ATTACHMENT IN INFANCY AND AT AGE SIX, AND CHILDREN'S SELF-CONCEPT: A FOLLOW-UP OF A GERMAN LONGITUDINAL STUDY

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ABSTRACT

In the tradition of prospective and comparative attachment research, this study investigated stability of child-mother attachment from infancy to six years within a cross-cultural context. Additionally, the six-year old children's self-concept was assessed. Consistency across self-concept measures was predicted as was a relationship between attachment and self-concept, with securely attached children exhibiting a more positive self-concept than their insecure counterparts.

Subjects were 44 children participating in a representative longitudinal study in West Germany. Attachment stability was computed for 37 children seen with their mother both in infancy and at age six and currently living in two-parent homes.

Six-year attachment was assessed through analysis of child behavior toward the parent following a 90-minute separation. The child's self-concept was investigated through clinical interviews, Harter's Scale for Perceived Competence (Harter & Pike, 1984), and a small Q-Sort of Specific Domains. Emotional disturbance was indexed through Koppitz' Emotional Indicators on the Draw-A-Person Test (Koppitz, 1968).

Results suggest high stability of child-mother attachment. Eighty-nine percent of the children showed

comparable attachment patterns at age six as they had in infancy. Stability was also found for avoidant behavior and security of attachment. Results were identical to those of the Berkeley Social Development Project (Main et al., 1985) and seen as a convergent cross-validation of the six-year attachment method.

Children did not respond consistently across the self-concept measures. Factor analysis suggested two orthogonal factors, one representing the indirect clinical interviews and the other the structured standardized measures. The open interview loaded on both factors. No correlation was found between emotional indicators and self-concept or attachment.

No predictive relationship was found between infancy attachment and self-concept at six years, while the concurrent relationship between attachment and self-concept was moderate. Absence of a stronger relationship between attachment and self-concept is discussed in view of the methodological problems characteristic of self-concept measures. The relevance of these findings for clinical investigation is reviewed. A final section suggests further analysis of these data and a reanalysis of the infancy attachment data for a more complete study of the two contructs under question.

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APPROVAL OF THE DISSERTATION

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Germaine de Stael

I can't see what I can't observe.

Yogi Berra

Dedicated to the memory of my mother,

Gerda Wartner, nee Pfaff.

Page

Chapter I

Introduction

Over the past three decades much research has been carried out in an attempt to translate Bowlby's attachment theory (Bowlby 1969/1982, 1973, 1980) into empirical findings. Particularly Ainsworth's development of the Strange Situation and her methods of categorizing children's attachment relationships with their parents (Ainsworth, Bell, & Stayton, 1971) have been highly influential in the study of young children. Her classification system of secure, insecure-avoidant and insecure-ambivalent attachments has been validated by relating it to the findings of her extensive home visits conducted during the Baltimore Longitudinal Study (summarized in Ainsworth, Blehar, Waters, & Wall, 1978). Results from the Strange Situation have since been replicated a number of times, with different samples and in several countries. Ainsworth et al.'s methods of analysis were found to be reliably applicable resulting in a growing body of studies on attachment relationships in infancy (e.g. Ainsworth et al., 1978; Grossmann, Grossmann, Huber, & Wartner, 1981; IJzendoorn, Goosens, Kroonenberg, & Tavecchio, 1984; Lamb, Hwang, Frodi, & Frodi, 1982; Main and Weston, 1981; Miyake, Chen, & Campos, 1985; Sagi, Lamb,

Lewkowicz, Shohan, Dvir, & Estes, 1985).

Until recently, attachment research had focused almost exclusively the first two years of a child's life. More recently, studies have asessed attachment of pre-school children and adults. A group of researchers from the University of Minnesota Institute of Child Development is carrying out a longitudinal study on children's attachment and competence (Arend, Gove, & Sroufe, 1979; Erickson, Sroufe, & Egeland, 1985; Matas, Arend, & Sroufé, 1978; Sroufe, 1982; Thompson, Lamb, & Estes, 1982; Waters, Wippman, & Sroufe, 1979). Mary Main and her colleagues at the University of California at Berkeley are now in their ninth year of the longitudinal Social Development Project (Cassidy & Main, 1984; Main, 1977; Main, Kaplan, & Cassidy, 1985; Main and Weston, 1981). Klaus Grossmann is directing two longitudinal studies in West Germany on the ontogeny of social relations (e.g. Escher-Gräub & Grossmann, 1983; Grossmann & Grossmann, 1983). These studies respond to Bowlby's call for prospective research (Bowlby, 1969/1982) in their attempt to examine the historical antecedents responsible for the development of differences and similarities among children at various age levels.

In addition to extending attachment research into later years, more research is now being done with different socioeconomic groups and with subjects from different nations. Ainsworth (1977).has pointed out the value of this

cross-cultural research for the understanding of qualitative differences in parent-child relationships: "Differences in the ontogenesis of social behavior between societies should throw much light on the relative outcomes, in terms of the social structure characteristic of one society in contrast to another " (Ainsworth, 1977, p. 64). Such differences and similarities in the ontogeny of attachment are presently being studied in Sweden (Lamb et al., 1982), Israel (Sagi et al., 1985), Japan (Miyake et al., 1985), Germany (Escher-Gräub & Grossman, 1983; Grossmann & Grossmann, 1983). The effect of low SES is also being examined (Erickson et al., 1985). The significant differences in attachment classifications reported by these studies point to the possible influence of cultural values on parent-child interaction. However, with the exception of the German and Japanese studies, most cross-cultural research on attachment has remained cross-sectional and thus yields little data on individual development and changes over time.

Some 30 years into the study of attachment we are beginning to understand the historical antecedents of later attachment development and the effect of cultural variables. Attachment research has begun to gradually "grow out of infancy" (Ainsworth, personal communication, May 1, 1984) and to gain a broader perspective on ontogeny by studying development in different cultural contexts

(Rogoff, Gauvain, & Ellis, 1984). The present study is an attempt to follow these guidelines: as part of a longitudinal study, it assesses the stability of childen's attachment relationships. Secondly, it relates children's perceptions of themselves to earlier measures of attachment and interpersonal behaviors. Thirdly, findings are discussed within the context of cross-national comparisons.

In this section, the theory of attachment development during early childhood and related empirical findings will be summarized. Next, theories and studies pertaining to the development of children's self-concept in relation to their relationships with their parents will be presented. Finally, the place of cross-cultural research will be discussed along with a comparative discussion of research strategies and a presentation of some cross-national studies on attachment.

The Ontogeny of Attachment

Attachment theory as conceptualized by Bowlby (1969/1982) is an attempt to integrate ethology, systems theory, neurophysiology, cognitive theory on information processing, learning theory, Piagetian thought, and psychoanalysis. As a theory of behavior it claims the status of a new paradigm (Ainsworth et al., 1978).

The methods used in empirical studies on attachment are distinctively different from methods in other developmental research: the direct observation of children's behavior in the situational context of their development was derived from ethology (Hinde, 1976; 1978). Following the dictum of attachment theory, attachment research studies cognitive and personality development within one framework. As Maccoby (1984) points out, this integrative study of developmental changes and individual differences departs from traditional developmental research which historically has treated personality and cognitive development as separate entities.

In his writings on the ontogeny of attachment behavior, Bowlby (1969/1982) distinguishes four phases of development: During Phase I (from birth to approximately two or three months) infants exhibit a variety of signaling behaviors which activate caregiving behaviors in adults and increase and maintain the caregiver's proximity to the infant. During this "preattachment" phase neither signaling nor orienting is directed at a specific adult figure. This stage is followed by Phase II when infants begin to direct these behaviors toward one or few discriminated figures, although attachment has not yet formed in an organized way.

After the middle of the first year Phase III begins. Along with the development of locomotion, the baby's attachment behaviors begin to become intentional, or

"goal-corrected". The baby now actively seeks and keeps proximity to the attachment figure. Thus attachment behaviors become gradually organized and depend not only on the baby's present situation but also on his or her past experiences with the attachment figure.

Also, in Phase III, after achieving the capacity of internal representation of objects and persons, the child forms "internal working models" of the attachment figure, the world around him, and his own self. He or she has achieved the ability to know of the attachment figure's existence even when not present to perception. "Attachment as a relationship with a discriminated figure" (Bretherton, 1985, p.6) has formed. The quality of attachment and the child's internal working models are based on the quality of care-giving, maternal responsiveness and sensitivity in particular (Ainsworth et al., 1978). As a result, the child's past experiences form the basis of his or her attachment which describes not only a particular relationship but also the infant's subjective internal experience (Stern, 1985) and appraisal of him- or herself.

Around the child's third birthday, a new phase of development - Phase IV - begins which Bowlby (1969/1982) termed "goal-corrected partnership". The child is now not only able to communicate his intentions and plans to the mother but also shows the capacity to take the mother's perspective. Therefore, mother and child can negotiate

differences, discuss plans, and mutually negotiate their relationship. This type of partnership is said to "characterize all future attachment relationships" (Ainsworth, 1985. p. 2). Marvin (1977) argues that the mother's accessibility and responsiveness continue to be important during this phase but equally important are listening, mutual understanding, and ability to take the other's perspective.

Although attachment relationships are presumed to become increasingly stable and resistant to change, Bowlby suggests that they continue to develop along his model of "pathways of growth of personality" (Bowlby, 1973). He suggests that a child's personality is a structure which continuously develops along a certain pathway of development. This pathway may only alter its direction when the child experiences significant events such as prolonged separation from his mother or a major illness. Personality structure becomes increasingly complex through interaction between genetic endowment and the environment. Using Waddington's (1957) theory of epigenesis as a model, Bowlby sees species survival as assured by increasing resistance against environmental influences. Whereas infants adapt easily to a environmental conditions and caregivers, later development is characterized by increasing "homeorhetic resistance" against change. Consequently, attachment relationships during an individual's later years are

predicted to be increasingly stable. Similar conclusions are drawn about a person's internal representation of the attachment figure and the self.

Empirical Findings.

Ainsworth's findings from her Baltimore study, data from the Minnesota longitudinal study, studies with high-risk infants, Marvin's cross-sectional study of attachment behavior in different age groups, and data from the Berkeley Social Development Project support Bowlby's theoretical assumptions. In the Baltimore study, Ainsworth and her colleagues observed 23 mother-child dyads in four-hour visits occurring at three-week intervals during their first year. At one year, the children were observed in the Strange Situation, a structured laboratory setting designed to activate the attachment system with increasing intensity. Confirming Bowlby's assumptions, Ainsworth found that the quality of the infants' attachment to their mothers related significantly to the pattern of mother-infant interaction. The mothers' responsiveness to the infants' signals during feeding situations and to their crying, their sensitivity to the babies' signals, and the mothers' attitude towards close bodily contact all contributed to the pattern of interaction (Ainsworth et al., 1978). Thus, Ainsworth's empirical findings suggest

that the quality of the attachment relationship is the result of the mother-child interaction during the first year.

Studies of high-risk and abused infants (Crittenden, 1981, 1985; Egeland & Farber, 1984; George & Main, 1979; Vaughn, Egeland, Sroufe, & Waters, 1979) give further evidence of the importance of the parent-child interaction during the first year. George and Main compared 10 abused toddlers with 10 closely matched toddlers from families experiencing stress but not abuse. The abused toddlers differed significantly in their interactions with peers and day care givers: assault of peers, harrassment, and threats to caregivers, avoidance or ambivalence in response to approaches were more frequent in the abused children than in the nonabused group. Bowlby (1982) interprets these findings as supportive of his notion that the "current pattern of interaction is a result of historical transactional processes" (p. 367).

The Minnesota group (Arend et al., 1979; Erickson et al., 1985; Matas et al., 1978; Sroufe, 1982; Waters, 1978; Waters et al., 1979) found attachment patterns as assessed in Ainsworth's Strange Situation to be highly stable from 12 to 18 months (Waters, 1978). In their follow-up of 45 children at 24 months, they found that infants classified as securely attached showed more competent patterns of autonomous functioning. More specifically, when faced with

problem-solving situations, securely attached infants showed more enthusiasm, positive affect, persistence, and effectiveness in using maternal assistance. In contrast, infants who were classified as insecurely attached made less flexible use of the mother when their own goal-attainment capacities were exhausted (Matas et al., 1978). Arend at al. (1979) and Waters et al. (1979) followed the same sample during their preschool years. Utilizing teacher and observer Q-sorts and comprehensive assessment batteries devised by Block and Block (1980), they found that children's attachment during their second year predicted broad measures of functioning in preschool and kindergarten. Securely attached children were found to be more socially competent and ego-resilient, i.e. more flexible, self-reliant, curious, and involved. It is important to note that these measures were collected independent of the mothers' presence. Therefore, it appears that, in Bowlby's framework, attachment at the age of five has become a behavioral organization within the child.

Marvin and his colleagues (Marvin, 1977; Marvin, Greenberg, & Mossler, 1976; Marvin & VanDevender, 1978) have carried out cross-sectional studies on two-, three-, and four-year-old children to follow attachment relationships into children's preschool years. Stressing the importance of the child's cognitive developmental level, they see the capacity for simple perspective-taking

as crucial for changes in children's behavior during brief separations. Two-year-olds' behaviors in these studies resemble those of the one-year-olds, although proximity-seeking at reunion and separation distress decrease. Three- and four-year-old children, on the other hand, can only be classified according to their interaction with their mother upon reunion. Protest over separation has vanished in all but a small group of children who do not appear to mind the separation as much as the mother's refusal to give into the child's wish for her to stay. As a result of Marvin's studies, attachment researchers have come to view the mother's ability to listen, understand, and negotiate plans as a sign of secure attachment during preschool years. However, given the cross-sectional design of Marvin's studies, little can be said about the stability or change of individual patterns over time. So far, only the Berkeley longitudinal study under direction of Mary Main has provided these much needed data.

The Berkeley Social Development Project has followed 40 children from their first into their sixth year of age. Attachment relationships with both parents were studied at one year in Ainsworth's Strange Situation and found to be independent (Main and Weston, 1981). At six years, children's attachment was assessed through observation of their behavior during a three-minute reunion following a one- to two-hour separation from the parent. The child's

working model of the relationship was assessed through watching the child's response to a family photograph. In addition, the child's responses to questions about hypothetical separations were coded, an adaptation of Bowlby's version of the Hansburg Separation Anxiety Test (Klagsbrun & Bowlby, 1976). The parents' own working model of attachment was indexed through a security score based on a two-hour "adult attachment interview" (George, Kaplan, & Main, 1984). Preliminary findings show significant stability over time of the child's security of attachment with the mother (r=.76), and a weaker but still significant stability in the father-child attachment relationship (r=.30). The hit rate beween child-mother attachment classification in infancy and at six years was approximately 84% (Main & Cassidy, in press). Furthermore, security of attachment at age one was found to be related to the six-year-old's emotional openness, current overall functioning, the child's response to a family photograph, and the security of the parent's working model of attachment (Main, Kaplan, & Cassidy, 1985).

Recently, Main has paid particular attention to a group of children who were originally termed "unclassifiable" within the original Ainsworth Strange Situation classification system (Main & Weston, 1981). She now describes these children as "insecure-disorganized/disoriented" in their attachment

relationship with their parent. This group of infants was found to show a "controlling" pattern of behaviors at age six. Disorganized/disoriented behavior during infancy Strange Situations corresponded to controlling-caregiving or controlling-punitive behavior in six-year-olds when a certain role reversal was characteristic of the parent-child relationship. Disorganized/disoriented behavior in infants (Main & Hesse, in press; Main & Solomon, in press) was found to be significantly related to the parent's traumatic experiences, loss of a family member during childhood and lack of resolution of mourning in particular.

Based on these Berkeley findings, Main suggests that by the age of six, children have developed stable representational models of their parents. These are related to the quality of the child's attachment to the parent and to the parent's own representational model of attachment. Infants classified as securely attached to their mothers are judged more secure at age six than infants who were insecurely attached.

In summary, empirical findings obtained from five groups of studies on the development of attachment systems yield a consistent picture: the history of the caregiver's response to the infant's behavioral cues results in individual differences in the child's attachment to the parent. The resulting influences on child-parent

relationships can be reliably observed during the child's second year. During the preschool years, the attachment relationship is transformed into a more balanced partnership in which the immediate physical presence of the parent is of less importance. Inextricably intertwined with the development of attachment, the child gradually forms an "internal working model" of the attachment figure which can be assessed independently of the parent's presence. A "move to the level of representation" (Main et al., 1985) has occurred: the quality of the child's attachment to the parent has become characteristic of the child's overall functioning in relation to others.

Although Bowlby (1969/1982) stresses that attachment and self develop together, attachment researchers have picked up this notion only recently through their current focus on representational models. Psychoanalytically oriented writers, on the other hand, (e.g. Bollas, 1982; Mahler, Pine, & Berman, 1975; Rubin, 1982; Solnit, 1982; Winnicott, 1949, 1956) have speculated about how the system of parental care affects the child's later development. They assume that parental care forms the basis of how children feel about themselves.

The Development of the Child's Sense of Self - The Psychoanalytic Perspective

Psychoanalytic theory traces current functioning back to early childhood experiences. More specifically, a child's present sense of self is seen as originating from his or her early relationship with the primary object, usually the mother (Solnit, 1982). In taking a developmental perspective, it is assumed that the child's sense of self evolves during the first years of life in a sequence of stages.

Antithetical to attachment theory, psychoanalytic writers describe the infant as a helpless, basically undifferentiated organism whose attachment behaviors are motivated by the need for food. There is little differentiation between the infant's internal instinctual processes and the mother's environmental handling of the baby's external needs (Bollas, 1982). Mother and child are in a period of fusion or symbiosis (Mahler et al., 1975).

By the end of the first year, the child is normally exposed to brief daily separation experiences and consequently begins a process of gradual intrapsychic structuralization. By differentiating from the mother-object through a "psychological hatching" (Mahler et al., 1975) the child begins to exist as a separate psychological entity distinct from the mother. "When the

child has successfully negotiated the stage of separation-individuation, he or she will have achieved a permanent distinctiveness that the child will recognize as the self and the world will recognize as the separate other" (Rubin, 1982, p.61). Thus the child's sense of self recreates experiences he or she had with the mother, or in Bollas' (1982) words:

> Each individual transfers elements of that maternal care system that handled them as an object when in infancy and childhood by relocating this parental care system into the person's very own way of managing themselves as an object.(p.358)

Thus, akin to Bowlby's theory, Bollas suggests the baby does not internalize an object itself, but a process derived from an object, namely the mother's process of infant care.

During the third through the fifth year, children solidify their sense of self due to their increased capacity for object constancy and consequently self-constancy (Solnit, 1982). As children are confident in the mothers' availability, they become confident in how they define and see themselves. Solnit (1982) sees object constancy as a "necessary source of self-esteem when there are frustrations or failures to cope with cognitive or social challenges" (p.213).

Thus psychoanalytic theory assumes a causal relationship between the quality of maternal care and how

children feel about themselves (Bollas, 1982). What Bowlby (1969/1982) describes as "the attachment behavioral system within the child" therefore is translated into the child's self-concept. However, psychoanalysts have traditionally shied away from empirical research. Consequently, little is known about which quality of maternal care leads to what type of self-concept. Similarly, neither attachment research nor psychoanalysis have yet provided sufficient empirical data about how and when children develop a sense of self and its developmental progression.

A look at cognitive research may provide some insight on how children's self-concept emerges and transforms itself over time.

Cognitive Findings on the Development of Children's Understanding of Themselves

Cognitive researchers assert that children's self-concepts develop parallel to their thought processes. Consequently, it has been argued that children's capacity for object permanence and reflexivity (Piaget, 1954) is the most important milestone in their development of a sense of themselves (Maccoby, 1980). Empirical studies on the ontogeny of children's self-concepts have looked at when children begin to recognize themselves in a mirror, whether

they invert personal pronouns, whether they think others can see inside them, and whether they perceive themselves as separate and different from others.

The following developmental progression was found: Children as young as 18 months are able to recognize themselves consistently in a mirror (Bertenthal & Fischer, 1978; Lewis & Brooks, 1974). By the time they develop conversational speech, they not only correctly distinguish themselves from others, but are also able to take the perspective of others when talking about themselves. Consequently, most children do not reverse the pronouns "I" and "you" when they first begin to use them (Clark, 1976; Epstein, 1973).

Around two and a half years, children begin to think they have an own inner self which is different from their outer physical self. They believe they can hide this self by closing their eyes while the outer self is still apparent to the observer. Children five and older integrate the inner and outer self into a global concept (Flavell, Shipstead, & Croft, 1980). According to retrospective studies, this global self develops through the insistence of others that the child is special and different, and through significant experiences of feeling alone and separate from others (Bannister & Agnew, 1976). Early definitions of children's selves focus on their appearance and preferred activities, while a more abstract concept of

self emerges during the early elementary school years (Maccoby, 1980).

So far three major developmental theories were reviewed with each of them contributing to our understanding of affective development, but also leaving some major questions unanswered:

1. Attachment theory provides extensive data on the development of children's attachment behavior during infancy. However, much less empirical data exists on what attachment relationships "look like" in middle childhood and how the child's internal working model can be operationalized and measured.

2. Psychoanalytic theory gives a framework for understanding how children individuate from their objects and how the maternal care system becomes part of the child's feelings about him- or herself. However, empirical data on what kind of maternal care leads to what kind of self-concept do not exist.

3. Cognitive studies point to the role of maturational processes in children's thinking about themselves, but they omit the role of children's relationships with their parents in terms of how they think and evaluate themselves.

To answer these questions, longitudinal integrative studies on children's affective and cognitive development

are needed (Bowlby, 1969/1982; Maccoby, 1984). Unfortunately, longitudinal studies are exceptionally rare because of the multitude of practical and methodological problems involved (Wohlwill, 1973). Integrative research has struggled with the measurement problems involved in studying affective development (Wylie, 1974). Consequently, only a few dissertations (Cassidy, 1985; Druks 1982/1983; Wein, 1983) have researched the development of children's attachment to their parents and their sense of self.

Druks (1982/1983) studied the development of infants' notion of self in relation to the attachment to their mothers and object permanence. Her assessment of 69 infants aged 5 to 24 months included a number of self-recognition tasks, Piagetian tests and Ainsworth's Strange Situation. Her results show that children's notion of self becomes consolidated by the end of the second year and is related to their attachment behavior at one year. As attachment behaviors develop into more distant interactions between mother and child, they become associated with the self-differentiation aspect of the self. Her findings are consistent with the findings reported earlier from cognitive research, Mahler's separation-individuation theory (Mahler et al., 1975), and attachment theory (e.g. Bowlby, 1969/1982).

Wein (1983) hypothesized a relationship between children's object-relations and their cognitive development

(object permanence, capacity for symbolic representation, establishment of gender constancy). In her study of 30 children aged 3.7 to 8.11 years she used Piagetian tasks and various self-measures, such as human figure drawings and verbal exploration. Her results show that cognitive maturity is a good, but not perfect predictor of identity awareness. The stability or instability of children's emotional ties to their parents appear to account for the variance in children's self-concept.

Cassidy (1985) conducted a cross-sectional study on the relationship between 50 white, middle-class children's attachment to their mothers and their self-esteem at age six. She assessed attachment through the behavior of the children toward the mother in the reunion following a one-hour separation. The measures, derived from Main's Berkeley study (Cassidy and Main, 1984; Main et al., 1985) assessed the quality of children's attachment to the mother. Self-esteem was assessed through a variety of structured puppet interviews with the children. They were asked how they felt about themselves, what they thought they were good at and how important those things were to them. Harter's Perceived Competence Scale (Harter & Pike, 1984) was used as a standardized measure to assess how competent children felt they were in cognitive, physical, and social domains and how accepted they felt by their mother. Incomplete stories with dolls were designed to tap

into how the child perceives his own competence, capacities and resources during stressful, adverse and/or confrontative situations. Cassidy found that children securely attached to their mothers showed positive self-esteem, but also tended to have a realistic awareness of the extent of their abilities and competence. Insecure-avoidant children, while also scoring highly on self-report measures, were found to be defensive about themselves and consequently described themselves as perfect. Insecure-ambivalent children received low scores on the self-esteem measures.

The three studies cited constitute an attempt to support attachment theory with empirical data and to relate it to children's cognitive development. Because these studies use relatively homogeneous white middle-class samples, they are unable to assess the effects of the larger cultural context on children's self-concept. Cross-cultural studies which are able to compare how children develop in different environments are needed to sort out environmental effects on children's development. The following section will briefly discuss the place of cross-cultural research in the study of child development and some commonly used research strategies.

The Place of Cross-Cultural Research in the Study of Child Development

Cross-cultural research dates back to Wilhelm Wundt's publication of the ten volumes of his "Völkerpsychologie" (Wundt, 1900-1909). Its beginnings were rather naive interpretations of primitive rituals, myths, and taboos from a psychoanalytic armchair perspective (e.g. Freud, 1939; Jung, 1959) or a simple translation and application of instruments developed in one culture to a different culture (e.g. Lewis Terman's 1916 translation of the Stanford Binet intelligence test). However, along with the increasing sophistication of psychological research in general, cross-cultural research became more refined and specific guidelines and research strategies were developed.

Modern cross-cultural research entails the explicit or implicit comparison of two or more cultures (Sundberg & Gonzalez, 1981). It is

> the empirical study of members of various culture groups who have had different experiences that lead to predictable and significant differences in behavior. In the majority of such studies, the groups under study speak different languages and are governed by different political units (Brislin, Conner, & Thorndike, p.5).

Cross-cultural research has received much attention

from the recent movement toward increasing sensitivity to the larger cultural context of human behavior (e.g. Bronfenbrenner, 1979). Specifically, studies of child development have adopted a more functional approach by emphasizing the examination of children's adaptation to their cultural contexts. Within a functional framework, child development is conceptualized as the "children's adapting to and adopting of the tools and skills of their culture, aided by other people" (Sundberg & Gonzalez, 1981, p.558). This perspective is consistent with Bowlby's theory of behavioral systems which sees children's behavior as increasingly corrected by environmental feedback (Bowlby, 1969/1982). The resulting adaptive behavior - within Bowlby's theory of instinctive behavior - serves the biological function of increasing the survival chance of the offspring and thus enhances the chances of the individual's genes continuing to be represented in the species' gene pool.

Berry (1980) provides three arguments for the place of cross-cultural research in the study of human behavior. First, a better understanding of the systematic covariation between cultural and behavioral variables is needed. The study of different cultures provides the setting of a "natural" experiment to examine the interactive effects of environment and behavior. Secondly, cross-cultural research provides data about the variability of human behavior. The

systematic collection of data in various settings employing comparable methods gives an understanding not only of the range of differences in behaviors, but also of uniformities and consistencies across different environments. Thirdly, following the development of a theory, cross-cultural research provides the setting to test propositions, laws, and assumptions about human nature under various conditions. This comparative study is akin to comparative psychology which tests assumptions about instinctive behavior through the study of different subhuman species (Hinde, 1983).

Therefore, the study of behavior in different cultural groups aids the understanding of the process of human adaptation. As such it can both test existing theories and clarify assumptions about human nature which tend to go unnoticed by researchers who share the cultural background of the people they study (Rogoff et al., 1984). For example, Freud's notion about the universality of the oedipal complex was questioned by the results of Malinovski's investigation of the Trobriand Islanders (Malinovski, 1927). Because fathers in the Tobriand society delegate the role of the disciplinarian to the children's maternal uncle, they are not the target of the sons' rage and anger noted in Western societies. Thus Malinovski's findings did not only question the universality of the oedipal complex theory, but also challenged the basic

assumptions of the theory itself. In citing findings such as this one, Berry (1969, 1980) sees cross-cultural research as the only way to "decenter" psychology - to move away from its American, white, middle-class ethnocentricity. Consequently, it is assumed that "psychological data improve as a function of cross-cultural input" (Sundberg & Gonzalez, 1981, p.466).

Research strategies in cross-cultural studies are generally distinguished according to whether the researcher assesses a culture from the inside or the outside, and whether a pancultural or culture specific perspective is adopted. Berry (1969) has suggested the terms "emic" (from phonemic) and "etic" (from phonetic) to differentiate the two perspectives. An emic researcher studies a culture from within: values and patterns of behavior are studied for their meaning in a given culture. An etic researcher looks for generalities and differences across cultures. Research methods developed in one culture are adapted and applied to different cultural groups. A variation in results is then attributed to differences between the different cultures under study. Modern cross-cultural research attempts to combine the two strategies. "It should be very clear that the very name 'cross-cultural' implies at least two points of view: Being 'cultural' requires a point of view similar to that of the emic, and 'cross' requires a perspective akin to the etic" (Berry, 1980, p.13).

Such cross-cultural research within the framework of attachment theory is now conducted in Japan, Israel, Sweden, and Germany.

Cross-Cultural Studies on Attachment

The growing popularity of attachment research is reflected in the application of Ainsworth's Strange Situation procedure in various cultures. Although this method of observation was found to produce patterns of attachment behaviors comparable to Ainsworth's original categories (Ainsworth et al, 1978), frequencies of specific categories vary widely (for a comparison see Appendix A). While some have argued that these findings question the validity of the Ainsworth procedure per se (Sagi & Koren, 1985), Ainsworth herself has always cautioned against the use of the Strange Situation as a single "test" for attachment. Furthermore, Ainsworth clearly states that the Strange Situation paradigm should not be used in cultures in which the events it represents are not part of infants' everyday experiences (Ainsworth et al., 1978). Both these warnings were ignored in the Swedish (Lamb et al., 1982), Japanese (Miyake et al., 1985), and Israeli (Sagi et al., 1985) studies. Furthermore, with the exception of the Japanese study - which suffered from a 35 percent attrition rate over its first year - these studies have remained

cross-sectional. Besides, no validation of the usefulness of the Strange Situation procedure through home observation occurred.

Two longitudinal studies under the direction of Klaus and Karin Grossmann in West Germany attempt to avoid these serious methodological and conceptual mistakes. As a close replication of Ainsworth's Baltimore study (Ainsworth et al., 1978) and further American follow-ups (e.g. Main & Weston, 1981), these studies were designed to match the original American research. The Bielefeld Longitudinal study (e.g. Grossmann & Grossmann, 1983) is now in its tenth, the Regensburg study (e.g. Escher-Gräub & Grossmann, 1983) in its seventh year. In Bielefeld, some 50 children have been studied since their birth, and a large body of data exists on their neonatal behaviors, mother-child interactions at home during their first year, behaviors in Ainsworth's Strange Situation with their mothers at 12 months and their fathers at 18 months, parent-child interaction at two years, and parent-child interactions at six years. Although original measures developed by Ainsworth were found to be applicable and reliable, Bielefeld infants were classified significantly more frequently as "insecure-avoidant" in their attachment relationships with their parent than infants in any other attachment study to date (see Appendix A). This overrepresentation of the avoidant classification group is

now interpreted as reflecting culturally valued early independence rather than maternal rejection (Grossmann, Grossmann, Sprangler, Suess, & Unzner, 1985). Bielefeld six-year data are presently analyzed, including the categorization of the mother's working model of attachment as assessed in Main's Adult Attachment Interview (George et al, 1984). So far an 80-percent congruence rate between the child's infant attachment and the mother's repesentational model has been found (Main, personal communication, March 28, 1986).

The second study, carried out in Regensburg (a small university town in South Germany) was originally conceived as a cross-sectional study to replicate the Strange Situation with a different German sample. Fifty-three children were observed in the Ainsworth procedure, in their free play under several minor restrictions, and in their reactions to an unfamiliar adult playmate (Main's Clown Situation, described in Main & Weston, 1981) at age 12 and 18 months. The mothers participated in the Adult Attachment Interview (George et al., 1984; Main et al., 1985) when the children were four years old. The children were again observed in interaction with peers during their preschool years at age five, following methods sugested by Arend et al. (1979; see Appendix B for the overall structure of te Regensburg study).

So far, results of the Regensburg study look very

similar American research, the Berkeley study in particular. Frequencies of the different classification groups of Ainsworth's Strange Situation at 18 months almost identically replicate the Berkeley findings (see Appendix A; Escher-Gräub & Grossmann, 1983). Similarly, infant-mother and infant-father attachment were independent which is comparable to Main and Weston's (1981) findings. Children classified as securely attached showed greater relatedness to an adult playmate than children who were insecurely attached. In addition, a comparable percentage of children showed significantly disorganized, undirected and disoriented behaviors in a mildly stressful free-play situation, suggesting the presence of a disorganization of attachment pattern which previously had been termed "unclassifiable" (Main, 1986; Main & Solomon, in press).

The present study constitutes a six year follow-up of the Regensburg sample. As such it is an attempt to improve the understanding of attachment development through the comparison of white, middle-class American children with children raised in a small town in the south east of West Germany. In this cross-cultural study, methods developed in the United States are adapted to the background of German children. Therefore the study provides the framework for exploring the variability of patterns of attachment and the development of the child's self-concept. Within this

framework, Bowlby's (1969/1982) notion about attachment as a universal instinctive behavioral concept can be tested. The study follows and extends the tradition of Ainsworth's early cross-cultural attachment research (Ainsworth, 1969, 1963) which compared mother-child interaction among Ganda and North American infants, yet focused exclusively on the child's first year of life. Thus the present study aims at understanding both the individual variation of affective development and the influence of the larger cultural variables. As a psychologist trained in both America and Germany, the author is in the unique position to be sensitive to and interpret cultural differences as well as similarities.

Framework of the Study - Hypotheses

This study is a six-year follow-up of the Regensburg study on the development of social relationships (Escher-Gräub & Grossmann, 1983). It assesses children's current level of security and compares it with the quality of their attachment to the parent during infancy. Thus it provides some insight into the stability or instability of parent-child interactions and their changes over time.

Secondly, it is hypothesized that the quality of attachment during infancy and at age six affects how

children feel about themselves. By the time children are six years old, they have consolidated the early relationship with the attachment figure and their internal working model of the self and the atachment figure. The way they look at themselves in a variety of areas is expected to relate to the security they feel in their relationship with the principal attachment figure.

Thirdly, the comparison of results with the American studies, namely, Cassidy's dissertation (1985), provides some insight into the role of the larger cultural context. Bowlby (1969/1982) has argued that attachment is species-characteristic and as such should occur across a variety of cultures. Through the use of comparable methods, this study provides some of the much-needed data on how childen's attachment relationships develop in the two cultures under study.

In summary, this study looks at attachment to the parent in six-year-old children and compares them to their relationships with their parents in infancy. It explores how different qualities of attachment in infancy and at age six affect a child's feelings about him- or herself. Lastly, it is part of a continuing effort to understand similarities and differences of affective development in varying cultural contexts.

Chapter II

Method

Subjects

This study constitutes a six-year follow-up of the Regensburg longitudinal study directed by Klaus Grossmann at the University of Regensburg, West Germany (Escher-Gräub & Grossmann, 1983). Forty-seven (91%) families of the original sample could be contacted, and all agreed to participate. Due to two children's prolonged illnesses and one mother's scheduling conflicts, 44 (85% of the original sample) children were eventually observed. Thirty-nine children were seen with their mother only, three with their father only, and in two cases the children were observed with both parents. Three participating mothers were divorced or separated at the time of this follow-up. One child was found to be suffering from phenylketonuria and suspected to be mildly retarded. The following describes the demographic characteristics of the original Regensburg sample, as no such data were collected for the purpose of the present study.

The original sample consisted of 53 children who were all born and raised in the township of Regensburg, a small

university town. Participating children were selected according to their date of birth. As the study began with the observation of one-year-olds in Ainsworth's Strange Situation in May of 1980, all Regensburg children born between May 1, 1979 and July 25, 1979 were considered the sampling population. Out of these 168 children 52 were selected at random to participate in the study. Because more girls than boys had been born during this time period, the sample consisted of 31 girls and 21 boys.

Parents were invited to participate in the original study after several articles in the local paper had informed them about the study. The selected parents received two letters which explained the project in some detail and were then contacted by telephone and in person. Due to the researchers' persistence all but three parents contacted agreed to participate in the original part of the study. Their sociodemographic characteristics are summarized in Appendix C (Note: three families who participated in the study declined to fill out the sociodemographic questionnaire).

At the time of the original study, most mothers were between 28 and 30 years old; the age median was 28 years. The fathers were slightly older: most were between 30 and 40 years old, with a median of 31 years. Half the mothers (N=25) did not receive an education beyond "Volksschule" (equivalent to a highschool diploma), 17 attended a

vocational training school ("Realschule"). Only eight mothers qualified for college entry, one completed a university degree program. The fathers' educational level was markedly higher: 21 qualified for college entry and 13 received a university degree. As Escher-Gräub and Grossmann (1983) note, this exceeds the educational level of the German population, reflecting a typical trend for a small university town. However, the sample is considered representative of Regensburg's total population, as 38 of the 168 fathers in the sampling population had completed a degree program. Therefore, the sampling techniques did not bias the sample towards a higher educational level.

The present study was carried out under the direction of the author. Following her arrival in West Germany, she was responsible for conducting the study, including contacting the parents (see Appendix D), training all research assistants, and supervising a child-playmate. The observations were carried out during June and July of 1985 (within one month of each child's sixth birthday) at the Psychological Institute at the University of Regensburg. All sessions were videotaped and all self-concept measures transcribed by research assistants at the University of Regensburg. Data analysis and coding of the self-concept measures was carried out by the author at the University of Virginia and a German graduate research assistant (Georg Remmers). Neither coder had information other than the

children's code-names which differed across each measure. Children's behavior toward the parent during reunion episodes was coded by the author and an expert coder (Mary Main). Both coders were blind to the children's self-concept scores and their attachment classification in infancy. In two cases, the expert coder judged herself as not blind to the infancy data; these two reunion episodes were thus coded by a second expert coder (Mary Ainsworth).

For the purpose of the present study, only children's attachment classification at 12 or 18 months, and their rating for disorganized/disoriented behavior in Main's Clown Situation will be used for the longitudinal analysis. Other measures collected on the Regensburg sample to date are summarized in Appendix B.

Measures

To allow for comparison of results, procedure and measures are largely derived from Cassidy (1985) and Main et al. (1985). Main and her colleagues have developed a procedure and measures for the assessment of the quality of children's attachment at age six. These measures are presently in an experimental stage; further validation data are needed. Particularly longitudinal follow-ups of children who were observed in Ainsworth's Strange Situation

as infants with Main et al.'s measures for six-year-olds provide some testing of the usefulness of her methods. If her methods are judged to be reliable and valid for the assessment of the security of children's attachment, future researchers of children's affective development may be able to begin their studies during the children's preschool years rather than having to start with the observation of infants.

The following measures to assess the security of the children's attachment to the mother and the quality of their self-concept were used:

Security of Attachment. The security of the child's attachment to the mother is assessed with a nine-point scale devised by Main and Cassidy (in press). The child's behavior towards the mother during a five minute reunion episode following a one-hour separation serves as the basis for the coding system.

Children are rated as securely attached if their verbal and non-verbal behavior indicates a warm, affectionate relationship with the parent. As the parent enters the room following the separation, they initiate some contact, e.g. an invitation to play, a question about the parent's activities, some sharing of their play experience. Often they gravitate slowly toward the parent, eventually engaging in some form of physical contact.

Parent-child communication seems relaxed and mutually enjoyable.

Children are rated as insecurely attached if they exhibit any of the following behaviors: (a) affective or physical avoidance of the parent; (b) rejecting or punitive treatment; (c) nervousness or expressed feelings of inadequacy; (e) child overtly pretends to be happy and excited, but also appears tense and disorganized; (e) role-reversal: child assumes the parental role and exhibits caregiving behaviors.

For a complete description of the security scale (which presently remains under revision) see Main and Cassidy (in press).

Avoidance of the Mother. During the same reunion episode, the child's degree of avoidance of the mother was rated on a nine-point scale devised by Main and Cassidy (in press). The scale rates a specific type of insecure behavior and as such is not independent of the Security of Attachment scale. A high score on Avoidance will lead a child to be rated as insecurely attached, but a child rated as insecurely attached may express insecurity in any of the other four ways listed above and not receive a high score on Avoidance.

Avoidant behavior includes ignoring the parent as she

returns or moving away, overt preoccupation with toys or the adult playmate, and a deliberately minimal response to the parent's initiation of contact. Avoidant children appear emotionless or affectionless toward the parent and their interactions seem distant. They shift their attention away from the parent as soon as the parent reenters the room.

Inter-rater agreement data for the Security of Attachment and Avoidance scale are available from Cassidy's (1985) study. Correlation between two independent coders for the seven-point Avoidance scale was .92. For the nine-point Security of Attachment scale Cassidy reports a correlation of .80.

For a complete description of the Avoidance scale see Main and Cassidy (in press).

Quality of Attachment. Following the rating for security and avoidance each child was placed in one of five major categories: secure, insecure-avoidant, insecure-ambivalent, and insecure-controlling or insecure-unclassified. To allow for comparison with the original Ainsworth system, each child was also assigned a subcategory, e.g. "highly avoidant" (comparable to Ainsworth's category A1) versus "neutrally avoidant" (parallel to Ainsworth's A2 category). Subcategories included all of Ainsworth's eight original groups (A1, A2,

B1, B2, B3, B4, C1, C2) and several new categories derived from observations of six-year-olds' behavior in the Berkeley longitudinal study and Cassidy's sample. These new subcategories include "avoidant resembles controlling" (A(d)), "secure resembles controlling" (B(d)), and "ambivalent resembles controlling" (C(d)). Ainsworth's category "B4" was subdivided into three classifications, "secure-feisty', "secure-immature", and "secure-slightly disorganized".

Because infants now termed "disorganized/disoriented" had previously been forced into one of Ainsworth's secure, insecure-avoidant, or insecure-ambivalent category, each six-year old now classified as "insecure/controlling" or "insecure-other" was also assigned a "forced" subcategory of Ainsworth's original system to allow for computation of stability.

Inter-coder agreement (hit rate) for the classification system in Cassidy's (1985) study is reported as 76%.

The six-year attachment classification system is described in Main and Cassidy (in press).

Interview with a Puppet (Berta). In this measure the children are interviewed through a handpuppet. The technique was devised by Cassidy (1985) who adapted it from

play-therapy interventions. Through speaking with the puppet, the children report how they think others perceive them and think about them. As such the interview is used as a measure of a generalized self-image or self-concept.

The puppet is introduced to the child as an owl named "Berta" (Cassidy used a frog puppet named "Bix" and a duck puppet named "Quacks"). The playmate shows Berta to the child and tells the child that he or she can pretend to be Berta and that Berta can tell the playmate about the child. The playmate says (from Cassidy, 1985): "I want to play a game with you. This is Berta and I want to ask Berta some questions about you. I'll ask Berta questions, and you can answer. You can talk for Berta. For example: 'Tell me Berta, how old is ..... (insert name of child)?'". Then the playmate asks a few questions to ascertain that the child understands the game. The playmate's practice questions concern the child's sex, siblings, hair color, etc.. Then the playmate begins asking Berta questions and interacts directly with Berta. Sample questions include: "Berta, do you like to play with .....?", "Berta, is ..... ever a bad boy/girl?" or "Berta, do other people like .....?". For a complete list of questions see Appendix E.

The interview was coded for positive or negative self-concept on a five-point scale and one of three categories suggested by Cassidy (1985). Children revealing global negative responses ("Negative" category) and

children defensively insisting that they are perfect ("Perfect" category) received a score on the low end of the scale. Children talking about themselves in an overall accepting positive sense, but who also admit that there is room for improvement, received a high (positive) self-concept score ("Open" category). For scoring criteria for the puppet interview see Appendix F.

Harter Scale. Harter's Pictorial Scale for Perceived Competence and Social Acceptance in Young Children (1981; in press) was developed following an extensive critique of traditional self-concept measures. Items were selected to tap into relevant everyday experiences of young children. In the design of the scale, the children's developmental level was considered. The question format aims to offset the tendency to give socially desirable responses.

During the administration of each question of the Harter scale, the child is shown two pictures of a child doing something and asked two consecutive questions about the child in the picture. For example, the child is given two pictures of a child playing. One child is playing alone, the other child is playing with a group of friends. The playmate says: "Some kids like to play with friends, some like to play by themselves. Which kid is more like

you?". The child then points to the picture he or she feels more alike to. Next the playmate asks a follow-up question: "Is this really true for you, or is it sort of true?". The child's answers are coded on a four point scale. In this example, a child saying that she likes to play with friends and this is really true for her, would receive a score of four.

The preschool version of the Harter scale consists of four subscales: Perceived cognitive, social, and physical competence, and perceived maternal acceptance. Each subscale consists of six items, with each receiving a score between one and four. Thus subscale scores can range from 6 through 24. The total score gives an indication of how generally competent and socially accepted the child feels. In the present study, the scale was used as an objective, standardized measure of the child's sense of competence. The study therefore allows for a comparison between this self-report measure and clinical interviews with children.

The Harter scale was tested for its psychometric properties through evaluating approximately 4,000 children from four different states. Reliability, in the form of subscale internal consistency, was judged satisfactory with values in the high .70s and .80s (Harter, 1981). Factor analytic procedures were employed to judge whether the four subscales can be meaningfully interpreted. A two-factor solution was found. One factor is comprised of items from

the social and the maternal acceptance scale (social acceptance), the other from the cognitive and the physical competence scale (general competence).

See Appendix G for a sample scoring sheet.

Specific Domains Measure. This measure (devised by Cassidy, 1985) was given twice during the assessment period. First each child ranked the six domains according to their importance. Second, the child gave a ranking of his or her own abilities in these domains.

The assessment consists of two sets of drawings of performance areas. Boys are shown a set drawn with a boy, and girls are shown a set drawn with a girl. The drawings are identical in all other aspects. The pictures show children who are attractive, socially accepted by family and peers, good at sports, and successful in academics. During the first assessment the playmate introduces the child to the drawings, saying (from Cassidy, 1985): "I am going to show you some pictures of things kids can be good at. Some kids are good at school, some kids are good at sports and games, some kids are ..." and so forth until all pictures are described. Next she has the child name the pictures. Then she asks: "Now point to the picture that you think is most important to be good at". After the child points at the picture, the playmate turns the picture over

and puts it face down in her lap. Then she asks: "Of all the pictures left, what is the next most important thing for kids to be good at?". She puts the picture the child pointed at in her lap. This procedure is repeated until all six pictures are turned over. The playmate records the sequence of the child's responses.

The second part of the assessment is done with the same set of pictures. The playmate puts them out on the table in their original order and has the child name the six areas again to assure that the child remembers the content correctly. Then the playmate says: "Now I want to ask you a different question: Of all the things kids can be good at, show me the thing <u>you</u> are the very best at". After the child points, she takes the card and puts it in her lap face down. This process is repeated similarly to the process described above until all cards are turned over. The playmate records the sequence of responses.

The rank-orders of the child's responses are compared with each other: the first one ranks how important abilities are to the child, the second one how competent the child sees him- or herself in those areas. If the rank-orders are similar (high rank-order correlation), the child'sself-concept is considered positive. If the rank-orders are different (low rank-order correlation), the child's self-image is considered negative because he or she does not see him- or herself as competent in the areas that

are perceived as important.

As Cassidy (1985) points out, some specific domains are similar to Harter's areas of perceived competence (cognitive, social, physical). Correlations across the different measures are therefore expected.

The Self-Concept Interview. The self-concept interview (devised by Cassidy, 1985) is a direct inquiry about the children's perception of themselves and how they feel others perceive them. Areas include: (a) Do the children see themselves in a positive or negative light? (b) What do they want to be or what do they imagine their future to be like when they grow up? (c) Are they satisfied with themselves or do they want to make changes? (d) How do they believe others view them?

Cassidy's five-point coding system used to code the interview with the large puppet was adapted to code the self-concept interview. Scoring criteria were revised based on the children's responses to the questions. Children were aso placed in Open, Perfect, or Negative categories comparative to the groups used for the puppet interview.

See Appendix H for a complete list of interview questions.

Drawing Tasks. A free drawing, the Draw-A-Person (Machover, 1949), and the Kinetic Family Drawing (Burns & Kaufman, 1970) were administered as warm-up exercises at the beginning of the assessment period. The Draw-A-Person and the Kinetic Family Drawing were followed by a standardized inquiry about the drawings (see Appendix I for the list of inquiry questions). Sample questions include: "Is this person good or bad?", "Is this family enjoying their activity together?". Because the questions about the Draw-A-Person test tap into areas comparable to the content of the Interview with a Large Puppet and the Self-Concept Interview, Cassidy's coding system for those measures was adapted to code the child's self-concept as it is reflected in statements about the drawings.

Koppitz' (1966; 1968) system of emotional indicators (Appendix J) was used to assess the presence or absence of indications of emotional problems. Koppitz (1968) reports an inter-coder agreement of 95% between qualified examiners as an indication of the reliability of her scoring system for emotional indicators in human figure drawings. Koppitz reports a series of validation studies in which the presence of three or more emotional indicators was found to be a valid criterion to discriminate between children with emotional problems whose drawings had more than three emotional indicators, and well-adjusted children whose

drawings had less than three emotional indicators.

The children's drawings of their family and the free drawing are not included in the present data analysis.

Procedure

The procedure used in this study is derived largely from Cassidy's (1985) dissertation. Because the actual behavioral manifestation of attachment is highly sensitive to environmental stimuli such as where the child is observed, the duration of the separation from the mother, and how the child occupies him- or herself during the separation, it is crucial that these environmental stimuli are held constant in different studies. Otherwise differences in actual behaviors may be attributable to different environments rather than differences in the qualities of attachment. Therefore, this study used a procedure similar to the American studies for the observation and interviewing of the child in order to expose the child to comparable conditions. This permits the study of individual differences in the children's attachment relationships and self-concepts within the German sample as well as a comparison across the two different cultures.

The procedure was as followed: Upon arrival at the

University of Regensburg, each child and mother were greeted by the adult playmate outside the Psychological Institute. They walked to the playroom and entered it together. The playroom was a large, bright room (4.3m x 5.8m), equipped with a variety of toys and a large two-way mirror through which the session was supervised. Videotaping occurred in the playroom with the camera and cameraperson concealed by a hand-puppet theater stage (see Appendix K for a diagram of the playroom).

Mother, child, and the adult playmate spent a five-minute warm-up period together to help the child get acquainted with the playmate and the unfamiliar environment (Episode I). The playmate told the child that they would do some drawings together, make up stories, and look at some pictures. She expressed her hope that she and the child would have fun with each other. She explained the one-way mirror to the child and told him or her that someone was videotaping them behind the curtain of the puppet theater. She promised the child that when they were through playing, they would get to watch themselves on TV for a little while.

Next the playmate showed the child large piece of paper. She gave the mother a packet of markers and asked her and the child to draw a picture together. It could be anything they wanted to draw. She explained that she would leave the room now for about ten minutes to look for the

mother interviewer. After 10 minutes the mother's interview partner would come in and ask the mother to come along for the parent interview. After these explanations the playmate left the room.

During Episode II, which lasted 10 minutes, mother and child drew a picture together. After 10 minutes, the mother's interviewer entered the room, introduced him- or herself and left the room with the mother for an hour-long interview. The child was then left alone for 2 minutes (Episode III).

Episode IV began as the playmate entered the room and started the assessment session. The playmate thanked the child for the picture he or she had drawn and asked several questions about it. She suggested that they do a few more drawings together. She administered the Draw-A-Person Test (Machover, 1949; Koppitz, 1968) and the Kinetic Family Drawing Test (Burns & Kaufman, 1970). Each drawing was followed by a series of structured questions (see Appendix I for the inquiry about the drawings).

Next the playmate told the child: "Now I want to show you a few pictures of things kids can be good at". She showed the child pictures of six specific domains of competence (having friends, succeeding at school, being happy, sports and games, being good with Mom, being attractive) and explained each one to the child. By going over the pictures twice and repeating the themes she

assured that the child understood the pictures correctly. Then she asked: "What do you think is the most important thing to be good at?" and had the child point to one of the pictures. She turned this picture over. Then she asked: "What of the things left is most important?" and the child pointed to a second picture and so forth until all pictures are turned over. She and the cameraperson noted the sequence before she moved on to the next assessment.

Then the playmate administered the Interview with Berta, a self-concept measure developed by Cassidy (1985). The playmate introduced the child to a soft owl hand-puppet named Berta. She handed Berta to the child and showed the child how Berta could talk for him or her. She told the child that she had a lot of questions for Berta and maybe she could help her out. From now on she addressed the puppet, not the child. She asked several brief questions to make sure the child correctly understood the instructions (e.g. "Berta, how old is .....?). Then she administered the Interview with Berta (Appendix E).

Following the interview with Berta, the playmate told the child: "I am now going to show you pictures of boys/girls doing different things. I want to know which boy/girl is more like you". She administered the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter, in press; see Appendix G for a sample scoring sheet).

After the Harter Scale the playmate showed the child the specific domains again and went over their meanings. Then she asked the child: "Now I want to know what you think you are best at" and had the child point to a picture. They repeated the procedure until all cards were turned over. The playmate and the cameraperson recorded the sequence of the child's responses.

To end the assessment, the playmate suggested that they talk for a while. Playmate and child sat comfortably on a bean-bag chair, and she asked the child a series of questions about what he or she thought about him- or herself (see Appendix H for a complete list of questions of the self-concept interview developed by Cassidy, 1985). After the self-concept interview she thanked the child for being so helpful and suggested that they would play with the toys for a short while until Mom got back. They engaged in free play for approximately five minutes while the supervisor went to get the mother. The entire assessment sequence lasted approximately one hour and twenty minutes.

In Episode V the mother returned to the room without any specific instructions about how to react towards the child. The playmate remained in the room, but stayed in the background to allow mother and child to structure the reunion. After five minutes a second playmate entered the room who would spend the next two hours with the child administering a variety of tasks part of a separate study

(Schwabe-Höllein & Scheuerer, in preparation). Mother, child, and both playmates watched a short sequence of the child's play on the monitor. Then the child's first playmate thanked mother and child for their cooperation and told them that they and the second playmate would now take a break together during which the second playmate would treat them to some icecream. This marked the end of the procedure of this study (summarized in Appendix L).

Reliability

To assess the reliability of the attachment and self-concept measures, the data were coded by the principal investigator, a research assistant, and two expert coders. Specifically, Security of Attachment, Avoidance, and attachment classification were coded through the analysis of all reunion episodes by the principal investigator; half of all reunions were selected randomly and also coded by the two expert coders. Inter-coder agreement as indicated in percentages (hit rate) was 91% for the four major classifications and 61% for the 13 subcategories. Product-moment correlations were computed between the two coders to estimate reliability. Reliability for the nine-point Security scale was .71 with 61% agreement within one point. For the seven-point Avoidance scale, reliability

was .78 with 91% agreement within one point. These reliabilities and inter-coder agreements are within the same range as reported by Main et al. (1985) and Cassidy (1985).

The self-concept measures for which five-point scales and categories were available (Interview with Berta, Self-Concept Interview, Inquiry about Draw-A-Person) were coded from transcripts of the videotapes. Again, the principal investigator coded all interviews, and the research assistant coded half the interviews which were randomly selected. The remaining interviews were used for training purposes to introduce the research assistant to the coding system. The transcripts were assigned different code numbers to assure blind analysis. Reliability data for the self-concept measures is summarized in Table 1. Intercoder agreement is indicated in percentages, reliability in correlation coefficients.

The Harter Scale and the child's rank-ordering of specific domains of competence were coded by the cameraperson and the child's playmate as the instruments were administered. These codes were in complete agreement.

All Draw-A-Person pictures were scored for Koppitz' Emotional Indicators by the principal investigator. Half of the drawings (again randomly selected) were scored by the research assistant, and the other half was used for training purposes. Intercoder-agreement was 91%;

reliability between the the scores, .89.

In summary, intercoder agreement ranged from 61% (assignment to subcategories of the attachment classification system) to 91% (attachment classification in major categories). Correlations ranged from .71 (attachment Security scale) to .96 (Interview with Berta). Given the experimental nature of these measures, the reported reliabilities are judged to be within acceptable limits.

Hypotheses and Data Analysis

This study follows the development of children's attachments with their mothers into their sixth year. Additionally, based on attachment theory and psychoanalytic thinking, a relationship between the quality of the children's attachment relationship and the quality of their self-concept is predicted. Specifically, the following hypotheses are tested:

1. Children's attachment relationships are stable over the five-year period studied. Children classified as securely attached to the mother at 12 or 18 months (Category B) will tend to score on the secure end of the Security of Attachment scale at age six. Children classified as insecurely attached (Category A and Category

C) or marked as "disorganized/disoriented" at 12 or 18 months will tend to score at the insecure end of the scale at age six. Stability will be indexed with a biserial correlation coefficient.

2. Children's avoidance behavior in reunion episodes after brief separations is stable over the five year period studied. Children receiving high scores on the Avoidance Scale at 12 or 18 months will tend to receive high scores on the Avoidance Scale at six years. Stability will be indexed with a product-moment correlation coefficient.

3. Children will be placed in categories of attachment comparable to those in which they were placed in infancy. Stability will be indexed with percentage agreement (hit rate) and a contingency coefficient.

4. Children's perception of themselves is predicted to be consistent across the various instruments used. Children's responses to the Draw-A-Person, the two self-concept interviews, the Harter Scale, and the specific domains rank-odering will tend to be consistent. A Principal Component Analysis will be performed to obtain one composite self-concept score (first principal component unrotated). The purpose of this analysis is to derive a more reliable and powerful score of the children's

self-concept based on the five self-concept measures rather than to rely on one or more single measures.

5. The quality of attachment at 12 or 18 months is predicted to relate to the quality of the child's self-concept. Children classified as securely attached as infants (Category B) will tend to receive higher scores on the later self-concept measures than children classified as insecurely attached (Categories A and C). A discriminant analysis will be conducted to determine the extent to which group membership can be predicted on the basis of a linear combination of the self-concept measures. This will also indicate which self-concept measures discriminate between the different attachment classifications. Next, a series of one-way Analyses of Variance (ANOVA) will be computed to test the difference of the scores of the attachment groups on each of the six self-concept measures. The following results are predicted:

(a) Children classified as securely attached will differ from children classified as insecurely attached on the Interview with a Puppet Scale, the Draw-A-Person Interview, and the Self-Concept Interview score; (b) Children classified as securely attached will differ from children classified as insecurely attached on the Harter scale. Differences will also appear on the Maternal Acceptance subscale; (c) Children classified as securely

attached will differ from children classified as insecurely attached in the correlation of their rank orderings of specific domains of competence; (d) Children classified as securely attached at age six will tend to receive fewer scores on the Koppitz system of Emotional Indicators. Their insecure counterparts will receive more scores which are interpreted as indicating emotional problems in Koppitz' system (Koppitz, 1968).

6. While Hypothesis Five tested the relationship between infant attachment and later self-concept, Hypothesis Six will test the concurrent relationship between children's self-concept and children's quality of attachment at age six.

Finally, it is predicted that the percentages of children rated as securely attached at six years will be similar in the German, Cassidy's (1985), and Main et al.'s (1985) samples. As this assumption cannot be tested formally, the data will examined in qualitative comparison. Similarly, each of the results of self-concept measures will be compared with Cassidy's (1985) results. This comparative discussion will indicate differences as well as similarities in the findings of the studies conducted in the two different cultures.

Chapter III

Results

This chapter is organized as follows: It begins with findings related to the stability of attachment from infancy to age six, followed by findings related to each self-concept measure. Next, findings about the relationship between infancy attachment and the children's self-concept at age six will be reported, followed by a report on the relationship between attachment at age six and the self-concept. Statistical tests are one-tailed unless otherwise noted. Given the small number of subjects and the largely descriptive nature of the data, the significance level is set at .10 rather than the conventional .05 level. Main et al.'s (1985) and Cassidy's (1985) results will be given along with this study's findings whenever appropriate. The comparison with Cassidy's results will be made with her Session I results, as this is believed to be most comparable to the procedure used in the present study.

Stability of Attachment.

Quality of attachment had originally been assessed through assignment of infants into one of three of Ainsworth's major classification categories (secure,

insecure-avoidant, and insecure-ambivalent). A particular problem arose when a new "disorganized/disoriented" group of infants was proposed which had not been part of the original Ainsworth coding system. Fortunately, all Regensburg infants had been observed in the Clown Situation and had been given a "disorganization/disorientation" rating on a nine-point scale devised by Main (see Appendix M for the description of this scale). This rating was used in the present study to determine whether an infant had possibly been disorganized/disoriented, even though she or he was placed in one of the other three categories. A rating of "3.5" or higher on this scale describes "inexplicable disorganized/disoriented" behavior and was therefore used as a "marker" for potential disorganized infants. (No Clown Session results were available for six infants; for the purpose of the present analysis these cases are counted as not marked for disorganization/disorientation).

The usefulness of this disorganization marker was tested through comparing infants rated as 3.5 or higher with infants rated lower than 3.5 on the disorganization/disorientation scale. A Chi-Square test yielded significant results contrasting infancy groups of disorganized versus not disorganized and controlling or unclassifiable six-year olds versus non-controlling six-year olds (χ^2=37.18, df=1, p<.01; C=.70; see Table 2).

Combining results from the Strange Situation assessment and the baby's behavior during the Clown Session 24 (52%) of the children had been classified as securely attached, 10 (22%) as insecure-avoidant, 1 (2%) as insecure-ambivalent, and 11 (24%) were marked as disorganized/disoriented.

At age six, each child was (a) rated for security of attachment on a nine-point Security scale (9=most secure), (b) classified in one of four major groups: secure, insecure-avoidant, insecure-ambivalent, and insecure-controlling or insecure-unclassifiable, as well as corresponding subgroups, and (c) rated for avoidant behavior on a seven-point Avoidance scale (7=most avoidant).

The mean rating on the Security scale was 4.57 (Cassidy: 4.09) with a standard deviation of 1.42 (Cassidy: 2.07). The mean rating of the Avoidance scale was 3.53 (Cassidy: 3.84) with a standard deviation of 1.39 (Cassidy 1.53). Twenty (45%; Cassidy: 38%) of all children were classified as securely attached, 11 (24%; Cassidy: 23%) as insecure-avoidant, 2 (4%; Cassidy: 12%) as insecure-ambivalent, and 13 (28%; Cassidy: 27%) as insecure-controlling or insecure-unclassified. Note that these figures include reunion classification with five fathers, with three mothers who are now divorced, and one mildly retarded child. For the computation of stability of

attachment these nine cases were dropped.

Stability from infancy to six years was assessed (a) through calculating a "hit rate" of main categories, followed by Chi-Square Test, and computation of a Contingency Coefficient (C); (b) through contrasting secure versus insecure infants on the six-year Security scale (t-Test) followed by a Biserial Correlation Coefficient; (c) through contrasting attachment classification groups in infancy on the six-year security scale (one-way ANOVA), and (d) through correlatiog Avoidance rating in infancy with Avoidance rating at age six.

Thirty-three (89%) of all children in this sample were classified in the same main attachment category as they had been in infancy (χ^2=111.44, df=9, p<.01, C=.87; see Table 3; Main et al.: 84%). Excluding the new disorganized/disoriented category and basing the hit-rate on "forced" categories, 32 (87%) of all children were found to be classified in the same attachment category. Hit-rate for subgroups was markedly lower (N=14, 38%; for an illustration see Table 4). Given the low reliability for subgroup classification, their low stability, and the small number of cases in each subgroup, these are presently regarded as descriptive and are not part of the formal data analysis.

Infants classified as securely attached received Security scores that were significantly higher at age six

than infants classified as insecurely attached (T=6.90, df=35, p<.01). Biserial correlation for secure versus insecure categories at infancy and the Security rating at age six was highly significant (r=.75, p<.01). Pointbiserial correlation of very secure versus secure versus all other insecure groups in infancy with Security rating at age six was .78 (Main et al.: .76).

Infancy categories secure, avoidant/ambivalent, and disorganized/unclassified were contrasted using a one-way ANOVA (only one child in infancy and at age six had been classified as ambivalent; therefore this category was pooled with the insecure-avoidant classification). A one-way ANOVA yielded significant differences for the mean rating on security at age six for these three groups (F(34,2)=23.31, p<.01). Children judged as securely attached were rated significantly higher (mean=5.7, s.d.=1.6) than children classified as avoidant or ambivalent (mean=3.19, s.d.=.88) and than children judged to be controlling or unclassifiable (mean=2.33, s.d.=.90).

Lastly, the rating for avoidant behavior in infancy was correlated with avoidance behavior at age six. Avoidance during Strange Situation episode 5 (first reunion) correlated significantly with Avoidance rating at age six (r=.35, p<.05). Similarly, avoidance during episode 8 (second reunion) correlated significantly with Avoidance at age six (r=.46, p<.01).

Thus stability was found across all attachment measures (classification, Security rating, and Avoidance rating) suggesting a high predictability of attachment classification at age six based on attachment classification during infancy. This finding supports Hypotheses One through Three.

Self-Concept Measures.

The Interviews. Transcripts of the Interview With a Puppet, the Self-Concept Interview, and the DAP Interview were examined in two ways: (a) they were rated on a five-point scale (1=lowest self-concept score), and (b) they were placed in one of three categories (Open, Perfect, or Negative). Results are reported for all 44 children, as no differences were found due to children being assessed with their mother or father, the parent's marital status, or the one child's possible handicap.

For the Puppet Interview, the mean rating on the five-point scale was 2.31 (s.d.=1.27). Eleven (25%) interviews were placed in the Open category, 22 (50%) in the Perfect category, and 11(25%) in the Negative category. The mean rating on the Self-Concept Interview was 2.86 (s.d.= 1.19). Here, 16 (37%) of the interviews were rated as Open, 10(23%) as Perfect, and 17(39%) as Negative. No Self-Concept Interview rating was available for one child.

The mean rating for the DAP Interview was 2.30 (s.d.=1.25). Ten (23%) of these interviews were judged as Open, 18(41%) as Perfect, and 16 (36%) as Negative.

Thus across these three measures, mean ratings were comparable while frequemcy of category placement differed (results are summarized and compared with Cassidy's in Table 5).

Specific Domains Measure. In this measure children ordered first the importance of six domains (sports, friends, happiness, pretty, mom, and school) and then ranked the same domains according to what they felt they did best. Thus, two rank orderings (importance and performance) resulted and are summarized along with Cassidy's results in Table 6 (one child's responses were judged as invalid as he simply repeated the order in which the cards were laid out). As a group, children ranked "school" as most important. "Mom", "friends", and "sports" ranked second in importance, "happiness" and "pretty" were ranked as least important. When children were asked in what domain they felt they were best at, they ranked "sports" and "friends" first, followed by "happy" and "mom". "Pretty" and "school" were ranked last. Thus although children ranked "school" as most important, they felt it was the domain they were least good at.

Secondly, for each child, a rank-order correlation

coefficient was computed to index the congruence between the child's rank-ordering for importance and performance. These correlations ranged from -.83 to +.89 with a mean of .09 and a standard deviation of .42 (Cassidy reports a range of -.71 to 1.00 with a mean of .38 and a standard deviation of .44). Thus, as a group, children showed little congruence in rank-ordering of domains of importance with domains they felt they were good at (see Table 6).

Harter Scale. This measure was analyzed as suggested by Harter and Pike (1984). Means and standard deviations were computed for each subscale, two combined scales (Competence and Acceptance) and the summary scores. Means and standard deviations are listed in comparison with Cassidy's results and the norms given by Harter and Pike (Table 7). Comparison with Harter and Pike's norms show no significant differences between the normative sample and this group of German children.

Emotional Indicators on the DAP-Test. Each child's drawing of a person was scored according to Koppitz' system of emotional indicators. Scores ranged from zero to seven with a mean of 2.74 and a standard deviation of 1.70. Koppitz suggests the use of three or more indicators as a cut-off score for differentiating children exhibiting signs of emotional disturbance from children exhibiting no such

signs. Based on this criterion, 22 (50%) children received a significant score (three or higher) and 22 (50%) received non-significant scores (below three).

Consistency of Self-Concept Measures.

Hypothesis Four predicted consistency across the various self-concept measures. To test for this notion, a principal component analysis was performed with the children's scores on the three interviews, the summary Harter score, the specific domains rank-order correlations and the children's score for emotional indicators on the DAP using the Koppitz system. Results are shown in Table 8. It can be seen that scores on the highly structured self-report measures (Harter and Specific Domains) load highly on one factor. Scores on the DAP-Interview and the Puppet Interview load highly on the other orthogonal factor. Scores on the Self-concept Interview load on both of these factors and thus strattle the two factors. The Koppitz score for emotional indicators did not load on either factor, which indicates that this measure is independent from the other self-concept measures.

Based on this finding, there is little evidence that the children responded consistently to the applied self-concept measures. As a result, no meaningful summary self-concept score could be computed as a basis for

exploring the relationship between attachment and self-concept. The following will therefore report the relationship between each single self-concept measure and attachment rather than between a global self-conept score and attachment as had been suggested in Hypotheses Five and Six.

Attachment in Infancy and Self-Concept.

The Interviews. The relationship between infant attachment and the Puppet Interview, the DAP Interview and the Self-Concept Interview was explored (a) through contrasting infant attachment groups by scores on each of these measures, and (b) through examining the relationship between patterns of attachment and patterns of responses in the interviews.

Means for each group were computed. As shown in Table 9, means between attachment groups were largely similar and showed no particular pattern in their direction. Highest scores had been predicted for the securely attached group on all measures except for the Koppitz score; there a reverse direction had been predicted.

Next, one-way ANOVAs were performed to test for significant differences in mean self-concept scores by three infant attachment groups (secure,

avoidant/ambivalent, disorganized/disoriented). No significant differences were found between these groups on the Puppet Interview scores ($F(2,41)=.69$, n.s.), the DAP Interview scores ($F(2,41)=.35$, n.s.) and the Self-Concept Interview scores ($F(2,41)=.45$, n.s.). Similarly, biserial correlation of secure versus insecure attachment in infancy with the Puppet Interview score was not significant ($r=-.13$, n.s.) as was biserial correlation for attachment with the DAP Interview score ($r=-.13$, n.s.) as was biserial correlation for attachment with Self-Concept Interview score ($r=.04$, n.s.).

The relationship between pattern of responses (Open, Perfect, Negative) and attachment pattern (secure, avoidant/ambivalent, disorganized/unclassifiable) was indexed through Chi-Square Tests followed by a computation of a Contingency Coefficient. Table 10 shows the relationship of the Puppet Interview with attachment classification in infancy. This relationship was found to be not significant ($\chi^2=.87$, df=4, n.s., C=.14). Table 11 reflects the relationship of patterns in the DAP-Interview with infancy attachment classification. This relationship was likewise not significant ($\chi^2=3.13$, df=4, n.s., C=.26). Table 12 shows the relationship between patterns of responses to the Self-Concept Interview and attachment classification in infancy. Again, this relationship was not significant ($\chi^2=3.07$, df=4, n.s., C=.26).

Thus none of the interview techniques yielded significant differences between the three major attachment classification in infancy. There is no evidence that children classified as securely attached in infancy received different scores on these measures from children classified as insecure-avoidant/ambivalent or insecure-diorganized/disoriented.

Specific Domains Measure. The relationship between quality of attachment in infancy and the child's ranking of importance and performance on specific domains was examined through comparison of mean scores (Table 9) tested for significance by a one-way ANOVA followed by the computation of a biserial correlation coefficient. No significant differences were found between secure, avoidant/ambivalent, and disorganized/disoriented infants and their later rank-order correlations of specific domains ($F(2,41)=1.16$, n.s.) although means did differ in the predicted direction. Biserial correlations of secure versus insecure infant attachment with rank-order correlation was non-significant ($r=-.17$, n.s.).

Harter Scale. The relationship between the children's Harter score and infant attachment was again examined through comparison of means tested for significance by a one-way ANOVA followed by compuation of a

biserial correlation coefficient. Means were not significantly different or followed a particular directional pattern (see Table 9). Consequently, none of the ANOVAs of each subscale or the summary score yielded any significant differences. Similarly, none of the biserial correlations were significant (range from -.13 to .03).

Emotional Indicators on the DAP Test. The relationship between the number of emotional indicators on the child's DAP Test and infant attachment was examined through computation of means (Table 9). These were tested for significant differences through a one-way ANOVA followed by computation of a biserial correlation coefficient. No significant differences were found between the infant attachment groups and the number of emotional indicators ($F(2,41)=.47$, n.s.). Biserial correlation was also non-significant ($r=.02$, n.s.).

Following Koppitz' suggestion to use three or more indicators as a criterion for a significant score on the DAP, the relationship between infant attachment category and presence of indicators of emotional disturbance was tested. Results are not significant ($\chi^2=.91$, $df=2$, n.s., $C=.14$; see Table 13).

Composite Analysis of Self-Concept Measures and Infant Attachment. Although no differences were found between attachment groups on the individual self-concept variables, it was hypothesized that a linear composite relationship may exist between infant attachment and all self-concept variables. To test for this notion, three discriminant analyses were performed. First, the three major attachment classification groups (secure, avoidant/ambivalent, and disorganized/disoriented) were tested for significant differences on the self-concept measures. Results are reported in Table 14 and show that the three attachment groups cannot be differentiated from each other based on these measures. Only 47% of all cases were predicted accurately.

Next, securely attached infants were contrasted with insecurely attached infants on their later self-concept scores. None of the self-concept measures significantly discriminated these two groups with 58% of all cases predicted accurately (see Table 15).

Lastly, infants marked as disorganized/disoriented were contrasted with children classified as secure, avoidant, or ambivalent. These two groups could be differentiated on two measures (Puppet Interview and Harter summary score; see Table 16). Seventy percent of all cases could be predicted accurately.

Therefore, there is little evidence for a univariate or composite relationship between attachment in infancy and the quality of the child's self-concept. An exception was the difference found between infants marked as disorganized/disoriented and infants showing no such behavior on two of the measures.

The following will report the connection between attachment at age six and the child's self-concept. Again, results here will be compared to Cassidy's Session I results where available.

Attachment at Age Six and Self-Concept.

The Interviews. The relationship between attachment classification at age six and the Puppet Interview, the DAP Interview and the Self-Concept Interview was explored (a) through correlating the child's score on the five-point self-concept scale with the nine-point Security scale; (b) through examining the patterns of the child's interview responses with their attachment patterns; (c) through testing differences on the self-concept scores by the three attachment groups using one-way ANOVA.

Correlation of the Puppet Interview score with the Security score was marginally significant ($r=.22$, $p<.10$; Cassidy: $r=.26$), as was the correlation between the DAP Interview and the Security scale ($r=.24$, $p<.10$).

Correlation between the Self-Concept Interview score and Security was non-significant (r=.18, n.s.).

Contingency Coefficients were computed followed by Chi-Square tests to index the relationship between the pattern of the child's response (Open, Perfect, or Negative) and their attachment classification (secure, insecure-avoidant/ambivalent, or insecure-controlling/unclassifiable). No significant association was found. Chi-Square for the Puppet Interview was 3.24 (df=4, n.s.; C=.26; Cassidy: χ^2=21.42, df=6, p<.01; Lambda=.23; see Table 17). For the DAP Interview, Chi-Square was 3.13 (df=4, n.s.; C=.26; see Table 18), and for the Self-Concept Interview Chi-Square was 1.05 (df=4, n.s.; C=.15; see Table 19).

Means of the three attachment groups in their rating on all self-concept measures are shown in Table 20. Puppet Interview scores and DAP Interview scores were in the predicted direction with securely attached children receiving highest scores. Contrary to prediction the avoidant or ambivalent group received the highest scores on the Self-Concept interview.

Differences among the means of the three attachment groups in their rating on the five-point self-concept scales on these three interview measures were then tested with one-way ANOVAs. Results for the Puppet Interview were non-significant (F(2,41)=1.98, n.s.). However, paired

contrasts of a priori hypotheses revealed that children who were securely attached did have significantly higher Puppet Interview scores than did children classified as either insecure-ambivalent/avoidant or insecure-controlling/unclassifiable (T=.055). Cassidy reports a similar relationship as a result of her comparison between the three groups. ANOVA results for the DAP Interview were not significant (F(2,41)=1.72, n.s.) and as were results for the Self-Concept Interview (F(2,40)=.78, n.s.).

Specific Domains Measure. The relationship between quality of attachment at six years and the child's ranking of specific domains was examined through a correlation of the child's Security of attachment score with the child's individual rank-order correlation. This correlation was marginally significant (r=.21, p<.10; Cassidy's correlation was not significant). Although means differed in the predicted direction (Table 20), a one-way ANOVA of the domains measure by attachment group was not significant (F(2,40)=.90, n.s.).

Harter Scale. The relationship between this measure and attachment was again examined through first computing correlations between the summary scale score as well as each subscale score and the child's Security of

attachment score. None of these five correlations were significant. Cassidy reports a significant correlation between Maternal Acceptance and Security as her only significant finding. Means showed no predicted pattern of direction (see Table 20). Again, one-way ANOVAs revealed no significant differences between the three attachment groups on the Harter subscales with the exception of the subscale for Physical Competence. Here significant differences were found ($F(2,40)=2.85$, $p<.10$) with avoidant/ambivalent children receiving higher scores than the other two groups. The direction of this finding was not predicted. Cassidy found no differences between Harter scores by attachment groups in her sample.

Scores for Emotional Indicators. The relationship between the number of emotional indicators on the child's DAP test and six year attachment was examined through correlating the child's Security of attachment score with the number of emotional indicators. This correlation was not significant ($r=-.06$, n.s.); the result of the ANOVA of number of emotional indicators by attachment groups was also not significant ($F(2,41)=.19$, n.s.). Chi-Square was computed to test for the presence of emotional indicators (three or more is suggested as significant) by attachment group. This relationship was not significant ($\chi^2=1.2$, $df=2$, n.s.; $C=.16$; see Table 21).

Composite Analysis of Self-Concept Measures and Attachment at Six. To test for the composite linear relationship between all self-concept measures and six-year attachment, two discriminant function analyses were computed. First, the three attachment groups (secure, avoidant or ambivalent, controlling or unclassifiable) were tested for significant differences among the self-concept measures. Results reported in Table 22 show that none of the measures discriminated significantly between the three groups. Only 51% of all cases could be predicted correctly.

Second, securely attached children were contrasted with insecurely attached children on all self-concept measures. Results (summarized in Table 23) show that the Puppet Interview and DAP Interview discriminated between these two groups; 60% of all cases could be predicted accurately versus a base-rate prediction of 62% (see Appendix A).

Therefore, testing Hypothesis Six yielded a significant relationship only between the child's score on the Puppet Interview and the DAP Interview. Scores on these measures could also discriminate between securely and insecurely attached six year-olds, whereas none of the other measures yielded such differences.

Chapter IV

Discussion

Overall, results of this study suggest high stability of attachment from infancy to six years. This finding will be discussed in comparison with other available data and its implications for the validation of the new six year attachment method. Second, the results of the self-concept assessments will be discussed as they suggest that children talk about themselves in different ways dependent on the instrument used to interview them. Third, the findings of a marginal relationship between attachment and the child's self-concept at age six will be examined in comparison with Cassidy's findings. This discussion will include a brief review of methodological issues regarding the clinical assessment of the self-concept. This chapter will conclude with an outlook on possible further analysis of these data in relationship to other aspects of the Regensburg Longitudinal Study.

Stability of Attachment

Testing Hypotheses One through Three yielded a very consistent picture: infants classified as securely attached rated higher on the six-year Security scale than infants

classified as insecurely attached or marked as disorganized/disoriented. Infants who avoided a parent during reunion after a brief separation continue to avoid the parent after a 90 minute separation five years later. Lastly, on five-year follow-up, children were classified into pattern of attachment groups comparable to those they had been classified into as infants. The strength of the relationship between infant attachment and attachment at six years in this sample is almost identical to the Berkeley sample (89% hit rate in Regensburg versus 84% hit rate in Berkeley; .73 correlation of Security of Attachment in Regensburg versus .76 in Berkeley).

This finding sheds some light on the development of specific attachment patterns (or classification groups) over a five-year span. Securely attached infants seek contact, proximity, and comfort with the parent during reunion episodes. Then they are gradually able to return to their play while using the parent as a "secure base" for exploration (Ainsworth et al., 1978). In the Regensburg sample, children classified as secure during infancy at six years tended to genuinely greet the parent at his or her reunion following a 90-minute separation. They eagerly shared their experiences, invited the parent to play, and eventually engaged in physical contact or comfortable verbal interaction with the parent. There was a strong sense of mutual enjoyment and relaxedness during these

reunions.

Infants classified as avoidant tended to actively avoid and/or ignore the parent upon reunion. Findings here suggest that this behavior persists at age six. These children still avoid closeness, eye-contact, physical proximity, or active dialogue with the parent. They politely treat the parent with respect and distance equal to that they display toward the examiner - which had also been a characteristic of avoidant infants. The finding in this study that no avoidant infant showed a secure or even different insecure pattern at age six suggests that the "avoidant defence" (Bowlby, 1969/1982) has indeed become consolidated.

Only one child in this sample was classified as insecure-ambivalent during infancy and at age six. Therefore little can be said about the development of this pattern. Ambivalent-type behavior in this child and in the Berkeley sample consists of either showing unprovoked hostility toward the parent mixed with genuine affection or a sharp avoidance interspersed with general passivity in the child's interaction with the parent.

The discovery of a new "disorganized/disoriented" group of infants posed a difficult methodological problem for this dissertation: three infants in this sample were originally described as "not classifiable". Ten infants had received a significant rating on a

"disorganization/disorientation" scale specifically developed by Mary Main for the analysis of the Clown Situation in this sample. Disorganized/disoriented infants are described as showing one or more of the following chracteristics: stereotypies, episodes of immobilization, disoriented behavior, misdirected behavior, sudden bursts of activity, or sudden uninterpretable noises or movements (see Appendix M for a complee description of the scale). Of course, no infant had previously been classified as disorganized/disoriented as the description of this group of children has just recently been developed. Therefore, based on the close resemblance of the Clown disorganization/disorientation scale to the current description of disorganized/disoriented infants, it was decided that a score describing irrational and inexplicable disorganized/disoriented behavior during infancy would serve as a marker for infants potentially belonging to this group until a reanalysis of Strange Situation behavior would be completed.

Based on this criterion, the group of infants marked as disorganized/disoriented and classified in one of Ainsworth original three attachment categories showed an interesting pattern of development: Four of the these ten children at age six behaved in a controlling-punitive or controlling-caregiving way toward their parent. A reversal of roles is characteristic of these dyads. The child tends

to deliberately embarrass or punish the parent, or to behave as she or he has to persistently cheer up the parent. Thus, a behavior that lacked organization in infancy developed into an organized, in fact controlling pattern. One could assume that in the absence of a consistent pattern of mothering (sensitive, rejecting, or hostile), these children have begun to show some forms of parenting behaviors themselves, either in a caregiving or punishing mode.

The remaining six children who had been marked as disorganized/disoriented in infancy remained "insecure-unclassified" at age six as their behavior did not resemble the other four groups. Their reunion behavior continued to lack organization. It tended to include avoidant, secure, ambivalent, and controlling elements with no clear prevailing pattern. Thus they were felt to remain truly "unclassifiable" even within the expanded system which now included the new controlling group. However, these children clearly remained insecurely attached and therefore received scores on the low end of the Security of Attachment scale. A planned reanalysis of Strange Situation behavior may provide some answers to questions about differences between those children who are now classified as controlling and those who remained unclassifiable. The use of the disorientation/disorganization marker was not successful in differentiating these two groups of chidren.

Much lower stability was found for subgroup classifications (89% for main groups versus 38% for subgroups). The interpretation of this finding is hindered by the lower inter-coder agreement for subgroups than for main classifications (91% for main groups versus 61% for subgroups). Also, changes occurred in subgroup descriptions during the data analysis phase of this dissertation, such as the addition of the "secure-resembles controlling", "avoidant-resembles controlling", and "ambivalent-resembles controlling" subgroups. Therefore, results of this study suggest that observers can reliably identify underlying patterns of secure or insecure attachment which had corresponding precursors during infancy. However, within these patterns, minor shifts do occur. For example, three highly avoidant infants were now classified as neutrally avoidant thus exhibiting less avoidance and intermittent (mostly verbal) interaction with the parent. Also, only one of the very secure infants was still classified as very secure at age six; the four other very secure babies now either covered up their security with some reserve, "feistiness", or immature behavior while still receiving high scores for security of attachment. This suggests that while overall attachment <u>patterns</u> remain stable, specific <u>behaviors</u> may change over time (Cassidy & Main, 1984).

Therefore, this study replicates the Berkeley findings

of stability of attachment. Findings here strongly support Bowlby's notion that attachment once formed toward a figure should remain stable as the child grows older unless major changes occur in the child's environment such as parental death or loss of a parent through divorce. However, such cases were specifically excluded from this sample to highlight stability rather than change over time.

The results also suggest that Main and Cassidy's attachment classification system for six year old children can be used to meaningfully differentiate between patterns of attachment at age six. As such, this study provides validation data for this new method.

Validation of the Parent-Child Attachment Assessment Method for Six Year Olds. This six-year reunion procedure and classification method was developed based on observations of a white, largely middle-class group of children (68 reunions carried out as part of the Berkeley six-year follow-up). A test of the usefulness of this method with other samples in which infancy attachment classification was known had been urgently needed. Its application in this stage of the Regensburg study provided such an opportunity, and results of this study can be viewed as serving the dual purpose of demonstrating convergent validation and cross-validation for the new classification system.

Convergent validity of an assessment instrument is defined as the comparison of assessment results of a new instrument with results from existing, validated instruments (Anastasi, 1976). Some twenty years after its original devlopment, Ainsworth's Strange Situation is now regarded as a thoroughly validated method to classify and score children's attachment behaviors. The Strange Situation may therefore serve as the existing instrument against which the new six-year old system should be validated. The high agreement between infancy attachment classification and six-year attachment classification in this and the Berkeley study provide some preliminary convergent validity data for the new system.

Construct validity of a new instrument can also be demonstrated through cross-validation with an independent, comparable, yet sufficiently different sample (Anastasi, 1976). Comparing reunion behavior of six-year-olds toward their parent in the two American samples with the behavior of children raised in Southern Germany provides such cross-validation strengthened by the cross-cultural nature of the data. Therefore, consistency of the results of this study with comparable American research suggests than Main and Cassidy's six-year reunion method may indeed possess construct validity and thus is useful in the assessment of children's attachments.

The implications for future attachment research drawn

from results of this and Main's findings are significant. To further explore the relationship between attachment and other aspects of affective devlopment, researchers are now provided with an observational instrument which reliably and validly elicits behavior in six-year-olds that is representative of their attachment to the accompanying parent. Main and Cassidy's (in preparation) descriptions along with Cassidy's (1985) discussions of "patterns of attachment at six years" in her dissertation provide clearly operationalized definitions of what secure and insecure attachments "look like" at six years during a brief reunion following a one- to two-hour separation from the parent.

However, two words of caution are in order: reliability data reported here as well as in Main et al.'s (1985) and Cassidy's (1985) study is based on inter-coder agreement between either both instrument developers or one developer and a trained observer who was also thoroughly familiar with Ainsworth's infancy attachment classification system. Training other coders has not been as successful (Cassidy, 1985) which suggests that not only does the new six year system require thorough training with a large sample but may also ask for experience with Ainsworth's infancy coding system.

Secondly, in spite of Ainsworth's warnings, her Strange Situation system has been widely (ab)used as a

single "attachment test" in studies looking at infancy attachment and a garden variety of other variables. The use of the six-year system in such a manner appears even more problematic given its degree of complexity compared with the small sample of data classification judgements are based on. Thus, it may serve as an observational method for six-year attachment but additional anchoring in concurrent data seems essential. Main and her colleagues are presently developing such methods for five to seven- year-old children. In addition to the observation of videotaped reunions, they can classify parent-child attachment with high agreement with infancy attachment classification and at age six based on the children's drawing of their families and through psycholinguistic analysis of the parent-child dialogue during the reunion episode. Although not part of this dissertation, such analysis was also done preliminarily with the family drawings and dialogue transcript of this study. Here, 78% of all mother-child interactions could be classified through psycholinguistic analysis in congruence with the child's infant attachment classification (Main, Wartner, & Grossmann, in preparation). Sixty-eight percent of the children's family drawings were assigned the corresponding parent-child attachment classification (Main, personal communication, April 26, 1986). Such concurent validation of the attachment classification with other data will be needed to

assess the usefulness of the six year reunion method in other samples where infancy attachment data is not available.

Consistency of Self-Concept Measures

It was predicted that children would talk about themselves in a consistent manner regardless of whether they were interviewed directly, talked through a puppet or about a drawing, responded to a forced-choice type self-report measure, or expressed themselves in their drawings. Findings of this study do not support this assumption but point to an interesting pattern of results.

Two of the measures were derived from clinical techniques to interview young children (Puppet Interview and Draw-A-Person Interview). As a group, the children did respond consistently across those two measures but gave uncorrelated answers to the two highly prestuctured measures (Harter Scale and Specific Domains Measure). Incidental reports by the child interviewers also point to the fact that many of the children in this sample were bothered by the rigidity of these measures. Some of them made admirable attempts of correcting them through carefully explaining that they could not give a correct answer because they felt many questions did not apply to them. A third measure, the global Self-Concept Interview

allowed the children to answer freely but questions were asked more directly than in the Puppet and DAP Interview. Children's responses to this interview were moderately consistent with the other two sets of measures. Thus the absence of a relationship between the clinical, open instruments and the standardized, structured methods combined with their moderate relationship to the direct yet open interview confirms a notion shared by many clinicians: Children do talk about themselves differently dependent on how they are asked.

However, one has to remember that all self-concept measures in this study were coded on the basis of written transcripts of videotapes alone. These did not reflect pauses, self-corrections, or the child's censoring of responses which are quite apparent to an observer of the child's nonverbal behavior during an interview. Six-year-old children may have learned what to say to meet perceived expectations of an examiner even though this may have little to do with how they truly feel about themselves. Therefore, recoding the interviews and other self-concept measures using the child's verbal and nonverbal behavior may yield quite different results, particularly for children with a well-organized defensive system such as those with an insecure-avoidant pattern or some who have developed an insecure-controlling pattern. Skilled interpretation of what the child says and how he or

she says it may "get behind" the defenses and thus yield more "truthful" results for well-defended individuals.

Attachment and Self-Concept

Findings of this study did not support Hypothesis Five. There was no significant relationship between infant attachment and self-concept. In fact, none of the measures yielded a significant relationship between the two constructs in this sample; therefore no meaningful prediction based on infancy attachment to how a six year old feels about him- or herself can be made.

On the other hand, a marginal relationship was found between attachment at age six and the child's responses to the Puppet Interview, the DAP Interview, and the Specific Domains Measure. These findings partially support Hypothesis Six, and suggest that while infant attachment does not predict self-concept, concurrent measures of attachment and the child's self-concept show a moderate yet significant correlation between the two constructs. The following will discuss these findings as they relate to each specific measure.

The Interviews. Although no relationship was found between the Puppet Interview, the DAP Interview, and the Self-Concept Interview and attachment in infancy, the two

interviews (Puppet and DAP) which correlated highly with each other also yielded significant differences between the attachment groups at age six. Children classified as securely attached received higher scores than children classified as insecurely attached. This finding - and replication of Cassidy's results - shows that securely attached children talk about themselves in a general positive manner but when pressed also admit to imperfections auch as "being bad once in a while" or knowing some people who are <u>not</u> their friends.

Although Cassidy's findings of securely attached children tending to show a more frequent "Open" response pattern could not be replicated, a closer look at the relationship between attachment paterns and interview response patterns yields some interesting observations. Seven of the eleven interviews in this sample judged as Open belonged to children who were securely attached. On the other hand, ten other securely attached children gave interviews judged as showing a "Perfect" response pattern. This suggests that securely attached children with equal likelihood describe themselves positively, but with room for improvement or positively and as perfect in almost every way. The lack of discrimination between those two groups - also reported by Cassidy - poses a dilemma which has plagued researchers of the self-concept all along: children who truly feel good about themselves cannot be

differentiated from children who defensively describe themselves positively (Wylie, 1974). Fortunately, self-concept measures do much better differentiating negative self-evaluation. In this study, only three of the eleven interviews judged as "Negative" belonged to securely attached six year olds. Similarly, just four of the eleven Open interviews were given by insecurely attached children. Therefore, a closer examination of the Puppet Interview response patterns does suggest a trend of response patterns related to concurrent attachment. This trend could easily be overlooked when results are interpreted based on statistical analysis only.

A look at a few individual cases provides some additional information on the relationship between attachment and self-concept. Ten children in this sample can be described as "extreme" cases in regard to the results of their self-concept interviews. Five consistently described themselves on the high end of the Open pattern, four as consistently Perfect, and one child rated himself as very Negative. Four of the five very Open children had been classified as securely attached in infancy and at age six. Two of the very Perfect children were securely attached both in infancy and at age six whereas the other two were classified as neutrally avoidant or controlling at both ages. The very Negative child had been marked as disorganized/disoriented in infancy and again classified as

insecure-controlling at age six. Thus seven of these ten extreme cases fit exactly the pattern as predicted in the three interview measures, while children judged in the middle range of self-concept scores could be securely or insecurely attached with no particular predictive pattern. Again, this observation supports clinical experience: in a few extreme cases (of very positive or very negative self-concept as judged by the interview measures), a meaningful predictive and concurrent relationship can be found between attachment and self-concept, whereas for the large group of children who talk about themselves in a moderately positive or negative way no prediction about the relationship between parent-child attachment and self-concept can be made by presently developed assessment procedures.

Specific Domains Measure. It should be recalled that children were asked to rank-order perceived importance and performance of six specific domains. No significant relationship between infant attachment and the individual child's rank-order correlation was found, in contrast with a moderate but significant correlation found between this measure and six year attachment.

A comparison with Cassidy's results shows that children in both samples ranked the importance of the six domains comparably but differed in their way of ranking

performance. Much of this difference seems due to the high ranking of importance assigned to the "School" domain by the German children compared to their low performance ranking of School. Children in Cassidy's sample assigned School rank one or two in both rank-orderings. This small finding of a cross-cultural difference can easily be explained by the fact that children in Cassidy's sample were observed after completion of their kindergarten year whereas the German children were observed just two months prior the the beginning of their formal schooling. Thus they ranked school as tremendously important (33 of the 44 children saw it as the most important domain) but realistically ranked their performance in school as low since school had not started for them yet (kindergarten is not considered a part of formal schooling in Germany). As a result, the German children as a group showed little congruence beween their importance and performance rankings.

On the other hand, there was a moderate relationship between the individual child's rank-order correlations of the specific domains and their security of attachment score which was not found in Cassidy's study. This finding in the Regensburg sample suggests that the congruence of what children feel is important and what they believe they are good at is somewhat related to the concurrent security of the attachment to the parent. This finding shows some

consistency with clinical research by client-centered therapists which suggests that congruence between the self and ideal self is an indication of healthy personality development fostered by a climate of unconditional positive regard (e.g. Rogers, 1951). Translated into the theoretical framework of this dissertation, findings here suggest that the higher a child rates on security of attachment the higher the child's congruence between perceived importance and perceived performance in a small sample of domains. On the other hand, no such prediction can be made from infancy attachment to the congruence of rank-ordering of specific domains five years later.

Harter Scale. The analysis of the Harter scores failed to reveal a significant relationship to attachment at both ages. This largely replicates Cassidy's results which also showed no significant relationship between attachment and Harter scores. A look at the mean results of each subscale and the summary scale shows that the German children gave quite comparable answers to those of Harter's normative and Cassidy's sample. However, the mean scores in each of the subscales were close to or higher than three on a four-point rating scale (four = most perceived competence) with very little variance around the mean. This reflects that this measure - although praised for its psychometric properties as compared to other standardized

self-concept measures (Harter & Pike, 1984) - differentiates poorly on its high end. Apparently most children rate themselves as highly competent on this measure and this does not show a relation to the quality of their attachment to the parent. This lack of differentiation on the high end of the scale makes the interpretation of findings in this study difficult, as it is unclear whether the lack of relationship has to be attributed to the inadequacy of the measure or whether there is true absence of relationship between attachment and perceived competence.

Scores for Emotional Indicators. Results of the analysis of the data based on this measure were consistently insignificant. There was no relationship between indications of emotional disturbance and attachment at both ages; neither was there a significant relationship between these indicators and any other self-concept measure. This finding suggests that children may show signs of emotional disturbance in their drawings regardless of how they feel about themselves or the quality of their attachment to the parent. In fact, the equal frequency of significant scores (three or higher) and non-significant scores of emotional indicators in this sample questions the applicability of the Koppitz system to this sample: it is unlikely that half of the children in this sample show

signs of emotional disturbance.

Again, this measure seemed more meaningful in extreme cases. Five of the six children who received a score of five or more indicators of emotional disturbance were insecurely attached. This suggests that drawings reflecting a higher number of emotional indicators can be attributed to insecurely attached children which may point to the fact that in extreme cases a relationship does exist between insecurity of attachment and these markers of emotional disturbance. As with the interview techniques, this measure seemed sensitive on the negative (more pathological) end but differentiated poorly among the large group of children whose drawings reflected few or no signs of emotional disturbance.

Composite Analysis of the Self-Concept Measures and Attachment. Findings of the linear composite analysis of different attachment groups and all self-concept measures failed to support the hypothesis of a significant multivariate relationship between attachment and self-concept. None of the self-concept measures could differentiate among infancy attachment groups with the important exception of differences found when infants marked as disorganized/disoriented were contrasted with all other infants showing no such signs. There, on two measures (Puppet Interview and Harter Summary Score)

disorganized/disoriented infants had significantly lower scores suggesting that this group differed from the other children in their later self-concept. This finding adds to present attempts to gain a better understanding of this group of children whose behavior was not classifiable within one of Ainsworth's traditional patterns. Main and Hesse (in press) and Main et al. (1985) note that in the Berkeley sample, the parent's traumatic experiences, such as early loss of family members, abuse, or high levels of stress are significantly related to the infant showing disorganized/disoriented behavior. Findings of the Regensburg study suggest that such infant disorganization and disorientation and in fact lack of organized attachment behavior is also related to a significantly more negative self-concept and lower perceived competence later at age six.

This is seen as consistent with theoretical predictions made by psychoanalytic object relations theory (e.g. Mahler, 1975). There it is suggested that an organized pattern of object integration will result in a cohesive, fully integrated self which is able to successfully integrate drives, affects, needs, and motor skills. Conversely, if early experiences with the mothering object are deficient, the basic schema of the self becomes disorganized, particularly when threatened with separation and loss. In this study, infants thought of as

disorganized/disoriented are characterized not by their pattern of attachment to the parent but by their disorganized/disoriented behavior which in itself lacks the organization which is typical not only of securely attached children but also of avoidant and ambivalent children. Whereas none of the two latter groups differed in their self-concept scores five years later, disorganized/disoriented infants did. Thus some support is lended to the object relations theory notion that failure to organize attachment in a meaningful pattern during infancy does result in differences in how children perceive themselves during their later years.

Analysis of the results showed that two of the self-concept measures could significantly differentiate between securely and insecurely attached children at age six (Puppet Interview and DAP Interview). This reflects a moderate relationship between some of the self-concept measures employed here and concurrent attachment assessment. While this finding is comparable to Cassidy's, it also raises the question as to why neither sample showed a stronger relationship between security of attachment and self-concept in spite of the reliable and comparable assessment of both constructs in the two samples. A possible answer lies in the measures applied here which largely constitute a combination of standardized "objective" methods and clinical interview techniques.

These were a priori developed by Cassidy before she analyzed her data and scored here according to her scales. Whether these interviews as well as the Specific Domains measure in fact tap into a child's self-concept remains unsupported. While Cassidy's questions clearly show content validity, no formal validity data is available due to the fact that considerable effort would be necessary for the formal psychometric consolidation of her experimental methods. Thus the present study should be viewed as preliminary and exploratory with much further analysis called for.

Implications for Further Research

The nature of the data gathered in this study lends itself to many possibilities for further analysis which may provide helpful insights for the future interpretation of some of the findings reported here.

First, although high stability from infant attachment to six year attachment was found, further concurrent validation data for the six-year attachment method is necessary. As noted earlier, such analysis may be done based on the parent-child dialogue during the reunion episodes and on the children's drawings of their families. More directly, analysis of the parent-child interaction prior to their separation may show how attachment patterns

are observable during an unstructured interaction episode. Similar data are available for the Regensburg sample during infancy (Escher-Gräub, Moser, Scheuerer, & Winkler, 1983) which also provide the opportunity for longitudinal comparison. Although mother and child interact here as playmates such interaction was found to relate to pattern of attachment during infancy (Escher-Gräub et al., 1983) which may again be true at age six. Such analysis may therefore provide concurrent validation which is particularly important to further establish the usefulness of the Main and Cassidy classification method for samples where infancy attachment data is not available.

Second, this study used the Clown Situation disorganization/disorientation marker largely as a provisional means of identifying potentially disorganized/disoriented infants. Now that instructions for the identification of disorganized/disoriented infants are available (Main & Solomon, in press) a complete independent reanalysis of the infant Strange Situation data seems essential. True stability data for the four infant groups and the six-year-olds can then be computed.

Third, coding of the self-concept measures based solely on written transcripts of the interviews was part of the design of this study but also caused the loss of a wealth of information. Clinicians are trained to not only listen to content as it can be reflected in a written

transcript but also to observe. A child's facial expressions, posture, speech pattern, false starts, stutters, eye-contact, etc. may reveal many additional clues about whether he or she does in fact see the self in an open, positive way, or becomes defensive, or feels truly negatively about the self. Additional information can also be gained from the quality of interaction between the child and the adult interviewer. Therefore, reanalyzing the self-concept measures based on the children's verbal and non-verbal behaviors may result in more meaningful, and possibly more valid results.

Fourth, as part of an ongoing longitudinal project, much can be learned from relating the findings of this study to other data collected as part of the overall project. Questions of particular interest to this study relate to the findings of the preschool peer relations study (Süss, in preparation). There, children were observed in their peer interactions and were compared to how they are perceived by their teachers. By comparing the findings of this study to the results of the preschool project, a connection between children's self-concept and their functioning around others could be explored. Results of the adult attachment interview with the mothers of this sample are presently being analyzed (Fremmer-Bombik, in preparation). Consistency between the mother's recollection of her own attachment to her mother and the present

child-mother attachment is expected. Relating those results to findings of this study may provide further insight into the relationship between the parent's working model of attachment to the child-parent attachment as well as to the child's self-concept. Considering that most Regensburg mothers grew up during or shortly after World War II much trauma and disruption occurred during their early years. A close look at such long-term effects may be particularly instructive. Finally, infancy data exist on the parents' way of imposing minor restrictions during a laboratory play situation. Those findings in comparison with results of this study may provide some insight in the ongoing debate over the effect of discipline and children's compliance on their self-concept.

In summary, this dissertation consitutes a preliminary, largely descriptive study on the stability of children's attachment and their self-concept. A strong relationship was found between infant attachment and attachment at six years, whereas only a limited concurrent relationship between attachment and self-concept could be found. Cross-cultural comparison showed that measures were generally applicable and produced similar results in the two samples. The largely experimental nature of the employed self-concept measures and their simplified means of analysis based on verbal behavior only are believed to

be the major reasons for the absence of a stronger relationship between attachment and self-concept as predicted. Thus, future, more detailed analysis of these data and comparison with other aspects of this longitudinal project may serve to considerably improve the significance of the reported results and provide a much broader understanding of children's affective development.

References

Ainsworth, M.D.S. (1963). The development of infant-mother interaction among the Ganda. In B.M. Foss (Ed.), Determinants of infant behavior II. New York: Wiley.

Ainsworth, M.D.S. (1967). Infancy in Uganda: Infant care and the growth of love. Baltimore: John Hopkins University Press.

Ainsworth, M.D.S. (1977). Attachment theory and its utility in cross-cultural research. In H. P. Leiderman, S. R. Tolkin, & A. Rosenfield. Culture and Infancy (pp.49-68). New York: Academic Press.

Ainsworth, M.D.S., Bell, S.M., & Stayton, D.J. (1971). Individual differences in strange situation behavior of one-year olds. In: H.R. Schaffer (Ed.): The Origins of Humans Relations. London: Academic Press.

Ainsworth, M.D.S., & Bell, S.M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year olds in a strange situation. Child Development, 41, 49-67.

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

Anastasi, A. (1976). Psychological Testing. Fourth Edition. New York: MacMillan Publishing Corporation.

Arend, R., Gove, F.L., Sroufe, L.A. (1979). Continuity of individual adaptation from infancy to kindergarten. A predictive study of ego-resiliency and curiosity of preschoolers. Child Development, 50, 950-959.

Bannister, D., & Agnew, J. (1976). The child's construing of self. In J.K. Cole, & A.W. Landfield (Eds.), Nebraska Symposium on Motivation (pp.99-125). Lincoln: University of Nebraska Press.

Berry, J.W. (1969). On cross-cultural comparability. International Journal of Psychology, 4, 119-128.

Berry, J.W. (1980). Introduction to methodology. In H.C. Triandis & J.W. Berry (Eds.), Handbook of cross-cultural psychology. Volume 2: Methodology. Boston: Allyn & Bacon.

Bertenthal, B.I., & Fischer, K.W. (1978). Development of self-recognition in the infant. Developmental Psychology, 14, 44-50.

Block, J.H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In W.A. Collins (Ed.) Minnesota Symposium on Child Psychology, 13, 39-101.

Bollas, C. (1982). On the relation to the self as an object. International Journal of Psychoanalysis, 63(3), 347-359.

Bowlby, J. (1969/1982). Attachment and Loss. Volume I: Attachment (Second Edition). New York: Basic Books.

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

Bowlby, J. (1980). Attachment and Loss. Volume III: Loss: Sadness and depression. New York: Basic Books.

Bretherton, I. (1985). Attachment theory: Retrospect and prospect. In I. Bretherton & E, Waters. Growing Points in Attachment. A Monograph of the Society for Research in Child Development.

Brislin, R., Lonner, W.J., & Thorndike, R. (1973). Cross-cultural research methods. New York: Wiley.

Bronfenbrenner, U. (1979). The ecology of human development. Cambridge, Mass.:Harvard University Press.

Burns, R.C., & Kaufman, S.H. (1970). Kinetic family drawings (K-F-D). New York: Brunner & Marzel.

Cassidy, J. (1985). Attachment and the Self at Six. Unpublished doctoral dissertation, University of Virginia.

Cassidy, J. & Main, M. (1984, April). Quality of attachment from infancy to six years: Security is stable but behavior changes. Paper presented at the meeting of the International Conference on Infant Studies, New York City.

Clark, E.V. (1976). From gesture to word: On the natural history of deixis in language acquisition. In J.S. Bruner & A. Gartner (Eds.), Human growth and development (pp.85-120). Oxford: Clarendon Press.

Crittenden, P.M. (1985). Maltreated infants: Vulnerability and resilience. Journal of Child Psychology and Psychiatry, 26, 85-96.

Crittenden, P.M. (1981). Abusing, neglecting, problematic, and

adequate dyads: Differentiating by patterns of interaction. Merrill Palmer Quarterly, 27, 201-208.

Druks, A. (1983). The development of the notion of self in infants in relation to attachment to the mother and to object permanence. Dissertation Abstracts International, 44, 337-B.

Egeland, B., & Farber, E.A. (1984). Infant-mother attachment: Factors related to its development and changes over time. Child Development, 55(3), 753-771.

Epstein, S. (1973). The self-concept revisited. American Psychologist, 28(5), 404-416.

Erickson, M.F., Sroufe, A.L., & Egeland, B. (1985). The relationship between quality of attachment and behavior problems in preschool and high risk samples. In I. Bretherton & E. Waters (Eds.): Monographs of the Society of Research in Child Development, Serial No 209, Vol 50, Nos 1-2, pp 134-166.

Escher-Gräub, D., & Grossmann, K.E. (1983). Bindungsunsicherheit im zweiten Lebensjahr - Die Regensburger Querschnittsuntersuchung (Insecure attachments in the second year - the Regensburg cross-sectional study). Unpublished research report, University of Regensburg, West Germany.

Escher-Gräub, C.D., Moser, W., Scheuerer, H., & Winkler, K. (1983). Methode zur Erfassung des Spiels und der sozialen Interaktion von Kindern im 2. Lebensjahr mit ihren Eltern

in einer freien Spielsituation mit einigen Verboten (A method for the analysis of play and social interaction between parents and their children in their second year in a free play situation with a few restrictions). Unpublished research report, University of Regensburg, West Germany.

Flavell, J.H., Shipstead, S.G., & Croft, K. (1980). What young children think they see when their eyes are closed. Cognition, 8(4), 369-387.

Fremmer-Bombik, E. (in preparation).

Freud, S. (1939). Moses and monotheism. New York: Knopf.

George, C., Kaplan, N., & Main, M. (1983). Adult attachment interview. Unpublished manuscript. University of California at Berkeley.

George, C., & Main, M. (1979). Social interactions of young abused children: Approach, avoidance, and aggression. Child Development, 50, 306-318.

Grossmann, K.E., & Grossmann, K. (1983). Verhaltensontogenie bei menschlichen Neugeborenen - Die Bielefelder Längsschnittuntersuchung (Ontogeny of behavior of human neonates - the Bielefeld longitudinal study). Unpublished reesearch report, University of Regensburg, West Germany.

Grossmann, K.E., Grossmann, K., Huber, F., & Wartner, U. (1981). German children's behavior toward their mothers at 12 months and their fathers at 18 months in Ainsworth's Strange Situation. International Journal of Behavioral development, 4, 157-181.

Grossmann, K.E., Grossmann, K., Spangler, G., Säss, G., & Unzner, L. (1985). Maternal sensitivity and newborns' orientation responses as related to quality of attachment in Northern Germany. In I. Bretherton & E. Waters (Eds.). Growing points of attachment theory and research. Monographs of the Society for Research in Child Development, Serial No 209, Vol 50, Nos 1-2, pp 233-256.

Harter, S., & Pike, R. (1984). The pictorial scale of perceived competence and social acceptance for young children. Child Development, 55, 1969-1982.

Hinde, R.A. (1976). On describing relationships. Journal of Child Psychology and Psychiatry, 17, 1-19.

Hinde, R.A. (1978). Die ethologische Untersuchung sozialer Beziehungen (The ethological study of social relationships). Die Psychologie des 20. Jahrhunderts, Bd 6, 429-443.

Hinde, R.A. (1982). Attachment: Some conceptual and biological issues. In C. Parkes & J. Stevenson-Hinde (Eds.), The place of attachment in human behavior (pp. 60-76). New York: Basic Books.

Hinde, R.A. (1983). Ethology and child development. In P.H. Mussen (Ed.), Handbook of child psychology. Fourth Edition, Volume II: Infancy and developmental psychobiology (pp. 27-94). New York: John Wiley & Sons.

IJzendoorn, van M.H., Goosens, F.A., Kroonenberg, P.M., & Tavecchio, L.W.C. (March, 1984). Dependent attachment: A

characterization of B4 children. Paper presented at the International Conference on Infant Studies, New York.

Jung, C.G. (1959). The archetypes and the collective unconscious. Second Edition. Princeton, N.J.: Princeton University Press.

Klagsbrun, M. & Bowlby, J. (1976). Responses to separation from parents: A clinical test for young children. British Journal of Projective Psychology, 21, 7-27.

Koppitz, E.M. (1966). Emotional indicators on human figure drawings of children: A validation study. Journal of Clinical Psychology, 22, 481-483.

Koppitz, E.M. (1968). Psychological evaluation of children's human figure drawings. New York: Grune & Stratton.

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

Lewis, M., & Brooks, J. (1974). Self, other, and fear: Infants' reactions to people. In M. Lewis & L.A. Rosenblum (Eds.), The origins of fear (pp.195-227). New York: John Wiley & Sons.

Maccoby, E.E. (1980). Social development. Psychological growth and the parent-child relationship. New York: Harcourt Brace Jovanovich, INC.

Maccoby, E.E. (1984). Socialization and developmental change.

Child Development, 55(2), 317-328.

Maccoby, E.E., & Feldman, S.S. (1972). Mother-attachment and stranger-reactions in the third year of life. Monographs of the Society for Research in Child Development, 37 (Serial No. 146).

Machover, K. (1949). Personality projection in the drawings of a human figure. Springfield, OH: Charles C. Thomas.

Mahler, M., Pine, F., & Berman, A. (1975). The psychological birth of the human infant. New York: Basic Books.

Main, M. & Cassidy, J. (in press). Categories of responses to reunion with the parent at age six: Predictable from infant attachment and stable over a one-month period. Developmental Psychology.

Main, M. & Hesse, E. (in press) in M.T. Greenberg, D. Cicchetti, & M. Cummings (Eds.). Attachment in the Preschool Years: Theory, Research and Intervention.

Main, M.' & Solomon, J. (in press) in M.T. Greenberg, C. Cicchetti, & M. Cummings (Eds.). Attachment in the Preschool Years: Theory, Research and Intervention.

Main, M., Wartner, U. & Grossmann, K.E. (in preparation).

Main, M. (1977). Sicherheit und Wissen (Security and Knowledge). In K.E. Grossmann (Ed.): Entwicklung der Lernfähigkeit in der sozialen Umwelt (Development of learning ability within the social environment). München: Kindler.

Main, M., & Weston, D. (1981). The quality of the toddler's

relationship to mother and father. Child Development, 52, 932-940.

Main, M., Kaplan, N, & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), Growing Points in Attachment. Monographs of the Society for Research in Child Development, Serial No 209, Vol 50, Nos 1-2, pp 66-106.

Malinovski, B. (1927). The father in primitive psychology. New York: Norton.

Marvin, R.S. (1977). An ethological-cognitive model for the attenuation of mother-child attachment behavior. In T.M. Alloway, L. Krames, & P.Pliner (Eds.), Advances in the study of communication and affect, Vol. 3. The development of social attachments (pp. 25 - 60). New York: Plenum.

Marvin, R.S., Greenberg, M.T., & Mossler, D.G. (1976). The early development of conceptual perspective-taking: distinguishing among multiple perspectives. Child Development, 47, 511-514.

Marvin, R.S. & VanDevender, T.L. (1978). An Experimental Study of Brief Separations Between Mother and Their Four-Year Old Children. Unpublished manuscript, University of Virginia.

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

Miyake, K., Chen, S.-J., Campos, J. (1985). Infant temperament, mother's mode of interaction, and attachment in Japan: An interim report. In I. Bretherton & E. Waters (Eds.): Growing points in attachment theory and research. Monographs of the Society for Research in Child Development, Serial No 209, Vo. 50, Nos 1-2, pp 276-297.

Piaget, J. (1954). The origins of intelligence in children. New York: International Universities Press.

Rogers, C.R. (1951). Client-Centered Therapy; Its Current Practice, Implications, and Theory. Boston: Houghton Mifflin.

Rogoff, B., Gauvain, M., & Ellis, S. (1984). Development viewed in its cultural context. In M.H. Bornstein & M.E. Lamb (Eds.), Developmental psychology: An advanced textbook (pp.533-571). Hillsdale N.J.: Lawrence Erlbaum associates.

Rubin, S.S. (1982). Expressive language deficits in preschool children and faulty development of the self: Description and case study. American Journal of Orthopsychiatry, 52(1), 58-64.

Sagi, A. & Koren, N. (July, 1985). The strange situation procedure in cross-national research: A test of validity. Paper presented at the 8th Biennal Meeting of the International Society for the Study of Behavioral Development. Tours, France.

Sagi, A., Lamb, M.E., Lewkowicz, K.S. Shoham, R., Dvir, R., & Estes (1985). Security of infant-mother, -father, and

-metapelet attachment among kibbutz-reared Israeli children. In I. Bretherton & E, Waters (Eds): Growing points in attachment theory and research. Monographs of the Society for Research in Child Devlopment, Serial No 209, Nos 1-2, pp 257-275.

Solnit, A.J. (1982). Developmental perspectives on self and object constancy. Psychoanalytic Study of the Child, 37, 201-218.

Sroufe, L.A. (1982). Infant-caregiver attachment and patterns of adaptation in preschool: The roots of maladaptation and competence. Minnesota Symposium on Child Psychology, 16, 41-84.

Stern, D. N. (1985). The Interpersonal World of the Infant. A View from Psychoanalysis and Developmental Psychology. New York: Basic Books.

Süss, G. (in preparation).

Sundberg, N.D., & Gonzalez, L.R. (1981). Cross-cultural and cross-ethnic assessment: Overview and issues. In P. McReynolds (Ed.), Advances in psychological assessment, Vol 5, 460-542.

Thompson, R.A., Lamb, M.E., & Estes, D. (1982). Stability of infant-mother attachment and its relationship to changing circumstances in an unselected middle-class sample. Child Development, 53, 144-148.

Vaughn, B., Egeland, B., Sroufe, L.A., & Waters, E. (1979). Individual differences in infant-mother attachment at 12

and 18 months: Stability and changes in families under stress. Child Development, 50, 971-975.

Waddington, C.H. (1957). The Strategy of the Genes. London: Allen & Unwin.

Wartner, U., Grossmann, K., & Fremmer-Bombik, E. (in preparation). Stability of attachment and patterns of disorganization over a five-year period in South Germany.

Waters, E. (1978). The reliability and stability of individual differences in infant-mother attachment. Child Development, 49, 483-494.

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

Wein, C.C. (1983). The interply of affect and cognition in the development of identity as revealed in children's human figure drawings. Dissertation Abstracts International, 44, 333B-334B.

Winnicott, D.W. (1949). The ordinary devoted mother and her baby. London: Tavistock Publications.

Winnicott, D.W. (1965). Maturational processes and the facilitating environment. London: Hogarth.

Wohlwill, J.F. (1973), The study of behavioral devlopment. New York: Academic Press.

Wundt, W. (1900-1909). Völkerpsychologie, Band 1-10 (The psychology of peolpes, Volume 1-10). Leipzig.

Wylie, R.C. (1974). The self-concept. Revised Edition. Volume One. A review of methodological considerations and measuring instruments. Lincoln, N.B.: University of Nebraska Press.

Table 1

Inter-coder Agreement and Reliability for Puppet Interview (Berta), DAP Interview, and Self-Concept Interview

Measure	Category Agreement	Correlation	Agreement within .5 pts
Berta	73%	.96	82%
DAP Interview	82%	.85	77%
Self-Concept Interview	64%	.89	82%

Table 2

The Relationshipship Between Disorganized/Disoriented Behavior in Infancy and Attachment Patterns at Age Six

		Attachment Behavior in Infancy		
		Disorganized/ Disoriented	Secure, Avoidant, or Ambivalent	
Pattern of Attachment at Six	Controlling/ Insecure-unclass.	8	0	8
	Secure, Avoidant, or Ambivalent	1	24	25
		9	24	33

χ^2=32.18, df=4; p<.01 Contingency Coefficient (C)=.70

Note: No disorganization/disorientation rating was available for four children

Table 3

The Relationship Between Infancy Attachment and Attachment at Six Years (Major Classifications)

		Attachment in Infancy				
		Avoidant	Secure	Ambivalent	Disorganized	
Attachment at Six	Avoidant	6			2	8
	Secure		18			18
	Ambivalent			1		1
	Controlling/ Insecure-unclass.		2		8	10
		6	20	1	10	37

Table 4

The Relationship Between Infancy Attachment and Attachment at Six Years (Subgroups)

		Attachment in Infancy (Subgroups)									
		A1	A2	B1	B2	B3	B4	C1	C2	Dis.	Total
Attachment at Six	A1	1	1							2	4
	A2	3	1								4
	B1										0
	B2			1	4	2	2				9
	B3				1	1	2				4
	B4				1	2	2				5
	C1										0
	C2							1			1
	D/O					2				8	10
		4	2	1	6	7	6	1	0	10	37

Table 5

Rating of the Three Interviews:
Puppet Interview, DAP-Interview, Self-Concept Interview

	Rating		Category		
	Mean	SD	Open	Perfect	Negative
Puppet Interview	2.31	1.27	11(25%)	22(50%)	11(25%)
(Cassidy	2.38	1.12	12(24%)	24(47%)	15(29%))
Self-Concept Interview	2.86	1.19	16(37%)	10(23%)	17(39%)
DAP Interview	2.30	1.25	10(23%)	18(41%)	16(36%)

Note: One child did not complete the Self-Concept Interview.

Table 6

Means and Standard Deviations of the Importance and Performance Rank-Orderings of the Specific Domains Measure

	Importance	Performance
Friends	3.58 (1.45)	2.61 (1.30)
(Cassidy:	2.59 (1.36)	3.00 (1.63))
School	1.63 (1.18)	4.21 (1.30)
(Cassidy:	2.33 (1.29)	2.79 (1.44))
Happy	4.19 (1.53)	3.54 (1.37)
(Cassidy:	4.46 (1.15)	4.37 (1.33))
Sports	3.63 (1.56)	2.58 (1.77)
(Cassidy:	4.38 (1.35)	2.90 (1.87))
Mom	3.28 (1.36)	3.93 (1.74)
(Cassidy:	2.17 (1.16)	3.29 (1.49))
Pretty	4.67 (1.46)	4.07 (1.44)
(Cassidy:	5.06 (1.11)	4.65 (1.42))

Note: Items ranked as of higher importance or performance have lower numbers.

Table 7

Harter's Scale of Perceived Competence and Social Acceptance for Young Children: Means, Standard Deviations, and Norms

	Sample		Norms
	Mean	SD	
1. Perceived cognitive competence	3.37	(.48)	3.4 (.37)
(Cassidy:	3.21	(.54))	
2. Perceived physical competence	3.39	(.48)	3.4 (.38)
(Cassidy:	3.31	(.49))	
3. Perceived peer acceptance	2.87	(.58)	3.1 (.55)
(Cassidy:	3.06	(.52))	
4. Perceived maternal acceptance	3.07	(.61)	2.8 (.60)
(Cassidy:	2.72	(.53))	
Competence subscale (1 & 2)	6.78	(.87)	
(Cassidy:	6.51	(.94))	
Social subscale (3 & 4)	5.94	(1.09)	
(Cassidy:	5.78	(.93))	
Summary score (1,2,3, & 4)	12.70	(1.83)	
(Cassidy:	12.30	(1.72))	

Note: Norms are from Harter and Pike (1984)

Table 8

Rotated Principal Component Loadings of Harter Score, Specific Domains Correlations, Puppet Interview Score, DAP Interview Score, Self-Concept Interview Score, and Emotional Indicator Score on the DAP

Variable	Factor 1	Factor 2
Harter Score		.61
Specific Domains		.56
Puppet Interview	.88	
DAP Interview	.68	
Self-Concept Interview	.47	.61
Emotional Indicators		

Note: Loadings less than .30 were omitted for clarity.

Table 9

Attachment in Infancy and Self-Concept: Mean Scores

Group	Secure	Avoidant/ Ambivalent	Disorganized/ Disoriented
Variable			
Harter (Total)	76.7	70.6	71.6
Harter (Cognitive)	20.2	20.7	19.8
Harter (Social)	17.4	18.6	15.4
Harter (Physical)	20.3	18.9	16.9
Puppet Interview	2.5	2.4	1.9
DAP Interview	2.4	2.1	2.2
Self-Concept Interv.	2.9	3.2	2.7
DAP Indicators	2.8	3.2	2.5
Specific Domains	.14	.09	-.10

Table 10

Pattern of Responses to Puppet Interview and Attachment Classification in Infancy

		Puppet Pattern			
		Open	Perfect	Negative	
Infancy Attachment	Secure	7	11	5	23
	Avoidant/ambiv.	2	6	3	11
	Disorganized/ Disoriented	2	5	3	10
		11	22	11	44

χ^2=.87, df=4; C=.14, n.s.

Table 11

Pattern of Responses to DAP Interview and Attachment Classification in Infancy

		DAP Pattern			
		Open	Perfect	Negative	
Infancy Attachment	Secure	8	9	6	23
	Avoidant/ambiv.	1	5	5	11
	Disorganized/ Disoriented	2	4	4	10
		11	18	15	44

χ^2=3.13, df=4; C=.26, n.s.

Table 12

Pattern of Responses to Self-concept Interview and Attachment Classification in Infancy

		Self-Concept Interview Pattern			
		Open	Perfect	Negative	
Infancy Attachment	Secure	8	4	11	23
	Avoidant/ Ambivalent	5	4	2	11
	Disorganized/ Disoriented	3	2	4	9
		16	10	17	43

χ^2=3.07, df=4; C=.26, n.s.

Note: One child did not complete this measure

Table 13

Emotional Indicators on the DAP and Attachment Classification in Infancy

		Category		
		Non-significant	Significant	
Infancy Attachment	Secure	10	13	23
	Avoidant/ Ambivalent	6	5	11
	Disorganized/ Disoriented	6	4	10
		22	22	44

χ^2=.91, df=2; C=.14, n.s.

Table 14

Discriminant Function Analysis Between Groups of Infancy Attachment (Secure, Avoidant/Ambivalent, Disorganized) and Scores on All Self-Concept Measures

Variable	Wilks Lambda	F	p
Puppet Interview	.93	1.42	.254
DAP Interview	.98	.49	.614
Self-Concept Interview	.97	.53	.591
Harter Scale	.93	1.42	.254
Specific Domains	.93	1.49	.238

Table 15

Discriminant Function Analysis Between Securely and Insecurely Attached Infants and Scores on All Self-Concept Measures

Variable	Wilks Lambda	F	p
Puppet Interview	.98	.82	.370
DAP Interview	.98	.98	.328
Self-Concept Interview	.99	.21	.651
Harter Scale	.99	.11	.738
Specific Domains	.96	1.84	.182

Table 16

Discriminant Function Analysis Between Infants Marked as Disorganized and Infants Whose Attachment Behaviors are Organized and Scores on All Self-Concept Measures

Variable	Wilks Lambda	F	p
Puppet Interview	.93	2.93	.094
DAP Interview	.98	.72	.401
Self-Concept Interview	.94	2.38	.130
Harter Scale	.92	3.62	.064
Specific Domains	.98	.98	.329

Table 17

Pattern of Responses to Puppet Interview and Attachment Classification at Age Six

		Puppet Pattern			
		Open	Perfect	Negative	
Six Year Attachment	Secure	7 (9)	10 (8)	3 (3)	20 (20)
	Avoidant/ambiv.	2 (2)	5 (11)	4 (5)	11 (18)
	Controlling/ Insecure-unclass.	2 (1)	7 (5)	4 (8)	13 (14)
		11 (12)	22 (24)	11 (16)	44 (52)

χ^2=3.24, df=4; C=.26, n.s.

Note: Numbers in parentheses are Cassidy's results

Table 18

Pattern of Responses to DAP Interview and Attachment Classification at Age Six

		DAP Pattern			
		Open	Perfect	Negative	
Six Year Attachment	Secure	7	7	6	20
	Avoidant/ambiv.	1	5	5	11
	Controlling/ Insecure-unclass.	2	6	5	13
		10	18	16	44

χ^2=3.13, df=4; C=.26, n.s.

Table 19

Patterns of Responses to Self-Concept Interview and Attachment at Age Six

		Self-Concept Interview Pattern			
		Open	Perfect	Negative	
6-Year Attachment	Secure	7	6	9	22
	Avoidant/ Ambivalent	4	3	3	10
	Controlling/ Insecure-uncl.	4	2	5	11
		15	11	17	43

$\chi^2 = 1.05$, df=4; n.s.; C=.15

Note: One child did not complete this measure

Table 20

Attachment at Age Six and Self-Concept: Mean Scores

Group	Secure	Avoidant/ Ambivalent	Controlling/ Insecure-Unclass.
Variable			
Harter (Total)	77.2	79.9	71.3
Harter (Cognitive)	20.1	20.9	19.8
Harter (Social)	17.5	18.4	15.8
Harter (Physical)	20.5	21.6	18.9
Harter (Maternal)	19.1	18.9	16.7
Puppet Interview	2.7	2.2	1.8
DAP Interview	2.7	2.0	2.0
Self-Concept Interview	3.0	3.2	2.6
DAP Indicators	2.6	2.9	3.0
Specific Domains	.15	.09	-.06

Table 21

Emotional Indicators on the DAP and Attachment Classification at Age Six

		Category		
		Non-significant	Significant	
Six Year Attachment	Secure	9	11	20
	Avoidant/ Ambivalent	7	4	11
	Controlling/ Insecure-unclass.	6	7	13
		22	22	44

χ^2=1.2, df=2; C=.16, n.s.

Table 22

Discriminant Function Analysis Between Groups of Six Year Attachment (Secure, Avoidant/Ambivalent, Controlling/Unclassifiable) and Scores on All Self-Concept Measures

Variable	Wilks Lambda	F	p
Puppet Interview	.91	1.92	.160
DAP Interview	.93	1.50	.236
Self-Concept Interview	.94	1.31	.282
Harter Scale	.91	2.02	.146
Specific Domains	.97	.55	.580

Table 23

Discriminant Function Analysis Between Securely and Insecurely Attached Six Year-Olds and Scores on All Self-Concept Measures

Variable	Wilks Lambda	F	p
Puppet Interview	.93	3.16	.082
DAP Interview	.93	3.03	.089
Self-Concept Interview	.99	.21	.652
Harter Scale	.99	.27	.606
Specific Domains	.98	.79	.380

APPENDIX

COMPARISON OF DITRIBUTIONS OF STRANGE SITUATION CLASSIFICATIONS IN USA, ISRAEL, JAPAN AND NORTH/SOUTH GERMANY. INFANTS' AGE IN MONTHS.

SAMPLE	SIZE	AGE	ATTACHMENT FIGURE	SECURE (B)	AVOIDANT (A)	AMBIVALENT (C)	UNCLASSIF. (D)
BALTIMORE (AINSWORTH)	23	12	MOTHER	57 %	26 %	17 %	---
4 U.S.	106	12	MOTHER	66 %	22 %	12 %	---
BERKELEY (MAIN, WESTON)	61	12	MOTHER	48 %	31 %	8 %	13 %
BERKELEY (MAIN, WESTON)	61	18	FATHER	49 %	36 %	5 %	10 %
BIELEFELD (GROSSMANN)	49	12	MOTHER	33 %	49 %	12 %	6 %
BIELEFELD (GROSSMANN)	47	18	FATHER	41 %	54 %	2 %	2 %
REGENSBURG (GROSSMANN)	51	12	41 MOTHERS, 10 FATHERS	59 %	31 %	6%	4 %
REGENSBURG (GROSSMANN)	51	18	41 FATHERS, 10 MOTHERS	45 %	39 %	4 %	12 %
SWEDEN (LAMB)	51	11/13	MOTHERS	74.5 %	21.5 %	3.9 %	---
SWEDEN (LAMB)	51	11/13	FATHERS	71 %	25.4 %	3.9 %	---
ISRAEL KIBBUTZ (SAGI)	83	12/14	MOTHERS	56 %	8 %	35 %	---
ISRAEL KIBBUTZ (SAGI)	83	12/14	FATHERS	65 %	11 %	22 %	---
ISRAEL CITY (SAGI)	36	12/14	MOTHERS	81 %	3 %	6 %	---
SAPPORO, JAPAN (MIYAKE)	29	12	MOTHERS	65.5 %	0 %	34.5 %	---

APPENDIX A

APPENDIX B

Structure of the Regensburg Longitudinal Study

Age of Child	N	Method	Global variables
12 months	N=40 with mother[a,b] N=11 with father	Ainsworth's Strange Situation	Security of attachment
		Play situation with minor restrictions	Quality of parent-child interaction. Compliance and discipline. Ability to use parents as a secure base.
		Clown situation	Readiness to establish a new relationship; Disorganization/Disorientation rating
18 months	N=14 mother[a,c,d] N=37 father	---- same measures as in 12 months study ----	
3-4 years	N=45	Adult Attachment Interview	Parents' internal working model of attachment relationships
5 years	N=39	Preschool Observations	Social Competence Ego resiliency Curiosity
6 years	N=44	Six-year follow-up	Quality of attachment Self-Concept

Notes:
[a] : One Strange Situation could not be completed because of defunct video-equipment.
[b] : One child was too distressed by the laboratory environment to complete the observation.
[c] : One family had moved away.
[d] : With the exception of three children who were observed with their mother at 12 and 18 months, those observed with the mother at 12 months were seen with the father at 18 months and vice versa.

APPENDIX C

Sociodemographic Data of Participating Parents

Original Sample

Age	Mother	Father
20-25	14	5
25-30	24	15
30-40	11	27
>40	1	3

Education	Mother	Father
Highschool	25	16
Vocational Tr.	17	13
College Entry	7	8
College Degree	1	13

Father's Occupation

Unskilled laborer.....1
Skilled laborer.....3
Lower management.....6
Lower level civil servants;
small businessmen.....18
Higher level civil servants;
middle management.....17
Upper management;
professionals.....5

Maternal Employment

Employed outside the home..16
Homemaker.....34

Yearly Income (after taxes; in Dollars)

under 4,000 2
4,000 to 5,000 1
5,000 to 7,000 7
7,000 to 8,000 8
8,000 to 9,600 12
9,600 to 12,000 7
12,000 to 16,000 8
above 16,000 5

Children' Sex

Boys 21
Girls 32

APPENDIX D - G

Letter to the Parents (German)

Universität Regensburg
Institut für Psychologie IV
- Mitarbeiter -
Lehrstuhl für Psychologie IV
Prof. Dr. K. Grossmann

8400 REGENSBURG, 21.5.1985
Universitätsstraße 31 - Postfach
Telefon (0941) 943 3
Telex: 065 658 unire d

Liebe Eltern!

Ich wende mich an Sie mit der Bitte, wiederum an unserer Untersuchung zur Entwicklung kleiner Kinder teilzunehmen. Ihr Sohn oder Ihre Tochter ist mittlerweile um die sechs Jahre alt, und wir würden uns gerne ein wenig mit ihm oder ihr unterhalten und miteinander spielen. Diesmal möchten wir Sie wieder für einen Spielvormittag oder Nachmittag an die Universität einladen. Ein Taxi wird Sie dazu abholen und heimbringen.

Die gesamte Sitzung wird - wie schon vor fünf Jahren - gefilmt. Wir werden Ihrem Kind die Kameraeinrichtungen am Ende der Sitzung zeigen. Das ist für Sechsjährige recht aufregend!

Während Ihr Kind spielt, würden wir uns gerne mit Ihnen unterhalten, da dies uns zu einem besseren Verständnis der Gesamtsituation Ihres Kindes hilft. Am Ende der Sitzung erhält Ihr Kind ein kleines Geschenk.

Unsere Mitarbeiterin, Ulrike Wartner, wird in den nächsten Tagen versuchen, Sie telefonisch zu erreichen, um einen Termin zu vereinbaren. Wir werden uns alle Mühe geben, Ihrem Terminkalender gerecht zu werden.

Wir freuen uns auf Sie und Ihr Kind und danken Ihnen für Ihr Mitspielen.

Mit herzlichen Grüßen

APPENDIX D - E

LETTER TO THE PARENTS

Regensburg, May 1985

Dear Parents,

I am writing to ask you to participate again in our study on the development of small children. Your son or daughter is almost six years old now and we would like to talk with him or her and play a few games together. This time we would like to invite you to another play morning or afternoon at the University. A taxi will bring you to and from the university.

The entire session will be videotaped through a one-way mirror, just like we did five years ago. We will show the camera equipment to your child at the end - this is usually quite exciting for six-year olds.

While your child is playing, we would like to ask you a few questions about parenting. This may help us to get a more complete picture of your child's situation. At the end of the session your child wil receive a small present.

My assistant, Ulrike Wartner will try to contact you per telephone during the next few days to figure out a time for you to come in. We will make every effort to accomodate to your schedule.

We are looking forward to seeing you again and are most grateful for your cooperation!

Sincerely,

Klaus Großmann

APPENDIX E

Interview with a Large Puppet (Berta)

1) Berta, do you like child?

2) Do you like child the way s/he is, or do you want to make him/her better?

3) Berta: I want to know: Is child a good boy/girl?

4) What is good about him/her?

5) Well Berta, what is the very best thing about him/her?

6) Are you ever disappointed in child? (If no, ask: Never?)

7) Is child perfect? (If yes, ask: Totally, in every way?)

8) Berta, do you like to play with child?

9) Tell me Berta, do you want child to be your friend?

10) Berta, can child do lots of things? Does s/he do things well or not so well?

11) Berta, do you think child is nice-looking?

12) Berta, is child ever a bad boy/girl? (If no, ask: Never?)

13) What is the worst thing about him/her? (If nothing, ask: Can you really think of nothing?)

14) Do other people like child? Who? (after first answer, probe: Who else?)

15) Is there anything at all about child that could be better? (If no, ask: Nothing at all?)

16) Do you think child usually does the right thing? Does he/she always do the right thing?

17) Do you think child is important or not important?

18) Do you care what happens to child?

19) What do you hope happens to child?

20) What do you think will happen, when s/he grows up?

APPENDIX F

SCORING CRITERIA FOR INTERVIEW WITH A PUPPET

(FROM CASSIDY, 1985)

APPENDIX G

The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children*
Individual Recording and Scoring Sheet, Form P-K

Child's Name _____ Age _____ Gender: M F

Class/Grade _____ Teacher _____ Testing Date _____

Item Order and Description	Cognitive Competence	Peer Acceptance	Physical Competence	Maternal Acceptance
1. Good at puzzles	1 ___			
2. Has lots of friends		2 ___		
3. Good at swinging			3 ___	
4. Mom smiles				4 ___
5. Gets stars on papers	5 ___			
6. Stays overnight at friends		6 ___		
7. Good at climbing			7 ___	
8. Mom takes you places				8 ___
9 Knows names of colors	9 ___			
10 Has friends to play with		10 ___		
11. Can tie shoes			11 ___	
12. Mom cooks favorite foods				12 ___
13. Good at counting	13 ___			
14. Has friends on playground		14 ___		
15 Good at skipping			15 ___	
16 Mom reads to you				16 ___
17 Knows alphabet	17 ___			
18. Gets asked to play by others		18 ___		
19. Good at running			19 ___	
20. Mom plays with you				20 ___
21. Knows first letter of name	21 ___			
22. Eats dinner at friends'		22 ___		
23. Good at hopping			23 ___	
24 Mom talks to you				24 ___
Column (Subscale) Total:	☐	☐	☐	☐
Column (Subscale) Mean: (Total Divided by 6)	_____	_____	_____	_____

Comments:

*Susan Harter and Robin Pike, University of Denver, 1983

APPENDIX H

Self-Concept Interview

1) Can you tell me something you like about yourself?

2) What do you like the very most about yourself?

3) What do you think is not so good about you?

4) Do you think you are nice-looking?

5) Do you think you are special?

6) Would you rather be a boy or a girl? Why?

7) Is there any way you could be a better kid? (If no, ask: No way at all?)

8) What do you think your Mom likes about you?

9) Is there something Mom doesn't like about you?

10) All kids are bad sometimes. When did you did something bad? What was it?

11) What do you think is the best thing for a kid to be when grown up?

12) What do you want to be when you grow up?

13) Do you think you will be able to do this?

14) Do you want to be a Mommy/Daddy when you grow up? Why?

15) Is there any way you would change yourself so you would be happier?

16) Is there any way you would change your family so you would be happier?

17) Give me a list of who likes you! (After first pause, ask: Anybody else?)

18) Give me a list who doesn't like you! (After first pause, ask: Anybody else?)

19) Can you tell me five words about you?

20) If I was going to tell somebody just one thing about you, what should it be?

21) We're finished now. But before we stop, is there anything else you think I should know about you? Is there anything else you want to tell me about yourself?

APPENDIX I

Intructions and Inquiries for Drawings

Kinetic Family Drawing Technique

Intructions (from Burns & Kaufman, 1970):

> Draw a picture of everyone in your family, including you, doing something together. Try to draw whole people, not cartoons or stick figures. Remember, make everyone doing something, some kind of action.

Inquiry:

1) What is this family doing?

2) Who is ..... (have child name all members and write them on the drawings)?

3) Is the family enjoying what they are doing?

4) Are they happy together or unhappy?

5) (If a member is omitted, ask:) Where is .....?

6) What is the family going to do next?

7) If the family wished to do something different, what would they do?

Draw A Person

Instructions (from Klepsch & Logie, 1982):

> Draw a picture of a person.

Inquiry:

1) Is this a boy or a girl?

2) How old is this person?

3) Is this person sad or happy?

4) Is this a good person or a bad person?

5) Do you like or dislike the person?

6) What is this person thinking about?

7) Does he/she feel sad or happy about it?

8) What is the person doing now?

9) What is she/he going to do next?

10) What would this person really like to do?

11) Does this person's Mom like him/her?

12) Is there anything this person feels bad about? What is this?

13) Is this person perfect? (If yes, ask: In every way?)

14) Could he/she be better in any way?

15) If this person could change, what would she/he want to be?

16) Did this person ever do anything bad?

17) What was it?

18) Did Mom still love him/her?

19) What is this person going to be doing a long time from now?

20) Anything else you want to tell me about this person?

APPENDIX J

List of Emotional Indicators (Koppitz System)

(All of the Emotional Indicators are considered valid for boys and girls age six; Koppitz, 1968, p. 333)

Quality Signs

Shading of face

Gross asymmetry of limbs

Slanting figure, axis of figure tilted by 15 degrees or more

Tiny figure, two inches high or less

Transparencies

Special Features

Tiny head, head less than 1/10th of the total figure in height

Crossed eyes, both eyes turned in or out

Teeth

Short arms, arms not long enough to reach waistline

Long arms, arms long enough to reach knee line

Arms clinging to side of body

Big hands, hands as large as face of figure

Hands cut off, arms without hands or fingers (hidden hands not scored)

Legs pressed together

Genitals

Monster or grotesque figure

Three or more figures spontaneously drawn

Clouds, rain, snow

Omissions

No eyes

No nose

No mouth

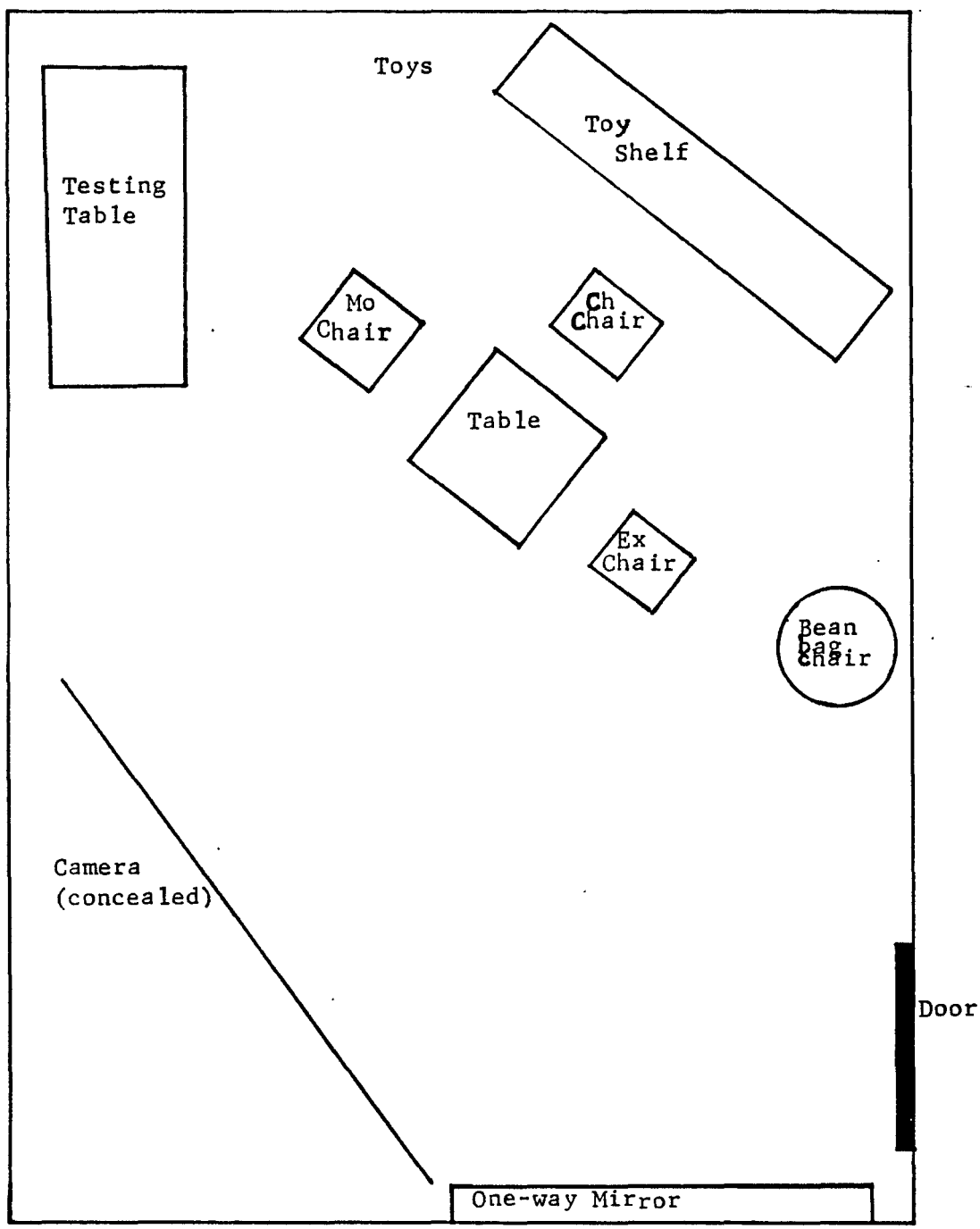
No body

No arms

No legs

APPENDIX K

DIAGRAM OF THE PLAYROOM



APPENDIX L

Procedure

	Content	Duration	Present
Episode I	Warm-up	10 minutes	Mo, ch, playmate
Episode II	Free drawing	10 minutes	Mo, ch
Episode III	Free play	2 minutes	Ch
Episode IV	Assessment		Ch, playmate
	1. Drawings	10 minutes	
	2. Specific Domains I	10 minutes	
	3. Interview with puppet	10 minutes	
	4. Harter Scale	10 minutes	
	5. Specific Domains II	8 minutes	
	6. Self-Concept Interview	15 minutes	
	7. Free play	5 minutes	
Episode V	Reunion	5 minutes	Mo, ch, playmate

APPENDIX M

SCORING CRITERIA FOR DISORGANIZED, DISORIENTED AND UNDIRECTED BEHAVIOR'S (CLOWN SITUATION)

Disorganized, Disoriented and Undirected Behaviors

Mary Main [1]
University of California, Berkeley

This scale is intended to help observers to recognize disorganized, disoriented or undirected behaviors outside of the Ainsworth Strange Situation, and to guage the extent to which such behavior may be indicative of more substantial difficulties. The scale is intended for application to infants 12-18 months old, seen in any mildly stressful situation in which the parent is present. The behaviors of concern are: stereotypies, episodes of immobilization, disoriented behavior, misdirected behavior, sudden bursts of activity and sudden uninterpretable noises or movements. Observers will also rate the infant for the extent to which such behavior may be indicative of difficulties in functioning beyond the brief observation period.

In some infants, behavior of this kind appears only in mild form, and in contexts which make it readily understandable as, tongue-out and hand-flapping during excited ball play, or lying prone and unmoving for a brief period when there are other indications of tiredness. In other infants, disorganized behavior is extreme and invasive as, repeated screaming while immobilized; clutching the head and leaning silently against the wall; falling to the floor and rocking violently.

The assessment is based upon close review of videotapes of 12-18 month old infants seen with parents in a structured observation in which the infant is continually pressed to respond socially or emotionally to an adult stranger. The 12-minute observation which served as the basis for the development of this scale was the Clown Session, developed in our laboratory at Berkeley and described at some length previously (Main & Weston, 1981). The Clown Session was designed to arouse apprehension at the outset (a stranger--the Clown--stands at the door with a Clown mask), then interest (with mask removed, the still-costumed Clown somersaults and tries in diverse ways to attract the infant) and finally to invite delight and social-emotional participation (e.g., the un-masked Clown attempts to engage the infant in a game of ball, then cries and then recovers from crying).

Infants have sharply varied responses to this pressing social context. The majority show some apprehension at the beginning of the session but then shift to interest and participatory play as the session progresses. A substantial minority refuse participation, sitting on the parent's lap and gazing at the Clown either shyly or stubbornly. A few infants are very frightened of the Clown, and respond by crying and moving as quickly as possible to the parent; for some of these, the session has to be terminated. Finally, very rarely, an infant is actively avoidant of both Clown and parent, preferring to engage in play with toys throughout the session.

None of the infants described above would be considered disorganized in their behavior. The infant who is hyperemotional and the infant who is actively avoidant may distress an observer for her failure to recognize or to

accept the presenting social context, but such an infant may be as purposive and deliberate in her behavior as the socially participating infant. Thus, behavior is not disorganized simply because it is inappropriate, anti-social, asocial or because it appears infrequently. Infants who respond to the Clown by clinging desparately to the parent and crying, and infants who respond to both Clown and parent by actively ignoring and avoiding both in favor of toys are rare, but their behavior as described here is deliberate and directed. It lacks neither orientation nor purpose.

While no list of disorganized behaviors can possibly be exhaustive--since the behavior is unexpectable almost by definition--there follows a partial list of types of behavior which could qualify. Some of the relevant dimensions are: orientation with respect to the environment (disoriented? or oriented in such a way as to suggest the behavior has been misdirected?); muscular tension (hypertonic? hypotonic?): response to environmental change (too swift? too slow?); and speed of behavior change. The common themes are lack of coherent purpose, lack of a conscious or voluntary quality; lack of normal direction or directedness. The behavior may well serve a function, but it lacks a goal-directed quality, is mis-timed, or is mis-directed.

Stereotypies. Quickly repeated movements which have no clear orientation, meaning or purpose. Head-banging, rocking and hand-flapping are stereotypies, when repeated in series. Behaviors of this type are frequently associated with autism, and mental retardation. According to current investigators, they may function either to relieve or to provide stimulation.

Disoriented or undirected behavior. The behavior is of a type for which specific orientation with respect to the environment is expected (e.g., eye movements, locomotor movements) but clear orientation is lacking. The infant may cry or scream in what looks like fear while staring at the feared object, but without withdrawing from it. Or the infant's face may have a disoriented look, so that muscle movements seem uncoordinated, and/or the eyes have a "blind" quality. Finally, the infant may seem extremely uncoordinated, as though it has no guiding orientation to the environment.

Mis-directed behavior. The behavior is directed toward some part of the environment, but it seems mis-addressed. Thus, the infant may be behaving socially toward an inanimate object, as smiling and vocalizing toward the light fixture. Or the infant may be suddenly afraid of a toy; or seem angry with a chair.

Mis-timed behavior. The behavior is normal in form, oriented, and oriented toward an appropriate object, but the timing of movement is such as to suggest the behavior is not being monitored in the usual fashion. Muscular tension may be either too great or lacking. Perhaps the infant very suddenly (and without the usual intention movements) begins to creep across the room, moving so quickly that its movements seem not to be self-monitored in the usual fashion. Or perhaps the infant very suddenly engages in a burst of arm or leg activity, a sudden change which could not have been predicted from its tense immobility just previous. The two most striking qualities of the mis-timed behavior pattern are (1) lack of normal preparation for initiation and (2) the jerky, automaton-like (unmonitored)

quality of the movements. (Movements can also seem to be mistimed if they are extremely slow, although this seems to be less frequent and might better be conceived as a type of immobilization).

Anomalous postures/movements. The posture or movement is not a stereotypy, nor is it mis-timed, mis-directed or dis-oriented. Nonetheless, it is difficult to understand why the infant engages in this particular posture or movement. The infant may leave its tongue hanging out, or make strange grimaces, or make, e.g., a strange hand-slapping movement on the floor while creeping (a movement which makes no contribution to forward progress and which seems not to be noticed by the infant), or may grasp its skull and lean its forehead against the wall of the playroom. These are not movements which are simply socially inappropriate, or appear in the wrong context. Rather, they would not be interpretable in any context that the observer can think of.

Anomalous vocalizations. The infant makes (usually, sudden) noises which seem neither expressive nor communicative, and which cannot be readily interpreted. These may consist of e.g., shrieks, grunts, odd (perhaps hopeless and undirected) cries, laugh-cries which seem confused rather than guided, etc. The quality of the sound is such that one cannot imagine what it would mean or what emotion it would express in any context.

Immobilized behavior. All previously listed types of disorganized behavior involve specific actions, but immobilized inactivity is also a form of disorganization. Immobilization does not refer to infants who are deliberately unmoving out of shyness or out of a stubborn

refusal to engage with the Clown emotionally or socially. These are forms of behavior which are only superfically inactive and which involve an alert reactivity and watchfulness on closer examination. Rather, there is a striking lack of reaction to environmental change, and the muscle tone is excessively tense or extensively flaccid. If the tone is tense, the immbolilized face may seem rigid, and may have a stereotyped expression. If it is flaccid, the face may seem to droop downward, and the infant may move extremely slowly, or may lie on the floor in something resembling a classic depressive posture.

Scale for Assessing Degree of Disorganization in Behavior

Prior to rating any individual infant it is necessary to acquire a sense of the range of infant behavior in the Clown Session, by viewing at least 25 infants at 12 and 25 infants at 18 months in this same session. Following the identification of disorganized behavior in any individual infant, observers rate the infant on a 9-point scale where 1 = no disorganized behaviors, 5 = some disorganization in behavior and 9 = disorganization in behavior to a degree which are severe enough to lead to the observer to conclue that they could interfere with the conduct of everyday life.

In making the rating the observer balances positive and well-functioning aspects of the infant's behavior against the presence and invasiveness of disorganized behaviors, i.e., what is rated is not simply the bouts of disorganized behaviors but these in the context of the infant's behavior throughout the remainder of the session.

The following may serve as a guideline at the time of the first viewing. The guideline is necessarily a rough one: ratings are best based on a sense of the norms of both "ordered" and "disorganized" 12-18 month behavior which can only be acquired by repeated viewing of many infants.

1. No disorganized behavior. The infant may behave inappropriately or undesirably--refusing to interact with the Clown, striking in anger at the parent, becoming so distressed that the session is terminated--but there are no signs of disorganized or undirected behaviors.

3. Slightly disorganized behavior. A very few occurences of specifiable disorganized behaviors, none serious in themselves, as, tongue-out, wave-hands, tension movements, brief lie-down on the floor in contexts which make them readily interpretable. Or, a listlessness to movement which does not yet really suggest depressed affect. The behaviors are slight enough that one could reasonably question whether they stand for real disorganization, disorientation or lack of directedness: the infant may be simply tired or simply excited.

5. Some disorganized behavior--but no clear indication that this would appear beyond the confines of the Clown Session. For example, the infant may be immobilized in response to the Clown, and listless and slow in movement, but receive a 5 rating rather than a higher rating because (a) this can be ascertained only by viewing the infant's failure to respond over several minutes, i.e., the infant does not appear depressed from a brief glance at movement or posture and (b) for this reason the observer thinks the behavior may be simply a reaction limited to the Clown Session. ** Or, several disorganized behaviors can be noted, but these are mild and the infant seems to be functioning well when not exhibiting them.

7. Disorganization in behavior--which could have some portent for behavior beyond the Clown Session. For example, the infant may gradually lapse into a mood of incoherent and undirected distress and anger which cannot be sensibly attributed to anything which is happening in the environment (and which is accompanied by odd movements). Or, an infant may, e.g., show great body tension with inexplicable bursts of activity and odd vocalizations which are not timed with respect to the Clown's advances. Because these reactions

are not clearly a simple response to the strange or threatening aspects of the immediate situation, they may portend disorganization in behavior which would be observed beyond the Clown Session. Because of the lack of explanation in terms of immediate pressures of the Clown Session, the observer may again assign a higher rating. The essential point is that the observer is unable to understand the infant's "disorganized" behavior as a sign of conflict originating solely as a response to the events in this session.

9. Serious disorganization in behavior. Bursts of activity or inactivity signal difficulties that are likely to re-occur outside of the Clown session. This rating will be given if behavior which could conceivably interfere with the conduct of everyday life is shown, as when the infant is extremely disoriented and uncoordinated throughout the session. The rating will also be given if the infant behaves fairly normally during the non-stressful parts of the sessions, but responds with strong or anomalous panic or fear to the stressful initial portions. Even though the infant may look to be functioning well beyond the initial minutes of the session, such extreme stress reactions may be indicative of a tendency to difficulties in functioning in stressful situations in everyday life.

Footnotes

[1] I am grateful to Loretta Townsend for her assistance with an earlier attempt to draft a similar scale for infant "disturbance". I also acknowledge Donna Weston, Stewart Wakeling and Loretta Townsend for their efforts to score infants for "disturbance/worrisome behavior" during the Clown Session; this scale emerges as the final product of those efforts.