individuals are not necessarily reflective all the time, it also casts a wide enough net to assess the regular, ongoing features of an individual's reflective capacities .

For instance, even highly reflective mothers may – particularly at the start or finish of an interview – give a few relatively unsophisticated or unreflective responses. Similarly, mothers who are average in their reflectiveness may have a highly elaborated reflective response in their protocol. The balance of these "deviations" or "exceptions" must be considered seriously in the assignment of a global score. For instance, if unreflective statements seem to indicate true failures of reflective awareness, they must be given weight in assessing typicality. Another example is provided by the parent who is able to adequately reflect upon her own mental states, but actively resists contemplating her child's state of mind or any interactions between the two minds. This indication of the mother's inability to put herself in her child's mind should be weighted negatively. By contrast, low RF responses that seem relatively inconsequential would be given little weight. Likewise, the valence of rich and reflective responses must be considered accordingly.

It cannot be overemphasized that this kind of coding is truly qualitative, in the sense that specific parameters for arriving at a global rating cannot be described. This requires careful reading of the whole transcript and careful consideration of a range of alternatives.

It is recommended that the rater be able to articulate the reasoning that is used to assign the global rating. This can be achieved through writing a brief report, roughly one or two paragraphs, which delineates the underlying considerations leading to the final rating. The report should highlight central themes and may include excerpts from the interview as well as the particular rating rule being used.

D. Scale points for overall rating

Note: For purposes of clarity, all scores in the manual that refer to individual passages will be in plain type, while overall scores will be underlined. As in the ratings of individual passages, even numbered scores may be used when assigning an overall score to an interview.

-1 Negative RF

This overall rating should only be given to interviews, very rare in normal samples, where the parent systematically resists taking a reflective stance throughout the interview. The parent may be hostile to the notion of reflection, which would be expressed in derogation or dismissal of any attempts on the part of the interviewer to initiate such reflection. Alternately, the parent may be so confused in their attempts at reflection that the rater may be said to be almost "shocked" by the utterances. In either case, for a rating below a 1 to be given, the rater should be certain that no individual passages have been rated '5' or above. In interviews where either a rejecting or a bizarre stance is observed alongside some ratable RF passages, ratings between 1 and 3 should be considered depending on the balance of items found.

Common types

-1(A) Rejection of RF

Interviews of this type rated -1, include hostile refusal to approximately a number of demand RF questions. In addition, some general characteristics of the interview may include a lack of participation in the interview process, overt hostility to the interviewer, evasiveness and marked incongruences.

-1(B) Unintegrated, Bizarre or Inappropriate

This is a rare category and a literally puzzling one for the rater. Its hallmark is that mental state attributions are hard to understand. To qualify for this category an interview must contain at least several examples, found anywhere in the interview, of statements where an inexplicable, bizarre or inappropriate attribution was made by the subject. It is insufficient for the answer to be unusual or simply odd. The rater's reaction is likely to be one of shock that anybody could make such an attribution in such a context. As an extreme example, frankly paranoid or thought disordered responses create this kind of subjective reaction. In addition to these specifically shocking answers, these interviews will have general features which may include a lack of meaning, a lack of explanation, or a comprehensive avoidance. If several of the responses include bizarre explanations of behavior, either paranoid or thought disordered statements or are highly incoherent and therefore impossible to understand but not necessarily thought disordered, then the interview should be given a -1. If the interview is generally poorly integrated or somewhat bizarre in terms of mental state attributions but only a few of the passages are of this type and no passages are rated '5' or above, then the interview should be assigned a 0.

1 Lacking in RF

This rating should be given to interviews where the reflective-functioning is totally or almost totally absent. The parent may adopt a range of strategies to prevent the task of reflection. In these interviews there may be a number of instances of mental states being mentioned with regard to the self, the child, or another individual, but these never lead to a coherent picture of the subject's or the other's underlying beliefs and feelings. To the extent that mentalizing statements are present, these are simplistic and banal and cannot be differentiated from statements that another subject might make on the basis of completely different experiences. Alternatively, reflective statements are so clearly inaccurate and full of misunderstanding and contradiction that the rater can confidently conclude that the statement is not based on genuine reflection. In all cases, mentalization and awareness of the nature of mental states are absent in the narrative. If mentalization is present it is only discernable by inference.

Common types

1(A) Disavowal

At least half of the instances in the transcript are assertions of ignorance concerning mental states. Alternatively, there are comparable examples of evasion of questions, physicalistic, behavioral or sociological accounts and global and generalized statements

concerning psychological states of the other or the self. In general terms, such accounts tend to be barren, lacking in mentalizing detail and mentalizing phrases are restricted to those of a clichéd or canned nature. A certain concreteness tends to characterize such interviews. In order to assign this overall rating, there should be no instance of reflective function rated above '3'.

1(B) Distorting / self serving

These interviews do contain reflection but this is seen by the rater as flawed. Responses to demand questions may exaggerate the importance of the speaker, be egocentric, overly favorable to the subject, or self-serving to the point where the accuracy of the representation of the other's mental state may seem inaccurate. A key bias in the depiction of mental states is social desirability, meaning that the subject wants to present him or herself in a favorable light. These distortions can lead to marked inconsistencies in the presentation of the mental worlds of both the self and the other. Subjectively, the rater may feel a strong sense of irritation with such interviews. To assign this category, a fair number of the responses to demand RF questions should contain such purposeful distortions. Further, there should be no instance of reflective function rated above '3'.

3 Questionable or low RF

This rating is given to transcripts that contain some evidence of consideration of mental states throughout the interview, albeit at a fairly rudimentary level. For example, the parent may consider developmental or intergenerational elements that are not seen by the rater as banal (i.e. deserving a lower rating) but are nevertheless not specific enough to the individual's personal experience to merit a higher rating. An interview rated a 3 may contain more than one example of reflective-functioning at a level '5' or above. Further, a number of the responses must receive scores of '3'. Initially, the rater may intuitively wish to attribute a relatively good reflective capacity to the parent, however, upon closer reading there is not enough concrete evidence to warrant a rating higher than a 3. For the most part, in a transcript rated a 3, references to mental states and their impact on behavior are not made explicit. Also in a 3 transcript, a number of relatively reflective passages may be counterbalanced by negative ratings elsewhere, although not of sufficient frequency to warrant that rating.

Common types

3(A) Naive-simplistic

These transcripts show a partial appreciation of intentions of others. This understanding may be very superficial, or banal, with excessive use of clichés in referring to mental states. There may also be minimization of negative experiences. The parent's understanding is not grounded in personal experience, nor is it sensitive to the complexities of mental states, such as conflict or ambivalence. The interview is likely to contain many 'canned' statements and to have a shallow quality to it. To assign this category the rater is

expected to have identified naive, simplistic passages as the majority of the low ratings and few, if any, of 'marked' RF.

3(B) Over-analytical or hyperactive RF

This is an important but somewhat difficult category. To the inexperienced rater such transcripts may seem quite reflective. In fact, one of the hallmarks of this category is that the interview appears to have greater depth than it actually does. The interview is diffuse and the insights offered are unintegrated and do not link in a compelling way to the individual's experience. The interview is given this rating if approximately half of the responses contain instances in which the speaker is overly-analytical. If one or more of these overly-analytical passages includes text that qualifies as bizarre reasoning, distorting /self-serving, the rater should consider whether the passage as a whole merits a 1 or 2 rating.

3(C) Miscellaneous low RF

These are transcripts, relatively few in number, where a 3 rating applies even though the transcript is neither particularly naive nor overly analytic. Most commonly the rating is arrived at as a compromise between a higher and a lower rating. For example, some transcripts show clear evidence of disavowal, yet contain definite or even marked evidence of reflective-functioning. These should be assigned to this category. Other transcripts which may receive this miscellaneous 3 rating may have numerous RF passages, but none of them goes beyond this questionable or low range. Still other miscellaneous 3 transcripts may meet the requirements for a higher category, but the rater feels unconvinced that, taken as a whole, the transcript is definitely reflective. In these transcripts the speaker's model of mental states has to be partly inferred by the rater (e.g. emotional events may be outlined, but without the implications being spelled out, there is little awareness of a link between cognition and affect or of the impact of one relationship upon another).

5 Ordinary RF

This is the most common rating in a high functioning "normal" sample. Transcripts at this level should have a number of instances of reflective-functioning, even if all of these are prompted by the interviewer rather than emerging spontaneously from the interviewee. In contrast to interviews rated 0 through 4, interviews rated 5 give convincing indications to the rater that the speakers have some kind of a model of their own minds as well as their children's. This model and expressed reflectiveness is relatively coherent even if it is simple. In order to bring an overall score of 4 up to a 5, the parent's model of the mind must be clear and well integrated.

There may be transcripts where the subject's mentalizing stance is attenuated by difficulties in expression. In these cases, the rater should exercise discretion and generosity in rating an interview a 5 if one or two clear instances of level '5' mentalizing are present. Overall ratings of 5 are commonly given to interviews which combine statements that are genuinely reflective ('7') with rudimentary or more superficial ones ('3'). An overall score of 5 may be given to interviews which contain only one type of RF. For example, the parent may

demonstrate a consistent use of a developmental perspective without demonstrating other types of reflectiveness, such as awareness of the opacity of mental states, or specifically acknowledging the separateness of minds.

Common types:

5(A) Ordinary understanding

The subject shows a capacity to make sense of their experience in terms of thoughts and feelings, and has a consistent model for this which needs little or no inference from the rater. The model is limited however, and would not provide a way to understand the more complex aspects of interpersonal relationships, such as conflict or ambivalence. Approximately half of the passages should warrant a '5' rating, with no breakthroughs of rejection or bizarre explanations or pervasive disavowal, etc.

5(B) Inconsistent level of understanding

The subject appears to be achieving a higher level of understanding in some parts of the interview, so that certain passages may achieve scores of '6' or '7'. However, the understanding cannot be maintained in relation to more problematic areas of the subject's interview, such as an area of true conflict regarding the caretaking of their child. These parts of the interview would nevertheless not be expected to fall below a rating of '1' or '2'.

7 Marked RF

These interviews have numerous statements indicating full reflective function which evidence awareness of the nature of mental states and explicit attempts to tease out mental states underlying behavior. Normally, awareness of mental states is clear throughout the interview with frequent passages where the speaker has arrived at an original integration of their own and their child's states of mind. The rater may find these formulations surprising in the sense of not having thought of them him or herself. There is also much detail about the thoughts and feelings of the parent and the child and the implications of these mental states are regularly spelled out. The person is usually also able to maintain a developmental perspective. As a whole, the interview gives the rater the feeling that the speaker has a stable psychological model of the mind which is regularly and naturally applied to themselves and their children, and which is also used to understand their own reactions to mental states.

Any single passage may illustrate only one of the features of full reflective functioning listed above on page 17, but the interview as a whole gives the impression of someone who is applying a reflective stance fairly consistently to their relationship with their child. In contrast to an overall rating of 5, an overall rating of 7 is given to interviews where a number of different types of RF are evidenced across the interview. However, some minor limitations remain in terms of the overall breadth and quality of reflectiveness. In order to assign an overall rating of 7, a number of the passages, found anywhere in the interview, should be rated a '7' or higher. In general, there should be no passages rated '1' or lower, and few of the responses to demand questions should receive ratings lower than '5'. However, on

rare occasions, mothers showing marked RF may respond to one or two demand questions without reflection. In these instances the rater must determine that the low response does not truly compromise the overall reflectiveness of the interview.

9 Exceptional RF

These transcripts are rare. They show exceptional sophistication, are commonly surprising, are quite complex or elaborate, and consistently manifest reasoning in a causal way using mental states. A '9' rating for a single passage is given where several aspects of reflective function are integrated into a unified, fresh perspective. Where approximately a third or more of such passages are noted in any single interview, the rater should assign a 9 rating to the interview as a whole. Across the interview, many aspects of full spontaneous reflective function would be shown in the parent's discussion of their relationship with their child over time and in different contexts. It is unlikely that such an interview would have many passages rated '3' and most would be rated '5' or '7'. If the transcript does not meet the above criteria, yet the rater 'feels' the transcript to be exceptional a rating of 8 should be considered. If only a single '9' rating is present and/or there are more than a couple of examples of questionable RF a rating of 8 is likely to be too high and a 7 should be considered.

Demand Questions, Other Demand Questions, And Permit Questions
Parent Development Interview

Infancy PDI

Demand Questions:

What gives you the most joy in your relationship with your child?

What do you like most about him/her?

When do you feel most "with" your child?

Do you ever feel intensely happy as a parent?

Can you describe a time in the past week when you and your child really "clicked"?

Now, on the more negative side, can you describe a time in the last week when you and your child really weren't "clicking"?

What gives you the most pain or difficulty in the relationship?

Do you ever feel really needy as a parent?

Do you ever feel really angry as a parent?

Do you ever feel really guilty as a parent?

In an average day, what would you say gives him/her the most pleasure?

What distresses him/her, or makes him/her unhappy?

How do you figure out what your child wants or is feeling?

Does your child have moods or emotions that you sometimes have a hard time making sense of?

Are there times you feel you don't feel understand your child?

Are there ever times in your relationship with your child that you feel he/she has the upper hand?

Does your child ever feel rejected?

How do you think your child's relationship with you is affecting his/her development or personality?

How does your child feel when you are busy, and can't pay attention to him/her?

How does your child feel when you are able to devote considerable time and attention to him/her?

Now, I'd like to talk about routine separations. By routine separations I mean a separation in which your child is left with someone familiar for the usual expected length of time.

Can you briefly describe a typical routine separation for me?

How do you think he/she feels about these separations?

What are these separations like for you?

Now could you describe the kind of separation your child might experience as somewhat more stressful than a routine separation?

How do you think he/she feels when you leave?

What are these separations like for you?

What is the longest time you have left your child?

How do you think he/she felt about this separation?

How did you feel during the time you were away?

Has there ever been a time in your child's life when you felt as if you were losing him/her just a little bit?

Other Demand Questions:

How do you want to be like and unlike your mother as a parent?

How do you want to be like and unlike your father as a parent?

How are you like and unlike your mother as a parent?

How are you like and unlike your father as a parent?

How has your relationship with your husband been affected by your having a nearly one year old baby?

What kind of impact has having a child had on your sexual relationship?

How has your husband felt about the changes in your sexual relationship?

Permit Questions:
Could you describe your child to me?

Could you describe yourself as a parent?

Parents often notice similarities and differences between themselves and their children. How do you think your child is both like and unlike you?

I'd like you to choose 5 adjectives that you feel reflect the relationship between you and your child. Could you give me a specific incident that reflects each adjective?

When your child is upset, what does he/she do?

Does your child ever seem to need to be by himself/herself?

Describe a situation where your child hurt or disobeyed you.

How does your child do in exploring the world and solving problems on his/her own?

How does your child do when he/she can't explore or solve problems without your help and support?

How is your husband involved with the baby these days?

To what degree do you feel your husband supports you emotionally and practically in the day-to-day job of mothering?

How does your child differ from what you imagined he/she would be like?

How are you different as a mother from what you expected you'd be?

When the two of you disagree about something or are angry with each other, what happens? Do you fight? Talk? Let it slide?

Do you think the particular way you two disagree or fight works for you? Does it make things better or worse?

What kinds of things do you two come into conflict about most often?

How often do you fight? How "serious" does it feel?

What do you hope for as a parent during your baby's second year?

Appendix B: Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE)

Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE)

Manual for Coding Disrupted Affective Communication

Version 2- 1999

Elisa T. Bronfman

Elizabeth Parsons

Karlen Lyons-Ruth

Harvard Medical School

This instrument includes the items from Main & Hesse's (1992) coding instrument entitled "Frightening, Frightened, Dissociated or Disorganized Behavior on the Part of the Parent: A Coding System for Parent-infant Interactions" as well as items from other available coding instruments assessing atypical caregiving behaviors.

Note: Behaviors in italics were displayed 3 times more often in mothers of Disorganized infants.

Dimension 1: Affective Communication Errors

1A- Contradictory Signaling to Infant

Voice tone incongruent with message:
Stern voice, but permissive message
Sweet voice with derogatory, demanding, or impatient message

Verbal content or voice tone incongruent with physical response:
Invites approach verbally then distances
Uses friendly tone while maintaining threatening posture (Main & Hesse)
Says something positive about infant while simultaneously indicating aversion

Verbal content or voice tone incongruent with facial expression:
Smiles while using stern voice
Exhibits angry facial expression but speaks pleasantly

Incongruent physical behaviors:
Directs infant to do something then not to do it
Offers then withdraws toy
Holds affectionately, while simultaneously withdrawing or threatening infant

1B-Failure to Initiate Responsive Behavior to Infant Cue
Does not attempt to soothe infant when distressed
Does not offer comfort when infant falls
Fails to set appropriate limits around safety
Ignores cues for pick up
Does not intervene when infant engages in dangerous behavior
Does not respond to infant vocalization

1C-Inappropriate responding to infant signals or needs (not coded above):
Laughs while infant crying or distressed
Directs inauthentic affect towards infant
Responds to infant's distress with stimulation
Ignores infant's cue for distance
Provides physical contact which offers no comfort
Ignores infant's "no"
Ignores cue that an activity is not liked, has continued too long, or is too difficult for infant
Demonstrates affect strikingly inconsistent with the infant's
Comforts infant around missing the stranger
Attempts to minimize or discount infant's display of distress
Attempts to override infant's negative affect with positive affect
Uses adult speech pattern with infant (i.e. lack of affective contour, and/or adult word choice)

Dimension 2: Role/ Boundary Confusion

2A- Role Confusion:
(Difficulty in clearly separating infant's needs from own needs)

Elicits reassurance from infant
Defers to infant (Main & Hesse, Sroufe et al.)
Asks infant's permission to do something
Demands show of affection from infant (Sroufe et al.)
Overresponds to displeasure of infant (Main & Hesse)
Prioritizes own needs over infant's needs (Sroufe et al.)
Repeats self references
Behaves as a child rather than a parent (Sroufe et al.)
Speaks in baby talk (not in response to infant)
Uses "we" to describe self or infant
Encourages infant to engage in negative behaviors (Sroufe et al.)
Fake cries in response to the infant
Directs infant to self
Pleads with infant
Manipulates infant's body to accomplish something for self
Asks infant for reassurance around separation
Threatens to cry
Treats infant as more powerful than self
Speaks for infant in baby voice

2B- Treats child as sexual/spousal partner:

Speaks in hushed intimate tones to infant (Sroufe et al.)
Touches inappropriate body parts of infant (Main & Hesse, Sroufe et al.)
Overemphasizes infant's sexuality (Main & Hesse, Sroufe et al.)
Behaves or speaks in a manner more appropriate for a spouse than an infant (Main & Hesse)
Encourages sexually inappropriate behaviors in the infant (Sroufe et al.)
Seeks physical attention from infant while infant is engaged in activity
Kisses infant in a sexualized manner (Sroufe et al.)
Strokes in a sexualized manner (Sroufe et al.)
Cups infant's face in hands with extended eye gaze (Sroufe et al.)

Dimension 3a: Fearful Behavior

Appears frightened, hesitant or deferential in relation to infant:

Exhibits frightened expression (Main & Solomon)
Exhibits "haunted" or frightened voice (Main & Hesse)
Indicates of fear of infant (Main & Hesse)
Backs away from infant (Main & Hesse)
Handles infant in a timid or helpless manner (Main & Hesse)
Exhibits smile with fear elements (Main & Solomon)
Offers object to infant over an unusual distance (Main & Solomon)
Raises shoulders when approaching or in contact with infant (Main & Solomon)
Exhibits highly vigilant posture in the presence of infant (Main & Solomon)
Approaches or withdraws from infant in a circuitous manner (Main & Solomon)
Exhibits stammering voice quality ("D-D-Don't") (Main & Hesse)
Exhibits sudden rise in intonation or tense, high-pitched, 'squeaky' voice (Main & Hesse)
Approaches infant then quickly moves away
Raises hand to mouth directly upon reunion with infant (Main & Solomon)
Exhibits irrational fear regarding environment (Main & Hesse)
Startles to infant behavior without clear cause
"Ghost-like" whispering, stilted voice that seems affectively disconnected

Dimension 3b: Disorientation/Dissociative or Disorganized Behavior

Exhibits sudden change in mood unrelated to the environment, including loss of affect (Main & Hesse)
Handles infant as though inanimate (Main & Hesse)
Exhibits rapid shifts in affect (laughs to mad face) (Main & Hesse)
Exhibits sudden voice change, almost as if the voice of a different person
Wanders aimlessly around room (Main & Solomon)
Exhibits disoriented facial expression
Treats inanimate objects as animate (Main & Hesse)
Assumes trance-like posture or expression ("freezing") (Main & Hesse)
Attempts to engage infant's attention by rapid, frenetic shifts from topic to topic or toy to toy
Exhibits sudden drop in pitch (Main & Hesse)
Exhibits sudden loss of affect (i.e. angry to blank expression) (Main & Solomon)
Appears confused (e.g. what?)
Sudden movement unrelated to environment (i.e. head jerk)
Repeated Sighing

Dimension 4: Intrusiveness/ Negativity

4A: Physical Communications:
Pulls infant by the wrist
Looms (Main & Hesse)
Presses own cheek to infant's cheek forcefully
Wipes infant's nose vigorously
Pushes infant
Attempts to grab infant
Restrains infant
Picks up or continues holding despite resistance of the infant
Pulls infant into standing position
Turns infant's head
Assumes "attack" posture (Main & Hesse)
Behaves aggressively towards infant (Main & Hesse)
Touches infant in a manner, which appears to be affectionate but is irritating to the infant
Engages in rough physical play without infant enjoyment
Tickles infant when infant resists
Tosses toy or other object at infant
Physically crowds or hovers closely over infant

4B: Verbal communications:
Mocks, teases infant
Hushes crying infant (distinct from comforting sounds)
Uses loud, sharp, or angry voice (Main & Hesse)
Disapproves, criticizes, or threatens
Plays frightening games, such as chasing infant: "I'm gonna GET you!" (Main & Hesse)
Makes negative comment about infant

4C: Inappropriately attributes negative feelings, motivation to infant:
Suggests negative motivation to innocuous behaviors
Indicates that infant's actions could have harmful consequences (Main & Hesse)
Personalizes infant's behavior as negative
Ascribes negative feelings to the infant (i.e. "He/she hates me")

4D: Exerts control using objects:
Removes toy from infant despite engagement
Withholds toy from infant
Directs infant to new activity while infant is clearly engaged
Makes infant wait and watch while performing an activity (beyond a brief demonstration)

Dimension 5: Withdrawal

5A: Creates physical distance from infant:
Holds infant away from body with stiff arms
Actively recoils, pulls back from infant (Main &Hesse)
Squats behind infant to play
Moves away from infant
Stands and looks down to interact with infant
Turns infant away from body when holding
Stands behind infant to lift
Averts gaze (Main & Hesse)
Adopts a posture designed to keep infant at a distance
Maintains interaction at a distance from infant
Uses prop to keep infant at a distance
Indicates that touching the infant was uncomfortable or unpleasant
Leaves area after the infant approaches
Holds infant awkwardly
Directs approaching infant away
Immediately sits in chair after reuniting with infant
Puts infant down too soon before any cue from infant

5B: Use of verbal communication to maintain distance:
No interaction with infant (Not scored during episodes 1 & 2)
Uses words to create distance (i.e. "I won't pick you up.")
Dismisses infant's feelings (i.e. "You don't need me" "You're not sad")
Does not greet infant after a separation
Interacts silently with infant

5C: Directs infant away from self via toys:
Steers infant towards toys from behind
Redirects infant to toys not self as an apparent substitute for closer contact with parent

Parental Level of Disrupted Communication Scale

On the Parental Level of Disrupted Communication Scale, numeric points of 1-4 are considered not disrupted and 5-7 are disrupted. As the numeric level increases so does the level of disrupted communication. The descriptions of atypical behaviors at lower levels on the scale can be assumed to be true for the higher levels, with either increasing intensity at higher levels, increasing numbers of atypical behaviors, or fewer ameliorating interactions. The italicized descriptor of each level is meant to be a general guideline. It is followed by necessary criteria for the level, and then by possible, but not necessary, descriptors.

1. "High Normal"

   No evidence of disrupted communication. *The parent is consistently sensitive to the infant's signals, especially around distress, has appropriate boundaries, is neither withdrawing nor intrusive, gives clear messages to the infant, and maintains a clear adult role with the infant.*

   - Can tolerate negative affect
   - Uses physical comfort when the infant is distressed
   - Uses sympathetic voice with the infant
   - Sees infant's perspective and supports it
   - Interactions are primarily smooth and reciprocal
   - Rarely misses infant's signals in nondistressed play

2. "Normal"

   Mild evidence of insensitive, but not disrupted communication. *The parent is generally sensitive to the infant's signals but may miss some clear cues.*

   - Can tolerate negative affect
   - Uses physical comfort when the infant is distressed
   - Uses sympathetic voice with the infant
   - Primarily attempts to support infant's perspective
   - Interactions are primarily smooth and reciprocal
   - May occasionally be directive
   - May miss some signals in nondistressed play

3. "Low normal"

Some evidence of insensitive, but not disrupted communication. *In addition to missing some signals from the infant in nondistressed play, the parent demonstrates some nonoptimal behaviors, such as control.*

- Style of interacting with the infant is consistent and predictable
- Responds to most of the infant's signals
- Uses either physical or verbal attempts to comfort distressed infant
- Ameliorating interactions occur as well (such as picking up the infant at reunion, making warm eye contact in play, making positive or reassuring statements to the infant, or demonstrating other evidence of sensitivity or reciprocity)
- May have difficulty tolerating negative affect
- May have a "teaching" style, involving verbal or physical directives
- May give brief indication of need for infant to focus on him/her

4. "Nonoptimal style but not disrupted communication"

Evidence of insensitive behaviors. *The parent demonstrates more persistent control or demonstrates mild withdrawal or mild boundary issues such as momentarily needing the infant to focus on him/her. While this parent may appear nonoptimal in terms of level of responsiveness, there is a consistent, nonhostile, predictable style of interacting with the infant with ameliorating behaviors.*

- Style of interacting with the infant is consistent and predictable
- Does not respond appropriately to some of infant's signals in nondistressed signals
- Uses either physical or verbal attempts to comfort a distressed infant
- Some ameliorating interactions occur as well
- May have difficulty tolerating negative affect
- May sometimes prioritize own needs over infant needs.
- May have "teaching" style including significant control of the infant's play but also allows infant to disengage
- May have difficulty around infant's bids for autonomy
- May give brief indication of need for infant to focus on him/her
- Interactions may appear arrhythmic in nondistressed situations

Subtype 1: Intrusive/self-referential subtype

5. "Disrupted Communication"

Clear evidence of disruption in affective communication. *The parent displays persistent mixed affective signals, persistent errors in responding to infants needs, intrusive behavior, confusion, disorientation, lack of responsiveness, and/or role reversing behavior with the infant. The parent often attempts to engage with the infant but may have a difficult time diverting from own style or needs, particularly when attachment affects are heightened as at reunions*

- While the parent appears to be trying to interact appropriately with the infant, the parent cannot divert from own needs or cannot seem to understand infant's signals
- Interactions appear arrhythmic at times, with delayed, inappropriate, or absence of response to infant signals
- Most, but not all, have difficulty around physical contact with the infant, including either considerable withdrawal, or not providing comfort to the infant but seeking comfort from the infant, or handling infant in a rough or intrusive way
- May respond more appropriately while infant is calm
- Some ameliorating interactions may occur between parent and child
- Style of interaction may not be predictable, with, for example, role reversal predominating at one time and intrusive control at another
- Response to the infant may include confusion, disorientation, or unusual voice quality (including gruff or deep voice)
- May be a few contradictory signals presented to the infant
- May use "teaching" style in combination with other atypical behaviors
- May have significant difficulty around infant's bids for autonomy and self-direction
- May demonstrate need for the infant to miss him/her in more than a casual manner, including increasing the infant's distress around separation

6. "Highly Disrupted Communication"

Disrupted communication predominates. *The parent demonstrates persistent controlling, intrusive, negative, or role reversing behaviors in response to the infant. The parent's responses frequently do not match the infant's signaling.*

- Demonstrates an inability to tolerate direct expression of upset or distress from the infant, which results in withdrawal, anger (mocking or shushing the infant) or escalating intrusive behavior.
- Demonstrates significant difficulty around most physical contact with the infant
- Cannot effectively provide comfort to the infant, either verbally or physically
- May display physically intrusive behavior or use harsh voice tone
- Interactions appear arrhythmic, with delayed, inappropriate, or lack of response to infant signals
- Has a difficult time diverting from own style or needs which may be exacerbated around infant distress
- Style of interaction may not be predictable, with, for example, role reversal predominating at one time and intrusive control at another
- Affective response to the infant may include indirect (or "masked") expression of negative affect, a lack of affect, or inauthentic affect
- May present contradictory affective signals to the infant
- May demonstrate need for the infant to miss him/her in a more than casual manner, including increasing the infant's distress around separation
- Parent's response to the infant may include confusion, disorientation, fear, or unusual voice quality
- May have significant difficulty around infant's bids for autonomy and use physical force to direct infant's behavior
- Despite these behaviors, there are some attempts, although ineffective, to address infant's needs

7. "Disrupted Communication with few or no ameliorating behaviors"
Disrupted communication predominates with almost no ameliorating behaviors. *The parent is highly unresponsive, ineffective, or inappropriate in relation to the needs of the infant. Not only do the parent's needs take priority, but also the infant's needs are not attended to in any significant manner. There is persistent evidence of mixed affective signals, intrusive behavior, withdrawal, hostility, lack of boundaries, role reversal, and/or disorientation, with little ameliorating contact.*

- Parent is not able to provide verbal or physical comfort to the infant
- Affective response to the infant includes indirect (or "masked") expression of negative affect, a lack of affect, or inauthentic affect
- There is significant difficulty around all physical contact with the infant, with fear, withdrawal, or intrusiveness dominating all bodily contacts
- Parent appears unable to take infant's perspective
- There are few or no ameliorating interactions with the infant
- Contradictory affective or behavioral cues are communicated to the infant
- Infant's intentions may be opposed, with parent doing the opposite of signal
- May display physical intrusion, negative comments about the infant, harsh voice tone, or teasing or mocking
- May demonstrate an inability to tolerate any direct expression of negative affect, which results in withdrawal, anger or escalating intrusive behavior
- May demonstrate need for the infant to miss him/her in a more than casual manner, including increasing the infant's distress around separation
- Parent's response to the infant may include confusion, disorientation, fear, or unusual voice quality

Subtype 2: Helpless/Fearful Type

5. "Disrupted Communication"

Clear evidence of disruption in affective communication

The parent demonstrates delayed responsiveness, elevated withdrawal, mildly fearful behavior, confusion or disorientation with the infant. Although little or no overt hostility is displayed, there may be a sense of not enough availability of parent to the infant or little assistance to infant in coping with a difficult situation.

- While the parent appears to be trying to interact appropriately with the infant, the parent appears hesitant or held back from a fuller responsiveness
- Most, but not all, have difficulty around physically comforting the infant. This may appear as delay in response until infant insists, abbreviated response (cursory pick-up/put down), moving back as infant approaches, or withholding adequate responses in a teasing manner
- The parent appears held back from assuming fully parental stance, whether failing to make appropriate initiatives (e.g. greeting, approaching infant) or making initiatives but with evident tension, false affect or apprehension
- Parent capitulates to infant demands, which may appear as responsive interaction, but closer attention reveals that the infant rather than the parent is taking initiative to achieve fuller physical or emotional contact, with some resistance by parent
- Response to the infant may include confusion, disorientation, frightened behaviors (such as startling); or unusual voice quality, including frightened or high-pitched squeaky voice, especially at reunions
- Subtle withdrawal from prolonged close contact or interaction with the infant is a repetitive feature of the interaction. This is evidenced both by physically distancing behaviors and by brief and unelaborated verbal or play interactions

For example:

- Parent tends to stand at greater distance than necessary, walk around infant to achieve distance, or interact from a distance
- Parent may stand silently or return directly to chair upon reunion with little or no greeting to infant
- Toys are often inserted between infant and parent and used as a substitute for more personal or affective forms of contact, even when infant is signaling for contact.
- There may be hesitation or tension at moments of heightened attachment, such as greetings or contact-seeking by infant.
- Response to infant's signal may include hesitation, stepping back or away, teasing, putting toy between infant and self, directing infant's attention away from self toward toy, or by cursory compliance, such as kissing infant, picking up briefly, or quick, awkward hug
- There is typically little overt negative affect or intrusiveness

6. "Highly Disrupted Communication"

Disrupted communication predominates

The parent demonstrates lack of responsiveness to cues, confusion, disorientation, withdrawal or fearful behaviors in response to the infant. The general response to the infant appears to lack sensitivity in that the parent's style frequently does not match the infant's signaling. Although little or no overt hostility toward infant, there may be avoidance of interaction with infant.

- Demonstrates an inability to tolerate direct expression of affect from the infant which results in abbreviated, ineffective, or inappropriate soothing techniques - seems like 'not enough available' for infant
- Demonstrates significant difficulty around most physical contact with the infant.
- Interactions appear arrhythmic with delayed or inappropriate response to infant signals
- There may be an empty quality to relatedness
- Despite these behaviors, there are some attempts, although ineffective, to address infant needs
- Parents' response to the infant may include confusion, disorientation, fear or unusual voice quality

- May make steps to avoid infant, such as failing to verbally greet the infant, walking at a distance, sitting in a chair upon greeting, or taking a circuitous path around infant
- May demonstrate fearful voice quality or facial expression
- There is little overt negative affect or intrusiveness
- There may be hesitation or tension at moments of heightened attachment, such as greetings or contact-seeking by infant, including hesitation, freezing, or voice quavering, cracking, or stuttering.
- May walk right by infant
- There may be no greeting upon reunion
- May be little sense of authority of parent
- May be little collaboration around infant's initiatives
- May be 'hot potato' quality to physical contact with infant
- Direction to toy appears as a move to 'get out of' interacting with the child
- May back up or appear frightened by excited or exuberant infant play
- May whisper to infant in timid, fearful manner

7. "Disrupted Communication with few or no ameliorating behaviors".
The parent is highly unresponsive, ineffective, or inappropriate in relation to the needs of the infant. Not only do parent's needs take priority but also infant's needs are not attended to in any significant manner. If withdrawal, disorientation, or confusion predominate with few ameliorating behaviors or if there is a lack of responsiveness to distress, without any effort to respond, score as "7". Also score 7 if strong indices of fearful or withdrawing behavior are combined with marked intrusive and self-referential behavior. In this case, consider also intrusive/ self referential type. Differentiation between these two scales may be difficult at his scale point.

- Parent is not able to provide verbal or physical comfort to the infant
- Affective response to the infant includes lack of affect or inauthentic affect
- There is likely marked withdrawal or lack of response to the infant
- There is significant difficulty around all physical contact with the infant with fear or withdrawal dominating bodily contacts
- Parent may demonstrate fearful behavior in response to the environment
- Parent may appear unable to take infant's perspective
- There are few or no ameliorating interactions with the infant

- Contradictory affective or behavioral cues may be communicated to the infant
- May demonstrate an inability to tolerate any direct expression of negative affect, which results in withdrawal, fearful behavior or attempts to silence negative behavior
- Parent's response to the infant may include confusion, disorientation, fear, or unusual voice quality

References

Aber, J., Belsky, J., Slade, A., & Crnic, K. (1999). Stability and change in mother's representations of their relationships with their toddlers. Developmental Psychology, 35(4), 1038-1047.

Aber, J., Slade, A., Berger, B., Bresgi, I., & Kaplan, M. (1985). The Parent Development Interview. Unpublished manuscript.

Ainsworth, M. (1969). Object relations, dependency, and attachment: A theoretical review of the infant-mother relationship. Child Development, 40, 969-1025.

Ainsworth, M., Blehar, M., Waters, E., & Wall, S. (1978). Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Erlbaum.

Aron, L. (1996). A Meeting of the Minds: Mutuality in Psychoanalysis. Hillsdale, NJ: The Analytic Press.

Baron-Cohen, S. (1995). Mindblindness: An Essay on Autism and Theory of Mind. Cambridge, MA: MIT Press.

Belsky, J. & Cassidy, J. (1994). Attachment: Theory and evidence. In M. Rutter & D. Hay (Eds.), Development Through Life (pp. 373-402). Oxford: Blackwell.

Benedek, T. (1959). Parenthood as a developmental phase. Journal of the American Psychoanalytic Association, 7, 389-417.

Benjamin, J. (1988). The Bonds of Love. New York: Pantheon Books.

Benjamin, J. (1998). Shadow of the Other. New York: Routledge.

Benoit, D., Parker, K., & Zeanah, C. (1997). Mothers' representations of their infants assessed prenatally: Stability and association with infants' attachment classifications. Journal of Child Psychology & Psychiatry & Allied Disciplines, 38(3), 307-313.

Benoit, D., Zeanah, C., Parker, K., Nicholson, E., & Coolbear, J. (1997). "Working model of the child interview": Infant clinical status related to maternal perceptions. Infant Mental Health Journal, 18(1), 107-121.

Bibring, G., Dwyer, T., Huntington, D., & Valenstein, A. (1961). A study of the psychological processes in pregnancy and of the earliest mother-child relationship. The Psychoanalytic Study of the Child, 16, 9-24.

Bion, W. (1962). Learning from experience. London: Heinemann.

Bretherton, I. (1992). The origins of attachment theory: John Bowlby and Mary Ainsworth.

Developmental Psychology, 28, 759-775.

Bowlby, J. (1969). Attachment and loss: Vol.. I. Attachment. New York: Basic Books.

Bowlby, J. (1973). Attachment and loss: Vol. II. Separation, anger, and anxiety. New York: Basic Books.

Bowlby, J. (1980). Attachment and loss: Vol. III. Loss. New York: Basic Books.

Brandchaft, B. & Stolorow, R. (1990). Varieties of therapeutic alliance. The Annual of Psychoanalysis, 18, 99-114.

Bromberg, P.M. (1998). Standing In the Spaces: Essays on Clinical Process, Trauma, and Dissociation. Hillsdale, NJ: The Analytic Press.

Bronfman, E., Parsons, E., & Lyons-Ruth, K. (1999). Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE): Manual for coding disrupted affective communication, Version 2. Unpublished Manuscript. Harvard Medical School.

Brothers, D. (1995). Falling Backwards: An Exploration of Trust and Self Experience. New York: W.W. Norton & Company.

Brothers, D. (1998). Exploring the "Bi" Ways of self-experience: Dissociation, alter ego selfobject experience, and gender. In A. Goldberg (Ed.), The World of Self Psychology: Progress in Self Psychology 14, 233-252.

Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. Monographs of the Society for Research in Child Development, 59 (Serial No. 240), 228-250.

Cassidy, J. & Kobak, R. (1988). Avoidance and its relation to other defensive processes. In J. Belsky & T. Nezworski (Eds.), Clinical Implications of Attachment (pp. 300-326). Hillsdale, NJ: Erlbaum.

Cassidy, J. & Shaver, P. (1999). Handbook of Attachment: Theory, Research, and Clinical Applications. New York: Guilford.

Clark, G. & Seifer, R. (1983). Facilitating mother-infant communication: A treatment model for high-risk and developmentally delayed infants. Infant Mental Health Journal, 4, 67-82.

Coates, S. (1998). Having a mind of one's own and holding the other in mind: Commentary on paper by Peter Fonagy and Mary Target. Psychoanalytic Dialogues, 8, 115-148.

Coates, S.W. & Moore, M.S. (1997). The complexity of early trauma: Representation and transformation. Psychoanalytic Inquiry, 17(3), 286-311.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. New York: Academic Press.

Cramer, B. & Palacio-Espasa, F. (1993). La Practique des Psychotherapies Meres-Bebes: Etudes Clinique et Technique. Paris: Universitaires de France.

Cramer, B., Robert-Tissot, C., Stern, D., Serpa-Rusconi, S., De Muralt, M., Besson, G., Palacio-Espasa, F., Bachman, J., Knauer, D., Berney, C., & d'Arcis, U. (1990). Outcome evaluation in brief mother-infant psychotherapy: A preliminary report. Infant Mental Health Journal, 9(1), 278-300.

Cramer, b. & Stern, D. (1988). Evaluation of changes in mother-infant brief psychotherapy: A single case study. Infant Mental Health Journal, 9, 20-45.

Crittenden, P. (1983). Child-Adult Experimental Index. Unpublished Manual, University of Virginia, Charlottesville.

Crockenberg, S. (1981). Social Support Interview. Unpublished Manuscript.

Crowell, J. & Feldman, S. (1988). Mothers' internal models of relationships and children's behavioral and developmental status: A study of mother-child interaction. Child Development, 59, 1273-1285.

Davies, J.M. & Frawley, M.G. (1994). Treating the Adult Survivor of Childhood Sexual Abuse. New York: Basic Books.

Dennett, D. (1978). Brainstorms: Philosophical Essays on Mind and Psychology. Montgomery, VT: Bradford.

Dennett, D. (1987). The Intentional Stance. Cambridge, MA: MIT Press.

Derogatis, L. (1979). Symptom Checklist – 90. Unpublished Manuscript.

Derogatis, L. (1983). SCL-90-R: Administration, scoring, and procedures manual, II. Towson, MD: Clinical Psychiatric Research.

Diamond, D. & Blatt, S. (1994). Internal working models and the representational world in attachment and psychoanalytic theories. In M. Sperling & W. Berman (Eds.), Attachment In Adults: Clinical and Developmental Perspectives (pp. 72-98). New York: Guilford.

Dolto, F. (1971). Psychanalyse et Pediatrie. Paris: Editions du Seulil.

Fairbairn, R. (1929). From Instinct to Self: Selected Papers of W.R.D. Fairbairn. E. Birtles & D. Scharff (Eds.). Northvale, NJ: Aronson.

Fairbairn, R. (1952). An object-relations theory of personality. New York: Basic

Books.

Field, T. (1982). Interaction coaching for high-risk infants and their parents. In H. Moss, R. Hess, & C. Swift (Eds.), Prevention in Human Services, Vol. 1. (5-24). New York: Hayworth Press.

Fonagy, P. (1996). The significance of the development of metacognitive control over mental representations in parenting and infant development. Journal of Clinical Psychoanalysis, 5(1), 67-86.

Fonagy, P. (2000). Attachment and borderline personality disorder. Journal of the American Psychoanalytic Association, 48(4), 1129-1146.

Fonagy, P., Steele, M., Moran, G., Steele, H., & Higgitt, A. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. Infant Mental Health Journal, 12, 201-218.

Fonagy, P., Steele, M., Moran, G., Steele, H., & Higgitt, A. (1993). Measuring the ghost in the nursery: An empirical study of the relation between parents' mental representations of childhood experiences and their infants' security of attachment. Journal of the American Psychoanalytic Association, 41(4), 957-989.

Fonagy, P., Steele, H., & Steele, M. (1991). Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. Child Development, 62, 891-905.

Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., & Target, M. (1995). Attachment, the reflective self, and borderline states: The predictive specificity of the Adult Attachment Interview and pathological emotional development. In S. Goldberg, R. Muir & J. Kerr (Eds.) Attachment Theory: Social, Developmental and Clinical Perspectives. (pp. 233-278). Hillsdale, NJ: The Analytic Press.

Fonagy, P & Target, M. (1998). Mentalization and the changing aims of child psychoanalysis. Psychoanalytic Dialogues, 8(1), 87-114.

Fonagy, P., Target, M., Steele, H., & Steele, M. (1998). Reflective-Functioning Manual, Version 5. Unpublished manuscript.

Fraiberg, S., Adelson, E., & Shapiro, V. (1975). Ghosts in the nursery: A psychoanalytic approach to the problems of impaired infant-mother relationships. Journal of Preventive Psychiatry, 14, 387-422.

Fraiberg, S. (1980). Clinical Studies in Infant Mental Health: The First Years of Life. New York: Basic Books.

George, C., Kaplan, N., & Main, M. (1985). The adult attachment interview. Unpublished

manuscript, University of California, Berkeley, Department of Psychology.

George, C. & Solomon, J. (1989). Internal working models of caregiving and security of attachment at age six. Infant Mental Health Journal, 10(3), 222-237.

George, C., & Solomon, J. (1996). Representational models of relationships: Links between caregiving and attachment. Infant Mental Health Journal, 17(3), 198-216.

George, C. & Solomon, J. (1999). Attachment and caregiving: The caregiving behavioral system. In J. Cassidy & P. Shaver (Eds.), Handbook of Attachment: Theory, Research, & Clinical Applications (pp. 649-670). New York: Guilford.

Grice, H. (1975). Logic and conversation. In P. Cole & J. Morgan (Eds.), Syntax and Semantics, Volume 3: Speech Acts (pp. 41-58). New York: Academic Press.

Grossmann, K., Fremmer-Bombik, E., Rudolph, J., & Grossmann, K. (1988). Maternal attachment representations as related to patterns of infant-mother attachment and maternal care during the first year. In R. Hinde & J. Stevenson-Hinde (Eds.), Relationships Within Families: Mutual Influences (pp.241-260). Oxford: Clarendon Press.

Haft, W. & Slade, A. (1989). Affect attunement and maternal attachment: A pilot study. Infant Mental Health Journal, 10(3), 157-172.

Hesse, E. & Main, M. (1999). Second-generation effects of unresolved trauma in nonmaltreating parents: Dissociated, frightened, and threatening parental behavior. Psychoanalytic Inquiry, 19(4), 481-540.

Isabella, R. (1993). Origins of attachment: Maternal interactive behavior across the first year. Child Development, 64, 605-621.

Jacobvitz, D., Hazen, N., & Riggs, S. (1997, April). Disorganized mental processes in mothers, frightening/frightened caregiving, and disoriented/disorganized behavior in infancy. In D. Jacobvitz (Chair), Caregiving Correlates and Longitudinal Outcomes of Disorganized Attachments in Infants. Symposium presented at the biennial meeting of the Society for Research in Child Development, Washington, DC.

Kobak, R. (1987, April). Attachment, affect regulation and defense. Paper presented at the biennial meeting of the Society for Research in Child Development, Baltimore, MD.

Kobak, R. & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representation of self and others. Child Development, 59, 135-146.

Kohut, H. (1977). The Restoration of the Self. New York: International University Press.

Kohut, H. (1984). How Does Analysis Cure? Chicago: University of Chicago Press.

Krystal, H. (1988). Integration and self-healing: Affect, trauma, alexithymia. Hillsdale,

NJ: The Analytic Press.

Lebovici, S. (1988). Fantasmic interactions and intergenerational transmission. Infant Mental Health Journal, 9,, 10-19.

Lieberman, A., Silverman, R., & Pawl, J. (2000). Infant-parent psychotherapy: Core concepts and current approaches. In C. Zeanah (Ed.), Handbook of Infant Mental Health, Second Edition. (pp. 472-484). New York: Guilford.

Lieberman, A. & Zeanah, C. (1999). Contributions of attachment theory to infant-parent psychotherapy and other interventions with infants and young children. In J. Cassidy & P. Shaver (Eds.), Handbook of Attachment: Theory, Research, and Clinical Applications. (pp. 555-574). New York: Guilford.

Liotti, G. (1992). Disorganized/disoriented attachment in the etiology of the dissociative disorders. Dissociation, 4, 196-204.

Liotti, G. (1995). Disorganized/disoriented attachment in the psychotherapy of the dissociative disorders. In S. Goldberg, R. Muir, & J. Kerr (Eds.), Attachment Theory: Social, Development, and Clinical Perspectives (pp. 343-366). London: The Analytic Press.

Loewald, H. (1962). Internalization, separation, mourning, and the superego. Psychoanalytic Quarterly, 31, 483-504.

Lyons-Ruth, K. (1996). Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. Journal of Consulting and Clinical Psychology, 64(1), 64-73.

Lyons-Ruth, K. (1999). The two-person unconscious: Intersubjective dialogue, enactive representation, and the emergence of new forms of relational organization. Psychoanalytic Inquiry, 19(4), 576-617.

Lyons-Ruth, K. & Block, D. (1996). The disturbed caregiving system: Relations among childhood trauma, maternal caregiving, and infant affect and attachment. Infant Mental Health Journal 17(3), 257-275.

Lyons-Ruth, K., Bronfman, E., & Atwood, G. (1999a). A relational diathesis model of hostile-helpless states of mind: Expressions in mother-infant interaction. In J. Solomon & C. George (Eds.), Attachment Disorganization (pp. 33-70). New York: Guilford Press.

Lyons-Ruth, K., Bronfman, E., & Parsons, E. (1999b). Maternal frightened, frightening, or atypical behavior and disorganized infant attachment patterns. In J. Vondra & D. Barnett (Eds.), Atypical Patterns of Infant Attachment: Theory, Research, and Current Directions. Monographs of the Society for Research in Child Development (pp. 67-209).

Lyons-Ruth, K., Connell, D., Zoll, D., & Stahl, J. (1987). Infants at social risk: Relations among infant maltreatment, maternal behavior, and infant attachment behavior. Developmental Psychology, 23(2), 223-232.

Lyons-Ruth, K. & Jacobvitz, D. (1999). Attachment disorganization: Unresolved loss, relational violence, and lapses in behavioral and attentional strategies. In J. Cassidy & P. Shaver (Eds.), Handbook of Attachment: Theory, Research, and Clinical Applications (pp. 520-554).

Lyons-Ruth, K., Repacholi, B., McLeod, S., & Silva, E. (1991). Disorganized attachment behavior in infancy: Short-term stability, maternal and infant correlates, and risk-related subtypes. Development and Psychopathology, 3, 377-396.

Mahler, M., Pine, F., & Bergman, A. (1975). The psychological birth of the human infant: Symbiosis and individuation. New York: Basic.

Main, M. (1991). Metacognitive knowledge, metacognitive monitoring, and singular (coherent) versus multiple (incoherent) models of attachment: Findings and directions for future research. In C. Parkes, J. Stevenson-Hinde & P. Marris (Eds.), Attachment Across the Life Cycle (pp. 127-159).

Main, M. (1995). Recent studies in attachment: Overview, with selected implications for clinical work. In S. Goldberg, R. Muir & J. Kerr (Eds.) Attachment Theory: Social, Developmental and Clinical Perspectives. (pp. 407-474). Hillsdale, NJ: The Analytic Press.

Main, M. (1996). Introduction to the special section on attachment and psychopathology: 2. Overview of the field of attachment. Journal of Consulting and Clinical Psychology, 64(2), 237-243.

Main, M. & Goldwyn, R. (1998). Adult attachment scoring and classification systems (2nd ed.). Unpublished manuscript, University of California at Berkeley.

Main, M. & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. Greenberg, D. Cicchetti & E. Cummings (Eds.), Attachment in the Preschool Years: Theory, Research, and Intervention (pp. 161-182). Chicago: University of Chicago Press.

Main, M. & Hesse, E. (1992a). Disorganized/Disoriented infant behavior in the Strange Situation, lapses in the monitoring of reasoning and discourse during the parent's Adult Attachment Interview, and dissociated states. In M. Ammanti & D. Stern (eds.), Attachment and Psychoanalysis. (pp. 86-140). Rome: Gius, Literza & Figli.

Main, M. & Hesse, E. (1992b). Frightening, Frightened, Dissociated, or Disorganized

Behavior on the Part of the Parent: A Coding System for Parent-Infant Interactions (4th Edition).Unpublished Manuscript. University of California at Berkeley.

Main, M. & Hesse, E. (1995). Frightening, Frightened, Dissociated, or Disorganized Behavior on the Part of the Parent: A Coding System for Parent-Infant Interactions (5th Edition).Unpublished Manuscript. University of California at Berkeley.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. Monographs of the Society for Research in Child Development, Serial No. 209, Vol. 50, Nos. 1-2, pp. 66-104.

Main, M. & Solomon, J. (1986). Discovery of a new, insecure-disorganized/disoriented attachment pattern. In T.B. Brazelton & M. Yorman (Eds.), Affective Development in Infancy. (pp. 95-124). Norwood, NJ: Ablex.

Main, M. & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during Ainsworth Strange Situation. In M.T. Greenberg, D. Cicchetti, & E.M. Cummings (Eds.), Attachment in the Preschool Years. Norwood, NJ: Ablex.

Matas, L., Arend, R., & Sroufe, L. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. Child Development, 49, 547-556.

McDonough, S. (1992). Treating early relationship disturbances with interaction guidance. In G. Fava Vizziello & D. Stern (Eds.), Models and Techniques of Psychotherapeutic Intervention in the First Year of Life. Milan: Raffaello Cortina.

McDonough, S. (2000). Interaction guidance: An approach for difficult-to-engage families. In C. Zeanah (Ed.), Handbook of Infant Mental Health, Second Edition (pp. 485-493). New York: Guilford.

Orange, D. (1995). Emotional Understanding: Studies in Psychoanalytic Epistemology. New York: Guilford Press.

Pawl, J. & Lieberman, A. (1997). Infant-parent psychotherapy. In S. Greenspan, S. Wieder, & J. Osofsky (Eds.), Handbook of Child and Adolescent Psychiatry (pp.339-351). New York: Wiley.

Premack, D. & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? Behavioral and Brain Sciences, 4, 515-526.

Schuengel, C., Bakermans-Kranenburg, M., & van IJzendoorn, M. (1999). Frightening maternal behavior linking unresolved loss and disorganized infant attachment. Journal of Consulting and Clinical Psychology, 67(1), 54-63.

Seligman, S. (1994). Applying psychoanalysis in an unconventional context: Adapting infant-parent psychotherapy to a changing population. The Psychoanalytic Study of the Child, 49, 481-500.

Seligman, S. (2000). Clinical implications of current attachment theory. Journal of the American Psychoanalytic Association, 48(4), 1189-1195.

Seligman, S. & Pawl, J. (1984). Impediments to the formation of the working alliance in infant-parent psychotherapy. In J. Call, E. Galenson, & R. Tyson (Eds.), Frontiers in Infant Psychiatry, Vol. 2. New York: Basic Books.

Scharff, J.S. & Scharff, D.E. (1994). Object Relations Therapy of Physical and Sexual Trauma. Northvale NJ: Jason Aronson.

Shane, M., Shane, E., & Gales, M. (1997). Intimate Attachments: Toward a New Self Psychology. New York: Guilford.

Slade, A. (1987). Caretaking Patterns Questionnaire. Unpublished Manuscript. The City College and City University of New York.

Slade, A. (1993, March). Affect regulation and defense: Clinical and theoretical considerations. Paper presented at the meetings of the Society for Research in Child Development, New Orleans, LA.

Slade, A. (1999). Attachment theory and research: Implications for the theory and practice of individual psychotherapy with adults. In J. Cassidy & P. Shaver (Eds.), Handbook of Attachment: Theory, Research, and Clinical Applications. New York: Guilford.

Slade, A., Aber, L., Cohen, L., Fiorello, J., Meyer, J., DeSear, P., & Waller, S. (1993). Parent Development Interview Coding System. Unpublished Manuscript.

Slade, A., Belsky, J., Aber, J., & Phelps, J. (1999). Mother's representations of their relationships with their toddlers: Links to adult attachment and observed mothering. Developmental Psychology, 35(3), 611-619.

Slade, A., Bernbach, E., Grienenberger, J., Wohlgemuth Levy, D., & Locker, A. (2001). Addendum to Reflective Functioning Scoring Manual: For Use with the Parent Development Interview. Unpublished Manuscript. The City College and Graduate Center of the City University of New York.

Slade, A. & Cohen, L. (1996). Processes of parenting and the remembrance of things past. Infant Mental Health Journal, 17, 217-238.

Slade, A., Grienenberger, J., Bernbach, E., Levy, D., & Locker, A. (2001, April). Maternal reflective functioning and attachment: Considering the transmission gap. Paper presented at the meetings of the Society for Research in Child Development, Minneapolis, MN.

Slade, Huganir, Grunebaum, & Reeves, (1985). The Pregnancy Interview. Unpublished Manuscript.

Solomon, J. & George, C. (1996). Defining the caregiving system: Toward a theory of caregiving. Infant Mental Health Journal, 17(3), 183-197.

Spezanno, C. (1993). Affect in psychoanalysis: A clinical synthesis. Hillsdale, NJ: The Analytic Press.

Sroufe, L. & Fleeson, J. (1986). Attachment and the construction of relationships. In W. Hartup & Z. Rubin (Eds.), Relationships and Development. Hillsdale, NJ: Earlbaum.

Stern, D. (1985). The interpersonal world of the infant. New York: Basic Books.

Stern, D. (1995). The motherhood constellation: A unified view of parent-infant psychotherapy. New York: Basic Books.

Stern-Bruschweiler, N. & Stern, D. (1989). A model for conceptualizing the role of mother's representational role in various mother-infant therapies. Infant Mental Health Journal, 10, 142-156.

Stolorow, R. & Atwood, G. (1992). Contexts of being: The intersubjective foundations of psychological life. Hillsdale, NJ: The Analytic Press.

Stolorow, R., Brandchaft, B., & Atwood, G. (1987). Psychoanalytic treatment: An intersubjective approach. Hillsdale, NJ: The Analytic Press.

Suess, G., Grossmann, K., & Sroufe, L. (1992). Effects of infant attachment to mother and father on quality of adaptation in preschool: From dyadic to individual organization of self. International Journal of Behavioral Development, 15, 43-65.

Target, M. & Fonagy, P. (1996). Playing with reality: II. The development of psychic reality from a theoretical perspective. International Journal of Psycho-Analysis, 77, 459-479.

van IJzendoorn, M. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. Psychological Bulletin, 117(3), 387-403.

van IJzendoorn, M. (1995). Breaking the intergenerational cycle of insecure attachment: A review of the effects of attachment-based interventions on maternal sensitivity and infant security. Journal of Child Psychology and Psychiatry, 36(2), 225-248.

Ward, M. & Carlson, E. (1995). Associations among adult attachment representations, maternal sensitivity, and infant-mother attachment in a sample of adolescent mothers. Child Development, 66, 69-79.

Wilson, A. (1985). On silence and the holocaust: A contribution to clinical theory. Psychoanalytic Inquiry, 5(1), 63-84.

Winnicott, D.W. (1957). Mother and Child: A Primer of First Relationship. New York: Basic Books.

Winnicott, D.W. (1960). The theory of the parent infant relationship. International Journal of Psychoanalysis, 41, 585-595.

Winnicott, D.W. (1965). The maturational processes and the facilitating environment: Studies in the theory of emotional development. Madison, CT: International Universities Press.

Zeanah, C. & Benoit, D. (1995). Clinical applications of a parent perception interview in infant mental health. Child & Adolescent Psychiatric Clinics of North America, 4(3), 539-554.

Zeanah, C., Benoit, D., Barton, M., Regan, C., Hirschberg, L., & Lipsitt, L. (1993). Representations of attachment in mothers and their one-year-old infants. Journal of the American Academy of Child and Adolescent Psychiatry, 32, 278-286.