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Adolescent perception of parental attachment: The impact on cognition and creativity

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ADOLESCENT PERCEPTION OF PARENTAL ATTACHMENT: THE IMPACT ON COGNITION AND CREATIVITY

by

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Abstract

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This investigation studied the relationship of attachment status of adolescents to cognitive processes as an aspect of creativity. Adolescent attachment was defined as subjects' perception of relationships with significant maternal and paternal figures. Instruments used involved assessing attachment status through the Inventory of Parent and Peer Attachment (Armsden and Greenberg, 1984) and the Mother-Father-Peer Scale (Epstein, 1985). Aspects of family environment were also examined. Cognitive style was measured through the Uses of Objects Test (Guilford, 1968) and the Category Widths Test (Pettigrew, 1958).

Cognitive abilities were examined in relation to attachment status. Findings suggested that adolescents differed in terms of their perception of parental attachment along dimensions of communication, family cohesion, and parental idealization, based on security of attachment. Cognitive differences were found within the less secure adolescent group particularly in relation to idealzation of fathers. No cognitive differences were found based on quality of attachment to parental figures.

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"I wish all the doors of my home be open to the winds of different opinion, but not to let them blow me off my feet."

---Gandhi

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Chapter I

INTRODUCTION

In the past ten years attachment theory has blossomed with interest. Theoreticians from developmental perspectives, psychoanalytic orientations, and family dynamic philosophies have contributed to the surge of interest in this field. Perspectives have been presented postulating the enduring qualities of the attachment relationship across time, and the impact of these attachments on personality development and academic skills.

Cognition has been seen as a factor also affected by the parent-child relationship in early development. Whether this influence abates by adolescence or continues to exert some impact on cognitive development are of current focus. Similarly, adolescence and adolescents have begun to demand greater attention in American culture. Adolescents are often seen as aspiring, youthful, and saddled with greater responsibilities than their parents when they were of similar age. Numerous young adolescents are becoming parents, most are aware of incurable diseases, nuclear war and pressures to achieve economic status. All these issues are part of the current adolescent culture. Often it is assumed and expected that these young people will adjust to and manage these issues without significant intervention. Adults, researchers and adolescents must be reminded that these young people are just that, adolescent: in a state of

development and in need of a myriad of external, or social, nourishments in order to complete their growth.

In addition to the environmental or social changes, inherent in this adolescent stage are physical, psychical and emotional demands of biological growth, self reflection, and identity formation. Confronting these adolescent developmental tasks often involves spontaneity of behavior and spiritedness of ideas. Sexual interests rise, relationships with peers develop, relationships with parents change, and cognitive bursts emerge, often with innovative or introspective twists. Adolescents become imaginative, original and self-expressive in exploring new found energies and abilities.

This adolescent excitement can often be seen in the form of creative behaviors. Creativity is considered by Arieti (1967) to be a tertiary process, combining primary and secondary process mentation from which also evolve humor, wit, religion, and science. Adolescent excitement is also seen as adolescents begin to utilize their greater capacity for concept formation, and attempt to master their abilites to use humor and wit, and to question ideas regarding science and religion. These questionings can be viewed as a creative endeavor.

Masterson (1985) defines creativity as pertaining to a person's ability to invent, originate, or perceive old

patterns in new relationships. Creativity allows one the ability to rearrange old patterns in new ways. Included in these patternings is the capacity to make a unique rearrangement of inner psychological components.

If ever adolescents are observed or overheard talking with peers, the energy level can be felt as they discuss aspects of academic subjects, the latest style in clothing, the most challenging computer programs, the sportiest cars, or desired relationships. All are topics with which these young people have dreams, fantasies and numerous scenarios. This is related to Masterson's (1985) view of creativity as an adaptive process in self functioning.

Masterson (1985) imagines that as one masters the attainment of need gratification and develops coping strategies, creative processes are in operation. These processes and patterns affect interpersonal relationships as reflected in the cognitive bent adopted in problem-solving situations.

Drive theory places importance on need satisfaction and reduction of tension as the major motivator for most human needs including problem-solving and creativity. The drive theory perspective views creativity and its derivatives as by-products or manifestations of the constant negotiation of the Freudian tripartite system involving the development and life of the id, ego, and superego (Freud, 1905). Freudian theory states that the diversion of sexual

energy from the original aim is what motivates one to utilize creative processes (Arieti, 1967; Freud, 1908), necessitating a delay of gratification. The expression of creativity eventually becomes consolidated as a perspective on inner and outer life which is characterized by spontaneity, flexibility, and originality, uniting preconscious fantasy and external reality (Greenacre, 1959; Kagan, 1984; Masterson, 1985). In short, creativity reflects how people view themselves and their experiences in relation to the surrounding world. Whatever fantasies or wishes which evolve in response to these experiences are also reflected in creative activities.

Playfulness is also related to creativity. Playfulness is typically an attribute used to describe someone who is spontaneous, joyful, or frolicsome, often implying an immature state (Webster Dictionary, 1972). Play is generally expected in children more than in adults. Play is also considered to be acted-out fantasy, allowing one access to an unlimited wealth of choices, options, and roles (Alexander, 1958; Freud, 1908; Greenacre, 1959; Waelder, 1932). Piaget (1981) disagrees with drive theorists and considers play, like curiosity, to be a descriptive term of the child's behaviors which are tautological adjectives when referring to the immature human organism. Piaget states, "to speak of a play instinct is to say that the

child has an instinct to be a child" (Piaget, 1981, p. 19). Yet both drive theorists and developmentalists would agree that "play" in reference to adults is not seen as instinctual. For adults, play and creativity tend to have more purposeful and artistic connotations (Kris, 1952).

The play of adults is seen as being a higher level order of defensive structure, involving sublimation and functional regressions deemed as ultimately fostering mature development (Kubie, 1958). However, the capacity to utilize one's ideas and thoughts in a playful manner, and the art and act of being creative, denotes a type of sublimation that tends to emerge with maturity. This creative maturity unfolds as one exits childhood and can be seen as early as latency and clearly by adolescence.

From a psychoanalytic perspective adolescence could be considered a fertile area to explore how libidinal drives are negotiated for the cognitive aspects of creativity. Cognitive developments allowing the adolescent to utilize "as if" thinking (Lieberman, 1967), to make causal connections between ideas, as well as to experiment with abstract possibilities and concepts, adds to the fertility of the adolescent period. The renegotiation of erotized objects from parental figures to heterosexual objects (Freud, 1908), requiring much use of sublimation as a defensive or adaptive style, adds further merit to examining

relationships, cognition and creativity in the adolescent period.

In contemplating these theories regarding adolescent development, cognitive processes and creativity, several questions arise as to the processes which allow adolescents to have the capacity to express creativity with the freedom and loss of censorship that is often seen in the play of children. What transformations occur during the course of human development which allow spontaneous child's play to develop into purposeful and intense creativity in later years? Is it solely the redirection of incestuous impulses which govern the creative drive, or might there be a role for different modes of thinking resultant from earlier development which allows creativity to emerge in later years? To thoroughly answer these questions would involve longitudinal studies beyond the scope of this report. Related aspects of these questions can, however, be investigated.

This study takes as its focus the last question raised: are there aspects of early development which contribute to the development of the cognitive modalities which are components of the creative process? If so, are there identifiable aspects of the perceived relationship with significant parental figures which might predispose adolescents toward utilization of one cognitive process versus another?

In the effort to explore these questions, we will discuss the association of attachment relationships, cognition and creativity. In order to begin this discussion the following are the definitions of terms used for the purpose of this study:

attachment: the emotional valence, or bonding an adolescent has toward another person, often parents or a parental figure. This relationship is characterized along dimensions of trust, communication, and alienation.

a) Secure attachments are ones in which the adolescent has a fairly realistic perspective of the flaws of the attachment figures. Open discourse and trust are emphasized, feelings of alienation are not prevalent.

b) Insecure attachments are ones in which the adolescent has an idealized and/or an excessively positive or denigrated perception of the strengths and deficits of the attachment figures. Alienation is acutely felt within this relationship, open discourse and trust are less emphasized.

Cognition: internal mental processes by which knowledge and awareness are gained. These processes are believed to link perception and insight.

Creativity: the capacity to utilize imaginative thinking as manifested by spontaneity, conceptual diversity, and originality of options during problem-solving tasks.

We will begin this discussion by examining attachment theory and its relevance to the adolescent period.

Chapter II

Review of the Literature

Attachment theory and adolescence

In the past five years attachment theory has developed and expanded its focus beyond infancy. Research has been conducted to support the belief that attachments to parental figures continue to exist in adolescence and throughout life, not solely during infancy. In expanding attachment paradigms to encompass adolescence, it was also felt that the manifestations of attachment in adolescence and adulthood differed from those observed during infancy (Parkes & Stevenson, 1982). Whereas the infant's or child's attachment to the mother may involve variations in physical proximity, gaze, and reunion behaviors (Sroufe & Waters, 1977), manifestations of attachment in adolescence tends to be more subtle.

Attachment behaviors in adolescence are seeking certain persons in times of conflict or crisis, consulting them for advice, or preferring to spend time with them when in need. Attachment figures are most often parents, peers, and sexual partners (Weiss, 1982).

In exploring the history of attachment theory it becomes clear that the application of attachment theory to adolescent is warranted. Much research has been conducted since John Bowlby (1969) initially presented his attachment

theories, expanding the applicability of his theory. Early in his studies, Bowlby saw attachment as having a biological importance equal to feeding and mating behaviors. He focused on the need for a stable relationship (attachment) which serves a protecting function from both physical and psychological harm (Bowlby, 1969; 1982b). In his investigations, he was able to identify attachment behaviors which allowed him to further define a more comprehensive attachment system common to most species.

The ultimate attachment system enumerated involved three components: 1) a set of goals, such as locating the attachment figure; 2) a set of goal corrections, assuring that the interaction with the attachment figure will be satisfying; 3) and a final feedback system providing information about the organism's comfort within the environment. This feedback system serves as a detector of perceived harm and safety (Bowlby, 1982a).

Bowlby believed that the attachment system was activated only during specific periods of stress, alarm, panic, or pain (Bowlby, 1982a). However, more recent research (Sroufe & Fleeson, 1985) postulates that the attachment system is covertly in operation continuously, not solely during increased periods of stress.

The concept of an ongoing attachment system being present has stemmed from expanded work on Bowlby's original

tenets by Main, Kaplan, and Cassidy (1985), and associated researchers, Sroufe & Fleeson (1985), who aided in developing the theoretical construct of an "internal working model". This model focuses on the inner conceptualization and representation of the experiences within the attachment dyad which the child develops and maintains into adolescence. During adolescence internal perceptions of important people are refined and readjusted in part resulting from maturation, and the emergence of conceptual abilities. The work which was as conducted by these researchers was in the attempt to define the cognitive components involved in the establishment and maintanence of the attachment system and internal representations of others.

Mary Main and several of her colleagues including Inge Bretherton (1985), L.A. Sroufe (1979), and Everett Waters (1978), independently and collaboratively elucidated the concept of internal working models. They described this theoretical concept as "unconscious rules derived from the history of one's relationship with attachment figures, which guide behaviors, cognition, and affect in attachment relevant situations" (Slade & Aber, 1986, p. 2). Main, Kaplan, and Cassidy (1985) postulate that cognitive/affective models must be understood first, in order to comprehend the "meaning" that attachment behaviors and behavioral strategies hold for the individual.

In other words, speculation was raised regarding the individual differences in attachment behaviors and possible predisposing factors maintaining the various components of the attachment systems. Knowledge of the meaning of the attachment behaviors allows one to more clearly determine when the attachment system is activated, what affects erupt when the attachment system is triggered, or what fosters dormancy, and what function the expected outcome of the attachment system is intended to serve. It is believed that specific cognitions underlie the behaviors exhibited when a caregiver's availability is in question.

Adolescents who are anxious and uncertain regarding the availability of the attachment figure may either devalue or idealize these persons. Whereas those adolescents who are aware that parental figures may be present, but perhaps with some delay in responding to their needs, may be more readily able to feel comfortable with these imperfections in the attachment figure without total negation of the value of the parental relationship.

Weiss (1982) takes note of the changes in the attachment system during adolescence introducing the role of skepticism and de-mystification of the attachment relationship. Weiss agrees with Sroufe and Fleeson that attachments exist beyond infancy and beyond adolescence, but he also acknowledges the unique and specific contributions

adolescence has to the attachment paradigm. Weiss presents the hypothesis that during adolescence a decrease in the importance of the attachment figure is seen.

Weiss (1982) postulates that as children enter adolescence, attachment behaviors are less recognizable. He believes that as adolescents attempt to establish their identity they "seem to want assurance that their parents' investment in them continues while insisting on intervals in which they are free of parental surveillance" (Weiss, 1982, p. 175).

Weiss infers that the adolescent's request for periods of separation is evidence that the adolescent no longer views the parent as an attachment figure, and that the parental presence no longer allays anxiety. Weiss suggests that during these intervals in which parents are no longer attachment figures, the adolescent's perception of the parents changes. "No longer are the parents awesome, larger than life repositories of strength. Instead they are seen as ordinary people with the usual budget of frailties and problems" (Weiss, 1982, p. 176).

From a developmental perspective, Weiss continues examining attachment in adulthood, yet he makes minor modifications of Bowlby's original tenets. Weiss (1982) views attachment in adults as differing from attachment in infancy in three ways. He states that: 1) attachment in adults usually appears with peers who may be viewed as

sources of strength versus the maternal relationship viewed as dependent; 2) adults do not seem to be immobilized by threats to their attachment systems as is often seen in infants through inconsolable crying or refusal of food; and, 3) attachments in adults is often directed toward a figure with whom a sexual relationship also exists (Weiss, 1982).

Weiss considers adolescence as the period where accessibility to parents does not seem to provide security. The adolescent's attachments seem to be transferred to other adults, groups, or peers. Weiss thereby states that the entities of attachment in infancy and childhood and that of adult attachment are distinct, yet he does not address the role of internal representations operating during adolescence, nor does he refute that some form of attachment exists throughout the life span.

Berman (1984) appears to agree with Weiss' position of attachment in adults differing from childhood attachment. However, he parts from Weiss in that he acknowledges the presence of memories or internal cognitive structures emanating from the attachment relationship which remain in operation. Berman operationally defines attachment in adults as "thoughts and actions that serve to maintain proximity to some other special person with whom the individual has developed a close and enduring bond" (Berman, 1984, p. 7).

Berman (1984) investigated attachment from a cognitive perspective by using divorced women. He attempted to measure associated thoughts about the divorced spouse, after prompting the subject to think of positively valenced and hostile interactions with the ex-spouse. His theoretical frame involved the belief that "for adults the attachment figure may provide a psychological sense of security and safety, and may serve to provide emotional availability and accessibility to the attachment figure" (Berman, 1984, pp. 4-5). This hypothesis was found to be supported by his study. In this regard, attachment in adults takes on a more cognitive emphasis rather than the behavioral component seen in infants and children. This position also endorses the more recent cognitive focus of attachment as adopted by Main and her colleagues (Main et al., 1985).

Similarly, Hazan and Shaver (1987) conducted attachment research on adults by examining adults' perceptions of attachments formed in childhood and how these perceptions impacted upon the beliefs about romance and love relationships formed in adulthood. They classified subjects into attachment categories of "secure, avoidant, or anxious/ambivalent" based on responses about closeness, dependency, and trust within a love relationship. Inquiry of subjects about their childhood relationship with their parents resulted in significant findings allowing for differentiation of three distinct groups, congruent with

Ainsworth's models of security of attachment (Ainsworth, Blehar, Waters, & Wall, 1978).

Of the few studies reviewed which have empirically examined attachment in adolescence, all have claimed some degree of congruence with Bowlby's premise of attachment figures being trustworthy and sought after persons during times of conflict. Based on these concerns, distinct criteria have been illustrated differentiating secure from insecure attachment styles.

Armsden and Greenberg (1984) have developed a questionnaire examining adolescent's perception of parental figures along dimensions of communication, trust, and alienation. They discovered a highly negative relationship between combined scores on trust and communication in relation to alienation scores. Adolescents who were assessed as securely attached, scored low on alienation factors and high on trust and communication factors. The reverse was found for less securely attached adolescents. Their findings suggest that trust, communication and alienation were major components of the attachment construct.

Armsden and Greenberg also discovered that quality of attachment was positively correlated with positive adolescent self-esteem, perception of self as a family member, and social well-being. They also found that securely attached adolescents had a higher incidence of seeking out

others in times of need than adolescents attaining a low quality of attachment score (Armsden & Greenberg, 1984).

Another researcher, Deri (1984), stresses the theoretical importance of attachment on the individual's approach to the world and self-perception, supporting empirical findings by Armsden and Greenberg. Susan Deri (1984) states "as the child grows into an adult, he or she will know how to unconsciously invest the world with parts of him- or herself so that when new parts of the world are found, they will not feel totally alien but as familiar places in which one can find one's own self. The world comes to be a safe place for exploration; it is connected to the self" (Deri, 1984, p. 263).

These findings seem to suggest that there are stable characteristics of the attachment paradigm, as well as cognitive schemata, which gives support to the hypothesis that attachment is a relatively persistent construct involving ways of construing one's interactions with others that endures across time and can be seen in adolescence. The thematic picture developed of the external world and others in it, by design, must also have significant impact on the development of one's self-concept and self-esteem.

Given this construct of adolescent attachment, let us explore the literature on adolescent development, adolescent cognition and how these processes interplay with creative expression.

Adolescence and rebellion

Much debate exists among researchers and observers of adolescence as to the function of rebellion during adolescence, and the necessary versus pathological presence of acting-out behaviors during this period. (Bernfeld, 1938; Eissler, 1978; Kaplan, 1984; Masterson, 1985).

For example, in support of the perspective that adolescent rebellion is a necessary developmental component, in 1958 Anna Freud published her synopsis of adolescence and in it described pathological character structures resulting in adolescents who fail to show signs of upheaval and conflict. A. Freud's main point was that the intrapsychic quiescence and character structure established during latency, is inevitably disturbed by the physiological changes which occur during puberty. These libidinal changes are paramount in allowing adult sexuality to be integrated in the overall adult personality and are believed to be necessary for "healthy" adolescent development. Using her systemic model of drives, A. Freud believed the lack of external manifestations of internal maladjustments, signified a too rigid defense system mediated by aspects of ego-superego controls, that did not allow changes in the drives to occur.

Anna Freud presented a variety of ego defenses believed to be employed by adolescents in reducing the anxiety

experienced when faced with the task of primary object decathexis from parental figures at this stage. With the belief that parents are the first people with whom an emotional bond and attachment is made, considerable anxiety is considered to surface when changes in these bonds occur. As part of the process of having a firmer understanding of personal identity, adolescents are believed to have to abandon or at least modify their emotional ties to parental figures and ensuing behavioral manifestations of these changes occur. A. Freud describes defenses such as: flight, reversal of affect, withdrawal of libido to the self, and regression as styles used by adolescents when stressed with issues involving separation and individuation from parental figures (Freud, 1951; 1958). This perspective is similar to Weiss' (1982) who states that parental figures no longer are attachment figures during adolescence.

A. Freud differed from Weiss by her acknowledgement of her frustration in treating adolescents. A. Freud found these tumultuous periods hindered the development of the transference to the therapist and prevented significant past memories to emerge in order to obtain analyzeable material.

I believe that Freud's difficulty in understanding adolescence, which may have contributed to her adoption of an all or none perspective of adolescent emotional turmoil, was due to her strict adherence to a theoretical treatment frame. Her writings indicate the reluctance to make

necessary adjustments in order to foster a more therapeutic relationship given the variety of issues adolescents brought into sessions. Had she done so, she may have drawn different conclusions regarding the function of rebellions in adolescence.

Fenichel (1954) adds a slightly different angle to the understanding of rebelliousness in adolescence. Fenichel has stated that one of the functions of "acting-out" is to make a memory inaccessible to awareness and impervious to any types of transformations emanating from either internal or external sources. In this regard, acting out or rebelliousness serves a defensive function in aiding in the maintenance of a repressed memory. One can argue for the merits of cathartic expression versus repression, but there appears to be a certain usefulness for repression during the adolescent phase. In particular, the inaccessibility of incestuous urges may serve the adolescent well until greater consolidation of ego structures are established.

Winnicott presents an opposing view to Fenichel's and A. Freud's analyses regarding the role of rebellious behaviors. Winnicott (1971) proposes that rebellion in adolescence is another manifestation of creativity at work. He believes that rebellion is a significant aspect of the parent-child relationship because it expresses "the freedom you have given your child by bringing him up in such a way

that he or she exists in his or her own right...[the] right to express ideations, beliefs and new ways of problem-solving" (Winnicott, 1971, p. 170). Winnicott believes that in the adolescent's striving towards maturity and the overthrow of the parents, much imagination and creativity are demanded. This enables the adolescent to call upon a variety of resources in this attempt to attain independence and consolidation of identity.

Despite the differences, what these theories do have in common is the agreement that the adolescent is disrupted from the previous relationship to parental and attachment figures. This disruption forces the development of new patterns and the creation of new internal structures stemming from the old.

Perhaps no single theorist has contributed more to the development of "modern" psychoanalytic perspectives of adolescence than Peter Blos. Although Daniel Offer and his late wife have contributed considerably to the "normalizing" of adolescence (Offer & Offer, 1975), through extensive studies of largely non-clinical adolescent populations, they have mainly approached this topic from a sociological perspective. However, Blos has consistently studied adolescence from a psychodynamic perspective.

All of the previous researchers presented, acknowledged the presence of some turmoil during adolescence. Blos (1962) expands this notion by proposing that there may be a

subgroup of adolescents who may not experience any turmoil at all, perhaps reflecting the extent that libidinal urges toward parental figures have been repressed, or that the initial drive endowment was low.

Blos' perspective draws upon the psychoanalytic model of there being a resurgence, in both sexes, of the attraction toward and dependency upon the mother, the primary internalized object, prior to the decathexis of the libido from this object. "The more strongly this passive need [for dependency] is felt, for instance by an overindulged or by a severely deprived child, the stronger the defense against it [regression] by rebellious and hostile actions and fantasies; paranoid ideas are not infrequent" (Blos, 1962, p. 74). Blos states that during the course of the adolescent-parent separation attempts may be made to ward off depression, loneliness or isolation (Blos, 1962; Freud, 1905; Spiegel, 1958) through searches for love objects and attempts at mastering sexual and aggressive impulses. Some of these attempts may be creative in nature.

Blos has stated that the rebellions that are seen during adolescence reflect not only the decathexis of the internalized parental object representations, but also the shift in the accompanying moral laws which reside in the superego (Blos, 1962). Although some values have already

become stabilized within the ego, some amount of loss of self-control tends to emerge. Delinquency (in the extreme) and other oppositional acts (as the modal behavior) may result from this loss of control. These behaviors may also be considered sublimated acts, protecting the adolescent from acting on sexual or incestuous impulses, a perspective which meshes with Fenichel's views of adolescent acting-out.

Not withstanding whether one describes socially proscribed behavior as rebellious or as acting-out there appears to be general agreement that psychic and physical disruptions occur during adolescence. What has not been clearly understood are the characteristics of adolescents who vary in the degree of said disruptions. Neither have differentiators been identified distinguishing those adolescents who have extreme upheavals, from those who are more complacent, or from those who appear to be mobilized by these changes and challenges. One possibility is that these differences reflect the level of security of attachment to parental figures. However, further research of this hypothesis would need to be conducted in order to test this assertion. Another possibility is that cognitive abilities affect the degree to which disruptions are displayed. The next section will examine adolescent cognition and those studies which have investigated adolescent cognition as expressed creativity.

Cognition

Piaget has been best known for his studies of human cognition and cognitive development. He reports that through processes of assimilation and accomodation one transgresses several cognitive stages by the time one reaches adolescence (Piaget and Inhelder, 1958). Piaget speaks of reflexive sensori-motor development giving rise to object permanence and language. He examines pre-operational thought and the emergence of egocentric symbolic ideations.

The preoperational stage is believed to develop during latency just prior to the emergence of concrete operations, giving rise to formal operations as adolescence begins. With the onset of formal operations and the capacity for more complex abstract thinking and hypo-deductive reasoning, a blossoming of innovative and creative ideas have potential to coalesce.

Although Piaget's position emphasizes the ubiquitous maturational influences on the child's cognitive development, he does not adopt a staunch biological perspective. Research is being conducted investigating such phenomena as biological changes in puberty to brain growth and functions. Theoretical bases are being explored suggesting that the timing of pubertal changes is related to different cortical functions, and different hemispheric functions. It is believed that "later maturers, including most men, have relatively better spatial abilities, and

earlier maturers, including most women, have relatively better verbal abilities" ("Judging Creativity", 1987, p. 54).

Piaget's notions allow room for an integrative perspective. One has little difficulty in applying Piaget's notions of cognitive growth to Bowlby's and Main's theories of attachment. Within each cognitive stage Piaget states that the individual actively selects, orders, organizes, and interprets their experiences and gives them significance. These experiences are then qualitatively altered and incorporated into structures which are necessary for the next cognitive stage (Mussen & Rosenzweig, 1973).

Similarly, attachment theorists propose that the individual's experiences are interpreted in such a way as to emphasize the qualitative aspects of interactions with significant others which are internalized and relied upon during times of need. The representation of these experiences are believed to be templates by which further experiences are met and understood. These representations are believed to also influence the degree of cautiousness or exploration an individual adopts toward their world.

Risk taking as a cognitive style has been studied by Pettigrew (1958) in his development of an instrument which measures a person's ability to estimate ranges of various categories. He discovered that individuals consistently

estimate categorical ranges such as ships entering a harbor, births in a year, or lengths of dogs' tails, from either a broad or narrow perspective. Pettigrew believes that the style with which these estimates are made is correlated with different personality traits.

Broad categorizers were found to take greater chances, and to be more tolerant of making Type I errors (accepting false positives) than narrow categorizers, who were more conservative, cautious, and more prone toward rejecting true cases, or of making Type II errors (Pettigrew, 1958). This risk taking ability appears to reflect a person's attunement to their environment, where those who are more highly attuned, or aware of their environment are more likely to take chances than persons who are unfamiliar or unaware of their surroundings.

Pettigrew's findings are consistent with research conducted examining cognitive style and attachment status Sroufe, (1979). Studies have shown that the playful, secure child develops into a more self assured and explorative child (Sroufe, 1979; Sroufe and Fleeson, 1985). A child who has conceptualized the world in such a way as to promote curiosity of self and other is one who has little hesitation toward exploration or of gathering information. This same child may evolve into an intense, curious, and goal-directed adolescent who has benefited from a sufficiently secure

attachment relationship to allow for imaginative experimentations and creative expression.

The fact that rapid biological changes occur during adolescence is a potential aid in expressing thoughts presumably involving some creative variant. Given the heightened cognitive abilities, it is believed that the adolescent's degree of flexibility or rigidity in cognitive processes, and the ability to take chances, may also become evident during this developmental period, components of which may be associated with creative expression.

Adolescence and creativity

We have already examined the literature on "rebellious" or acting-out behavior during adolescence. However we have not addressed the body of literature which considers rebellions to be a manifestation of creativity during adolescence, nor aspects of creativity itself.

To a great extent, creativity and rebellion can only be examined once properly defined for the given context. Many researchers (Frosch, 1987; Eissler, 1978) have argued that even in a state of "madness" or insanity, a creative process is in operation, functioning to form adaptive symptomatology in response to the conflicts experienced. Just as one can question what factors contribute to one person who has a predisposition toward an affective disorder versus schizophrenia, a similar question can be posed in understanding the contributing elements of adolescent

behavior. Whereas one adolescent may defy parental expectations with promiscuity and truancy, others may utilize style of dress to express their ideas, and yet others may differ in their assertion of unpopular ideological beliefs.

One can conceive of some scenarios which might involve less blatant rebellious or oppositional behaviors. The few which come to mind are: when adolescents state they are planning on going to a "musical" and afterwards a sleepover at a friends' house, fully aware that their parents would oppose their attendance at the twelve hour rock concert for which they really have tickets. Or, the adolescent girl who invites her mother to meet the friends with whom she plans to spend an unescorted weekend the following week. Or, a sixteen year old male decides to pierce his ear and wear tattered jeans, a stark contrast to his conservative parents. And lastly, an adolescent who opposes drugs and alcohol and explores a college education despite a long familial and parental history of substance abuse and underachievement.

These scenarios not only represent deviations and possible rebellious behaviors viz-a-viz the familial and parental norms, but also demonstrate creative alternatives to "normative" behavior as defined within their social context. In order to assert whether these behaviors are

indeed creative, we must examine the concept of creativity itself.

Arieti (1967) wrote of creativity as involving a combination of intensity and intense imagination. He believed that the average person learns to check his imagination and pay more attention to the requirements of reality than to inner experiences from which creativity stems. The adherence to constraints of reality is believed to limit creative potential. From a psychodynamic perspective, the conforming to demands of reality, or society, might be reflected in the development of superego structures governing the adolescent's moral development and subsequent freedom of self-expression. Persons with harsh and punitive superego structures might have difficulty in allowing creative and free self-expression. They would be more prone to the conservative, expected, or learned rules regarding self-governance.

Winnicott (1971) supports the notion of adolescent freedom and self-reflection, and like Arieti, addresses the influence of societal and external forces on the ability to convey one's ideas. Winnicott states, "In [immaturity] is contained the most exciting features of creative thought, new and fresh feelings, ideas for new living. Society needs to be shaken by the aspirations of those who are not responsible" (Winnicott, 1971, p. 172). Winnicott fondly speaks of adolescence as a period of immaturity, and of this

being a precious part of the adolescent scene. He also views immaturity as being an important aspect of creativity, believing that the absence of societal responsibility fosters innovative self-expression.

Masterson (1985) agrees with Winnicott regarding the role of the self in adolescent creative expression. But Masterson emphasizes environmental influences as contributing factors to creativity more so than does Winnicott. Masterson suggests that the combination of genetic predisposition and environmental factors limit the accessibility and full potentiation of creative capacities (Masterson, 1985). For Masterson the emergence of the self is necessary in order to obtain the highest level of creative expression, which, as Erikson (1940) states, is an ongoing process.

Masterson believes that the interaction with the external world, and external others, hinders the development of the self and subsequent creative expression. The scars which ubiquitously form during the consolidation of the self within the separation-individuation period, as there are no perfect mothers or children, makes it difficult to negotiate the anxiety and stressors associated with ontological tasks. Such difficulties are said to be most evident in later life when issues involving autonomy, intimacy and creativity are confronted (Masterson, 1985).

From these perspectives, the development of the self, which to some degree is reflective of the parent-child relationship, can either retard or potentiate self-expression and creativity. However, other researchers of creative thinking (Guilford, 1968; Lowenfeld & Brittain, 1982; Mackinnon, 1965; Winnicott, 1971) place less emphasis on self formation, and instead identify personality traits of individuals who have been successful in expressing creative thoughts, most notably in the artistic fields. One study indicated that creative persons search for original solutions to problems (Mackinnon, 1965). Another study showed that birth order was an important factor associated with receptivity of ideas, and that second, third, or fourth born men in families tended to be more ideologically rebellious than first born males (Sulloway, 1972).

Most studies of creativity, and an aspect of play described by Erikson (1940), viewed intensity as a universal trait of creative individuals. Creativity is believed to require an intensity and commitment to a continuous thinking process, involving an awareness of one's inner state and external environment.

Creativity in a child, may begin with sustained capacity for play, pretense, and assimilation of learning new symbols (Piaget, 1958), but does not have the same level of concentration and intensity as seen after the child advances. Together, with a general constitutional endowment

of health and a supportive and secure growth environment, children can learn to explore their surroundings and self without undo stress or fears. The intensity of their affects and the variability in their growth, both physically and cognitively, which begins to emerge, often startles and puzzles the more tempered adult eye. Yet these changes are also what make growth and development so exciting.

Excitement is also seen in adolescence. The intensity in exploration of self abilities, ideation and aspirations is often viewed as creative. However, direct investigation of intensity in cognitive thought and the impact on creativity in adolescence has not been fully investigated. The research examined for this study, focused on various factors involving cognitive processes during states of creativity.

In studying 200 adolescents Gutteter (1976) discovered distinct groups of adolescents who had visual or haptic (tactile) creative attributes. Those adolescents who manifested both visual and haptic traits were said to lack self-direction, and were constricted in thought and action. John-Steiner (1985) found similar results in his study on adolescents and adults. His findings indicate that fifteen percent of the British population studied thought exclusively in visual terms, an equal proportion thought in verbal terms, while the remaining seventy percent manifested

thought processes with combined modalities. His results would again suggest that only a small percentage of individuals might be able to fully access their creative potential if indeed creativity is fostered by a reliance upon visual or haptic modalities. This would warrant further investigation.

Other research on creativity has revealed that social scientists were found to rely on verbal processes of thought, while physical scientists favored visual thinking (John-Steiner, 1985). These results suggest that one's processing abilities may reflect not only a sense of security within themselves but also foster particular interests and activities based on the predominating cognitive mode utilized.

Rothenberg (1983) found that creativity was related to a specific cognitive process, janusian thinking, in which opposite words, or thoughts, are simultaneously conceived during a word association task. His study examined Nobel laureates, psychiatric inpatients, and college control groups along the dimension of proportion of janusian responses and response rate. The Nobel Prize winners scored significantly higher than the other groups on both variables, and the psychiatric population scored consistently lower in generation of janusian responses and were slower in response rate. These findings support Rothenberg's conclusion that the creative process involves

formulation of new interconnections between concepts, necessitating a disavowl of ordinary logic (Rothenberg, 1983).

Unusual and innovative ways of thinking have been widely examined in studies of divergent thinking and creativity. Divergent thinking, or divergent problem solving, is defined as responses to given tasks in which there is no single correct solution, but a variety of possible solutions (Pepler & Ross, 1981). This, in contrast to convergent tasks, or common, ordinary, productions with only a single solution, is believed to be associated with the creative process (Harrington, Block & Block, 1983).

The most widely used test of divergent thinking has been the "Alternate Uses Test" (Getzels & Jackson, 1962), in which the subject is requested to generate as many ideas as to the possible ways of utilizing objects such as a brick, pencil, or piece of paper. A response given to the request "Tell me all the different ways you could use a newspaper," would be unique if the reply were, "rip it up when angry," versus a response such as "make a paper airplane," which tends to be popular.

Researchers have shown that those subjects who span several conceptual classes and manifest greater variability in their responses, are found to be more creative in their

approaches to problem-solving (Getzel & Jackson, 1962; Guilford, 1968; Pepler & Ross, 1981; Wallach & Kogan, 1965/1984), This ability is believed to aide in widening the imagination as to the possible alternatives and experiences available to them.

We have examined research which suggests that there is a relationship between security of attachment and a resulting eagerness and willingness to explore the external world. It was proposed that this willingness also reflects one's inner self-concept and level of security of self within the environment. What remains of interest is the generalization of this internal security and representation of self and other, to cognitive functions and problem-solving abilities. It is the intention of this study to contribute to the examination of this concept.

Hypotheses

In general, those cognitive processes that are associated with creative thought are more likely to occur among adolescents who are securely attached to parents. Likewise, those adolescents who are more securely attached are more likely to perceive their home environment as cohesive and adaptive. Accordingly, the following hypotheses will be tested.

1. Security of attachment to parents affects the cognitive functioning of adolescents.

1.1. Adolescents who are securely attached to their parents have a greater span of ideational concepts.

1.2. Adolescents who are securely attached to their parents will demonstrate greater ideational fluency.

1.3. Adolescents who are securely attached to their parents will demonstrate a greater risk taking approach to problem solving.

2. Perceived cohesiveness of family environment affects the cognitive functioning of adolescents.

2.1 Adolescents who perceive their family environment as cohesive will demonstrate a greater span of ideational concepts.

2.2. Adolescents who perceive their family environment as cohesive will demonstrate greater ideational fluency.

2.3. Adolescents who perceive their family environment as cohesive will demonstrate a greater risk taking approach to problem solving tasks.

3. There will be a consistancy between security of attachment to parents and perception of family as cohesive and adaptive.

Chapter III

Methodology

Subjects

The original subjects for the study were thirty high school seniors ranging in age from 16 to 18 years of age (Table 1). Subjects were enlisted from a private school in New York City. All subjects were members of a senior psychology class. Participation in the study was considered part of the class curriculum, as subjects had been studying and exposed to various psychological measures throughout the academic year by the class instructor.

61% of the sample was male. Ethnic distribution was predominately Caucasian with 4 of the thirty subjects Black, and 2 of Hispanic background. Socioeconomic level was deemed to be upper-middle class or better. While the family structure of the subjects was predominately intact, with both parents and siblings residing with subject, 32% of the subjects had parents who were divorced, including two subjects who experienced parental divorce within the year (Table 2).

During the course of data analysis one male and one female subject, both aged 17 were eliminated due to insufficent data. Therefore the final total subject pool was reduced to 28. On several instruments (IPPA, MFP) these two subjects selectively chose not to answer questions regarding

Table 1

Age and gender of subjects

Numbers and (percentages)

	AGE			
	16	17	18	N
Gender				
male	0	14 (50.0)	3 (10.7)	17 (60.7)
female	1 (3.6)	10 (35.7)	0	11 (39.3)
SUM	1 (3.6)	24 (85.7)	3 (10.7)	28 (100.0)

a deceased parent. In order to not reduce the subject pool further, the subject's scores were mathematically estimated using the mean and the mean variance of the respective variables. One additional subject inadvertently forgot to complete the second part of the FACES questionnaire as it was the last page of the protocol. The subject's two scores of Ideal Family Cohesion and Adaptability were set to the mean, and were retained for data analysis.

DESIGN

All subjects were asked to complete several questionnaires assessing background information, attachment status, family environment, and creativity. A 3 x 2 x 2 design was conceived in order to compare attachment status to divergent thought processes and perceived family environment along dimensions of cohesion and adaptability.

MEASURES

Questionnaires were employed to examine the contribution of current attachment status, as measured during adolescence, to creativity. Creativity was measured by scores obtained on tests of divergent thinking, utilizing two scores: ideational fluency and spontaneous flexibility. Risk taking behavior, a third cognitive component, was measured by subject's scores on a category width ranging test. The adolescents' concept of their family environment was assessed as a contributing factor to expression of

Table 2

Family structure of subjects

	N	%
INTACT a)	15	
b)	2	60.7
DIVORCED	9	32.1
PARENTAL DEATH	2	7.2
SUM	28	100.0

Note:

a) mother, father, and siblings (88.2 %)

b) mother father, without siblings (11.7 %)

creativity. Each instrument will be presented and discussed below.

1. Adolescent attachment. Attachment status was measured by two instruments, the Inventory of Parent and Peer Attachment which was designed by Armsden and Greenberg (1984), and the Mother-Father-Peer Scale developed by Epstein (1983).

a) The Inventory of Parent and Peer Attachment (IPPA) by Armsden and Greenberg (1984), is a 75-item, likert style, self-report measure. Subfactors derived include: 1) Trust in both attachment figures (mother and father) as well as peers; 2) Communication, an assessment of the attachment figure's emotional sensitivity and responsiveness to the adolescent's emotional state; and 3) Alienation, the perceived degree of detachment or anger manifested in response to real or threatened disruption in the attachment bond. Items are grouped by parent and peer attachment, with an overall item correspondence between the groups. For the purposes of this study only the parent measures will be used. A summary score indicating quality of attachment is computed and subfactors can be analyzed to assign individual subjects into High Security (HS) or Low Security (LS) groups.

Measures of internal consistency (Cronbach's Alpha) of the parent scales was found to range from .86 to .91. The

reliability measure of peer scales was found to range in alpha from .72 to .91. Test-retest reliabilities were found to be .93 for the parental scales, and .86 for the peer scales.

Since its conception, this instrument has been widely used for research purposes. It continues to be available, however, only in manuscript form. It was provided by the developers at the University of Washington.

b). The Mother-Father-Peer Scale (MFP) designed by Epstein (1983) is an 100 item self-report scale examining dimensions of Acceptance-Rejection by mother, father, and peers, Independence-Overprotection by mother and father, and defensive Idealization of mother and father. These concepts are consonant with research conducted on attachment in adulthood, as they relate to an individual's construction of representational models of self and other (Epstein, 1983). Again, only the parent scales were used.

Female and male norms and reliabilities are presented for a population of 293. Obtained reliabilities range from .82 to .93. A subject's individual raw score on each of the subfactors can also be converted into T-scores and percentiles with norms provided by the author.

3. Family environment. The Family Adaptability and Cohesion Evaluation Scales III [FACES III] developed by Olson, Portner and Lavee (1985) is a widely used, published scale. It contains a twenty item self-report measure

assessing family functioning along the dimensions of Cohesion and Adaptability. It measures both a family member's Current perception and Ideal perception of family functioning. The discrepancy between Current and Ideal perceptions is believed to be a measure of family satisfaction and can be calculated for each subject.

The FACES III instrument is theoretically based upon the Circumplex model of family behavior (Olson, Russell, and Sprenkle, 1979), in which three central dimensions are examined. Family Cohesion, Adaptability, and Communication are the major dimensions of family functioning assessed. Family Cohesion is defined as "the emotional bonding that family members have toward one another" (Olson et al., 1985, p. 4), incorporating concepts of boundaries and coalitions in assessing family functioning. This scale contains four levels ranging from extreme low to extreme high Cohesion: Disengaged, Separated, Connected, and Enmeshed. The more optimal ranges are Separated and Connected.

Adaptability is defined as, "the ability of a family system to change its power structure, role relationships, and relationship rules in response to situational and developmental stress" (Olson et al., 1985, p. 4). Concepts involved in assessing this dimension are negotiation, control and relationship rules. It too is classified by levels ranging from low to extreme Adaptability: Rigid,

Structured, Flexible, and Chaotic, with the optimal ranges identified as Flexible and Structured.

Within the Circumplex model family Communication is important as it affects flexibility along the other two dimensions of Cohesion and Adaptability. Families who function along either a tightly restricted or overly open communication pattern impact upon the degree of Cohesion, and capacity for change available within the family system.

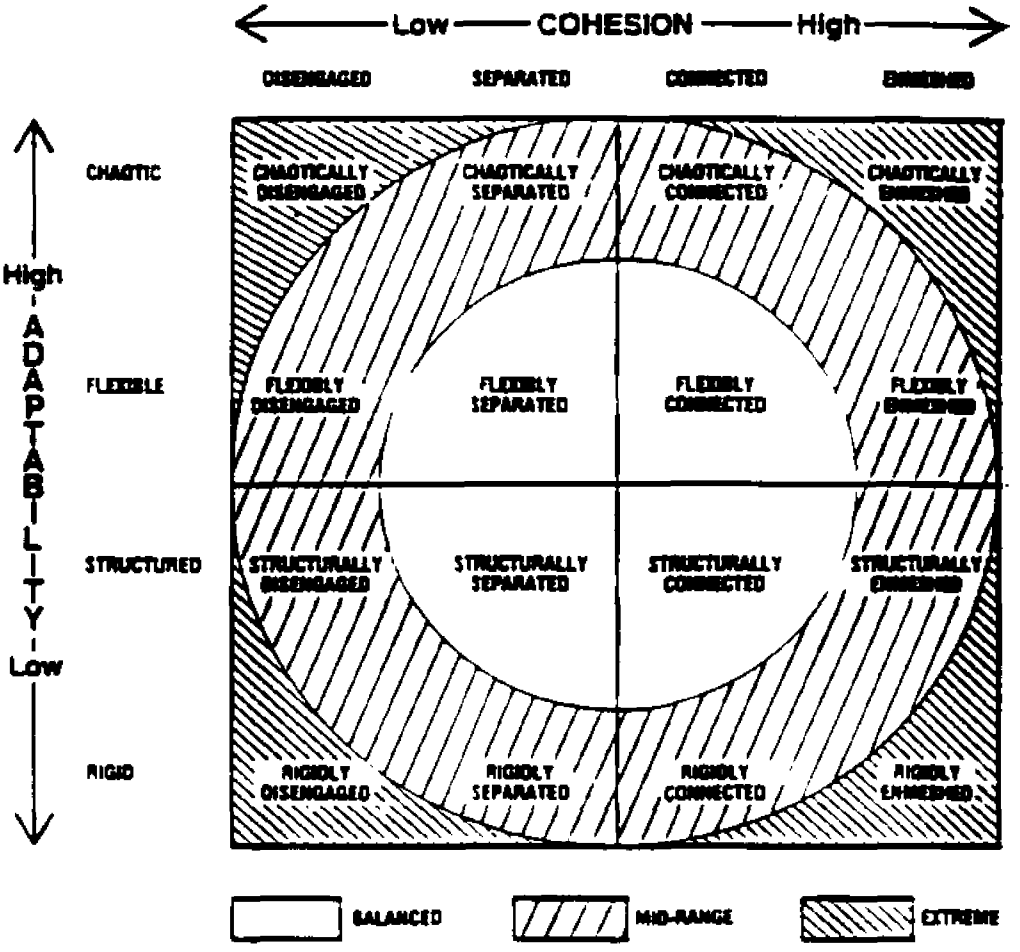
Underlying these dimensions and constructs is the premise that a balanced family functions more adequately than an extreme family. The FACES III has been developed such that families can be assessed along orthogonal dimensions of Adaptability and Cohesion. Factor analyses revealed that the FACES III is constructed with very little correlation between dimensions (r=.03). In addition subjects can be classified into 16 Circumplex types (Figure I).

Correlation with social desirability has been proven to be r = .35 between Cohesion and desirability, and r = .00 between social desirability and Adaptability (Olson et al., 1985). Reliability as measured by the Cronbach alpha was found to range between 0.75-0.76 (split-half) and 0.77 (total) on the Cohesion dimension, and 0.67 (split-half) and 0.77 (total) on the Adaptability factor.

In general this seems to be an adequately constructed and tested measure. Although reliability coefficients are somewhat low on the Adaptability scale, they are acceptable.

Figure I

Circumplex Model (FACES)



Reprinted from: D. Olson, J. Portner, & Y. Lavee (1985), Family Adaptability and Cohesion Evaluation Scales-III, St. Paul, MN: Family Social Science, University of Minnesota, p. 7.

4. Creativity Scale. The Uses of Objects test designed by Getzels and Jackson (1962) asks subjects to write as many uses as the subject can think of for five common objects: brick, pencil, paper clip, toothpick, sheet of paper. Subjects were given two minutes per item to complete the task. This test is reported to assess flexibility in thinking, and responses are categorized as involving either "convergent", logical, or conventional responses, or involving "divergent" thought processes, utilizing unique, different, and daring ideations. The two factors examined were Ideational Fluency as measured by the total number of responses generated for each item. The second factor was Spontaneous Flexibility defined as the different number of categories of uses described of the individual items. Greater divergence in thinking is assessed via responses covering a variety of classes in terms of utilization of objects listed. This is a widely used measure most frequently reported in studies examining creativity in children (Guilford, 1968; Torrance, 1962; Wallach & Kogan, 1965/1984).

5. Category Width Test (CW) is a scale developed by Pettigrew (1958) at Harvard University. Its goal is to assess flexibility of thinking based on the subjects' tendency to approach problem solving tasks from either a

Broad or Narrow perspective. This ranging test is believed to be correlated with personality factors such as "narrow-mindedness" and self-concept. The CW test itself is not unidimensional, but is composed of two factors--one a quantitative time and speed dimension, the other a nonquantitative, general dimension (Pettigrew, 1958, p. 541).

Subjects are requested to estimate the "most" and "least" parameters of 20 given ranges. This is a multiple choice test. Responses are coded according to the distance from the derived mean of each range. The correct answer is not provided, requiring that the subject choose the best "estimates". Sums are computed for the Narrow and Wide estimates of each range, and a Total Category Width Test Score is obtained.

Spearman-Brown split-half reliability coefficient was computed after six weeks of the initial administration and found to be .72. Internal consistency reliabilities were found to range from .86-.93 based on five sample populations. Total test Spearman-Brown odd-even reliability was .90. Elaborate orthogonal rotations were conducted as part of a factor analysis by the scale's developer. Reported findings indicated that the scale tended to be sensitive to the subject's ability to analyze questions involving time and speed, and the ability to make direct judgements on categories such as births, submarines and churches.

Criterion validity was established using subjects assessed on five categories not obtained in the CW scale. Subjects, ranked according to their estimates across the five categories, obtained a significant correlation using Kendall's W = .334, $p<.02$ (Pettigrew, 1958). The scale was seen as having good internal consistency as well as sufficient reliability to be used as a measure of cognitive functioning.

PROCEDURES

Subjects were given sets of the tests to complete during two class sessions. Subjects were gained from two senior psychology classes at a high school, one a morning class, the other an afternoon class. The primary investigator administered the instrument to the morning class and the class psychology instructor administered the instrument to the afternoon group. The first set of instruments administered included the Uses of Objects Test and the Category Widths Test. Time needed to complete this packet averaged to 38.3 minutes. The second day of testing involved the administration of questionnaires obtaining demographic information, the Inventory of Parent and Peer Attachment, the Mother-Father-Peer Scale, and the Family Adaptability and Cohesion Evaluation Scale scales. This packet required an average of 47.6 minutes to complete. The primary investigator was blind to the subject's name using only subject number in identifying protocols.

SCORING PROCEDURES

Each of the instruments were tabulated in accordance with the procedures outlined in corresponding manuals. Inter-rater reliability was established through comparison of the scores assigned to the Uses of Objects Test to obtain the variables Ideational Fluency and Spontaneous Flexibility. Two independent judges, a psychologist and a psychiatrist, blind to the hypotheses under study, scored each protocol, tallying the number of responses generated per subject on each of the five items (Ideational Fluency) and the number of conceptual classes spanned on each item (Spontanteous Flexibility). These ratings were then compared using the Pearson Product Moment Correlation. There was an attained r of 0.94, $p<.01$.

Chapter IV

Results

The results pertaining to the hypotheses will be initially presented, followed by presentation of the results of the specific instruments used and other results of interest.

Hypotheses

Hypothesis 1:

Security of attachment to parents affects the cognitive functioning of adolescents.

1.1: Adolescents who are securely attached to their parents have a greater span of ideational concepts.

In order to test the hypothesis of differences in cognitive style of adolescents based on assessed security of attachment, assignment to attachment groupings was made. Independent t-tests were performed to test the hypothesis that the HS group was higher than the LS group on the cognitive measure of Spontaneous Flexibility (Table 3).

No significant differences were noted between the HS and LS groups on this cognitive measure. In fact, t values were so small, that were a larger population used, significance would still probably not be attained. The present data do not support the stated hypothesis.

Table 3

Summary of Differences between Parent Attachment Groups on cognitive measures

(pooled t-values)

	Parent t value (HS vs. LS)
Wide	.123, p = .909
Narrow	.730, p = .473
Total CW	.274, p = .787
Ideational Fluency	.960, p = .347
Spontaneous Flexibility	.372, p = .713

Note:

n = 28
df = 26

1.2 Adolescents who are securely attached to parents will demonstrate greater ideational fluency.

A t value of 0.960, p =.347 was found for the Ideational Fluency in respect to attachment status. This t value is extremely low as was the obtained t value for Spontaneous Flexibility. HS adolescents were no more likely to give a response rate that differed from LS adolescents. This finding does not support the stated hypothesis.

1.3: Adolescents who are securely attached to their parents will demonstrate a greater risk taking approach to problem solving.

In testing the hypothesis of there being a difference between attachment groups along the degree of flexibility in thinking, the results of estimation of CW were examined. Tests of mean differences revealed t values which did not exceed 0.73 (Narrow), and probability factors not less than p = .473. These findings were consistent for Wide, Narrow and Total Sum of CW. Results suggest that there is no relationship between flexibility and consistency in cognitive style and attachment status.

Hypothesis 2:

Perceived cohesiveness of family environment affects the cognitive functioning of adolescents.

2.1: Adolescents who perceive their family environment as cohesive will demonstrate a greater span of ideational concepts.

In order to test the hypothesis of differences in thought modality of adolescents along dimensions of family environment, subjects were grouped by scores on Cohesion and Adaptability (Table 4). Subjects whose scores fell within the optimal ranges (Separated and Connected on Cohesion scale; Structured and Flexible on Adaptability scale) were grouped together, and subjects whose scores fell within the unbalanced ranges (Disengaged and Enmeshed on Cohesion; Rigid and Chaotic on Adaptability) were placed in a second group.

T-tests comparing the optimal and extreme Cohesion groups along values of Spontaneous Flexibility were not significant ($t = 1.065$, $p = .297$). A tendency was noted indicating that adolescents who utilized many conceptual classes, tended to perceive their Ideal Family environment as one in which Cohesion was a major component ($r = +.397$, $p = n.s.$). Although this is a moderate correlation, it appears to have salience in examining how adolescents think about themselves within their environment.

Thus, the data did not support the stated hypothesis. There appeared to be no difference in adolescents' ability to span ideational concepts based on their level of family cohesion.

Table 4

t values of differences between cognitive measures and perception of cohesive family environment

	Cohesion t value (optimal vs. extreme)
Spontaneous Flexibility	1.065, p = .297
Ideational Fluency	.036, p = .971
Wide	1.552, p = .133
Narrow	.254, p = .802
Total CW	.993, p = .330

Note:

t values represent pooled variances.
n = 28
df = 26

2.2: Adolescents who perceive their family environment as cohesive, will demonstrate greater ideational fluency.

Again, no significant differences were noted between extreme and optimal Cohesion groups along the dimension of Ideational Fluency. The obtained mean difference ($t = 0.036$, $p = .971$) indicates that there was very little variance between these two groups within this sample to warrant statistical significance. Adolescents do not appear to differ in their response rate on cognitive tasks based on perception of family cohesion.

2.3: Adolescents who perceive their family environment as cohesive will demonstrate a greater risk taking approach to problem solving tasks.

No significant findings were noted in examining this hypothesis as well. The one variable which begins to approximate significance between the cohesion groups was the adolescents' score on estimation of Category Width of Wide ranges ($t = 1.552$, $p = .133$). Those adolescents who scored within the extreme Cohesion ranges were more likely to show a tendency toward consistently making broad estimations of ranges, and may be more likely to engage in risk taking behaviors than adolescents who assess their family environment as connected.

Despite this noted trend, statistical significance was not found using the variables Wide, Narrow, or Total CW between optimal and extreme perception of family Cohesion. This hypothesis was not supported by the obtained data.

Hypothesis 3:

> There will be a constancy between security of attachment to parents and perception of family environment as cohesive and adaptive.

This hypothesis was partially supported as the expected relationship was found between adolescents who were assessed as more securely attached to parents also endorsed sentiments indicating a greater sense of cohesion within their family environment (Table 5).

However, no differences were found along the dimension of family adaptability and parental attachment status. Secure and less secure adolescents were not found to differ in aspirations of family functioning. The only significant difference found involved perception of current family cohesion and attachment status.

Mother-Father-Peer Scale

The female subjects showed a trend toward perceiving the Paternal Figure as less Accepting than did the male subjects, while the males manifested a trend toward perceiving the Maternal Figure as less Accepting. However, these differences did not prove to be statistically significant under appropriate analyses.

Table 5

t values of differences between parental attachment status and perception of family environment

	t value (HS vs. LS)
Cohesion	2.582, p = .017*
Adaptability	1.408, p = .173
Ideal Cohesion	.034, p = .973
Ideal Adaptability	.322, p = .751

Note:

t values represent pooled variances.

* = p<.05
n = 22
df = 20

The female subjects tended to cluster closer together on their scores of perceiving the Maternal Figure as Fostering Independent Functioning more so than the male subjects (Table 6). Mean differences between the sexes, however, were not statistically significant.

The female subjects also tended to score higher on the perception of Maternal Figure viewed as Accepting ($M = 42.91$, $SD = 6.01$) than did the male subjects ($M = 39.88$, $SD = 6.02$). The female mean was also somewhat greater than norms reported ($M = 47.45$, $SD = 10.58$). There was no significant difference, however, between the means of female and male subjects, or between males and females in comparison to the norms.

On the subfactor of perceiving the Paternal Figure as Encouraging Independence, male subjects tended to score higher than female subjects. The male mean score was also greater than that of the normative population, indicating that this subject pool had positive feelings regarding independent functioning and their relationship with father. Males also tended to score higher than females on the factor of Father being perceived as Accepting of the adolescent. Female subjects in fact scored considerably lower than the norm ($M = 39.64$, $SD = 9.27$) although still not attaining a statistically significant mean difference.

Table 6

Variable means of Mother-Father-Peer Scale (MFP)

Obtained means and standard deviations

		males	females	total
MOTHER ENCOURAGED INDEPENDENCE	M	48.00	49.45	48.57
	SD	9.47	3.50	7.62
MOTHER ACCEPTING	M	39.88	42.91	41.07
	SD	6.02	6.01	6.09
FATHER ENCOURAGED INDEPENDENCE	M	52.50	48.18	50.74
	SD	7.03	6.85	7.16
FATHER ACCEPTING ~~	M	36.31	35.82	36.11
	SD	8.01	11.02	9.15
MOTHER IDEALIZED	M	15.59	15.82	15.69
	SD	3.84	4.42	4.00
FATHER IDEALIZED ~~	M	15.38	13.64	14.66
	SD	5.14	4.86	5.00
n ~~		16	11	27

Note:

~~ = Number of males in sample was 16.

This gender determined trend can also be seen in the subjects's responses to the degree of Idealization of Parental Figures. Females tended to be less Idealizing of Paternal Figures than were the males, while there was closer concurrence on the subfactor of Idealization of the Maternal Figure. All differences were, however, again lacking in statistical significance.

Inventory of Parent and Peer Attachment

Results of the Inventory of Parent and Peer Attachment (IPPA) were obtained by computing summary scores of quality of attachment (Table 7) for parents, followed by analysis of the means. Congruent with the results of IPPA developers (Armsden & Greenberg, 1984), correlations were high ($r = +.855$, $p<.01$) on Trust and Communication subscales (Table 8). Negative correlations were obtained between the Trust and Alienation scales in the Parent measure ($r = -.331$, $p = n.s.$).

Assignment to attachment grouping was made based on a set of logical rules established by the original protocol. Subject's scores on IPPA factors were divided into thirds and classified by high, medium, or low rankings. Assignment to High Security (HS) or Low Security (LS) group was made if the following conditions were met:

1) Subjects were assigned to HS if their Trust or Communication scores were high or medium, and their Alienation scores were not high.

Table 7

Summary scores of quality of attachment:

Inventory of Parent and Peer Attachment (IPPA)

Obtained means and standard deviations.

		Parents	n
MALES	M	45.70	
	SD	14.02	17
FEMALES	M	48.54	
	SD	14.12	11
TOTAL (m + f)	M	46.82**	
	SD	13.87	28

Note: norms are reported as:

Parent attachment (males and females), M = 60.00, SD = 16.20.

** = p<.01

2) Assignment was made to LS group if their Trust and Communication scores were both low and if their Alienation scores were medium or high. In cases where the Trust or Communication score was medium, but the other was low, LS assignment was made if Alienation score was high.

3) Precedence was given to the negative relationship of Trust versus Alienation scores, and if Trust and Alienation scores were equal, regardless of Communication scores, assignment to a grouping was not made. This was based on the theoretical importance Bowlby presented regarding the element of trust in the attachment relationship and the believed antithetical relationship of Trust and Alienation in the attachment concept.

Based on these criteria, 86% assignment of cases were made to Parent attachment groupings. 54% were assigned to the HS group, 36% were assigned to the LS group, and 14% were unclassified. Table 9 illustrates the distribution of gender across parental attachment groups. No statistical differences for gender were noted between male and female subjects.

The computed Attachment Mean for Parents was greater than the norm reported ($M = 60.70$, $SD = 16.20$). This difference was statistically significant ($t = -4.94$, $p<.01$), indicating that these adolescents are more securely attached to parents than the sample used by Armsden and Greenberg

Table 8

Intra-correlations of variables within the Inventory of Parent and Peer Attachment (IPPA)

	PARENT	
	Comm	Alien
Trust	+.855**	-.331
Communication		-.244

Note:

n = 28

** = p<.01

(1984). Statistical significance was also obtained based on the overall quality of attachment score of those adolescents whose parents were divorced ($t = 2.103$, $p<.05$). Subjects perceived less parental attchment ($M = 40.36$, $SD = 12.28$) if their parents were divorced than those adolescents who had intact parental units ($M = 51.00$, $SD = 13.53$).

Family Adaptability and Cohesion Evaluation Scales.

The Family Adaptability and Cohesion Evaluation Scales (FACES) proved to yield very interesting results. As seen in Table 10, 16% of the adolescents assess their family's level of functioning to be Disengaged in terms of Cohesion. They perceived members of the family as operating autonomously, with little empathy or emotional relatedness. 29% of the subjects viewed their families as Separated but functioning with more empathic qualities, and 14% viewed their level of Family Cohesion as Connected. Chi-square analysis of Cohesion by males and females yielded a significant result ($X^2(1), n = 28) = 6.512$, $p<.01$). Male subjects were observed to score within the unbalanced range more than females.

A greater distribution of cases was seen on the Adaptability scale. 43% of the adolescents perceived Chaotic changes in the roles and power structures in the family. 36% viewed the changes in the family system as reflective of flexibility and adaptability within the environment. 14% of

Table 9

Distribution of subjects across attachment groups

Frequencies & (Proportions) of Males and Females in Attachment Groups

PARENT

	HS		LS		UNCL	
	n	%	n	%	n	%
Male	9	(.53)	5	(.29)	3	(.18)
Female	6	(.55)	4	(.36)	1	(.09)
Total	15	(.54)	9	(.32)	4	(.14)

Note:

HS = High Security Group

LS = Low Security Group

UNCL = Unclassified Group

the adolescents perceived their family as structured and 7% assessed their Family Adaptability level as Rigid. Subject's classification within the Circumplex Model are presented in Figure 2. Chi-square analysis of distribution of cases across extreme and balanced groups was not significant.

A comparison of subjects' ratings of Current Family Cohesion to Ideal Family Cohesion revealed a wide distribution across categories (Table 11).

Approximately 27% of the adolescents would prefer autonomous functioning and little emotional bonding between family members. This percentage is dramatically less than the 57% of subjects who currently perceive a Disengaged home environment. An equal number of subjects aspired toward a more Connected and communicative environment.

Most subjects (40.8%) preferred a family environment which allowed separate and autonomous functioning. The number of subjects endorsing this type of functioning was again greater than that perceived as currently in operation in their homes, although not statistically significant. Two subjects scored high on family Cohesion, within the Enmeshed dimension, whereas not one subject perceived their family to be functioning currently at this level.

Differences were also noted on examination of Ideal Adaptability scales. No families were perceived as meriting classification in either the Rigid or Structured groups. On

Table 10

Family Adaptability and Cohesion Evaluation Scales (FACES)

Subfactors and percentages of CURRENT family functioning

COHESION

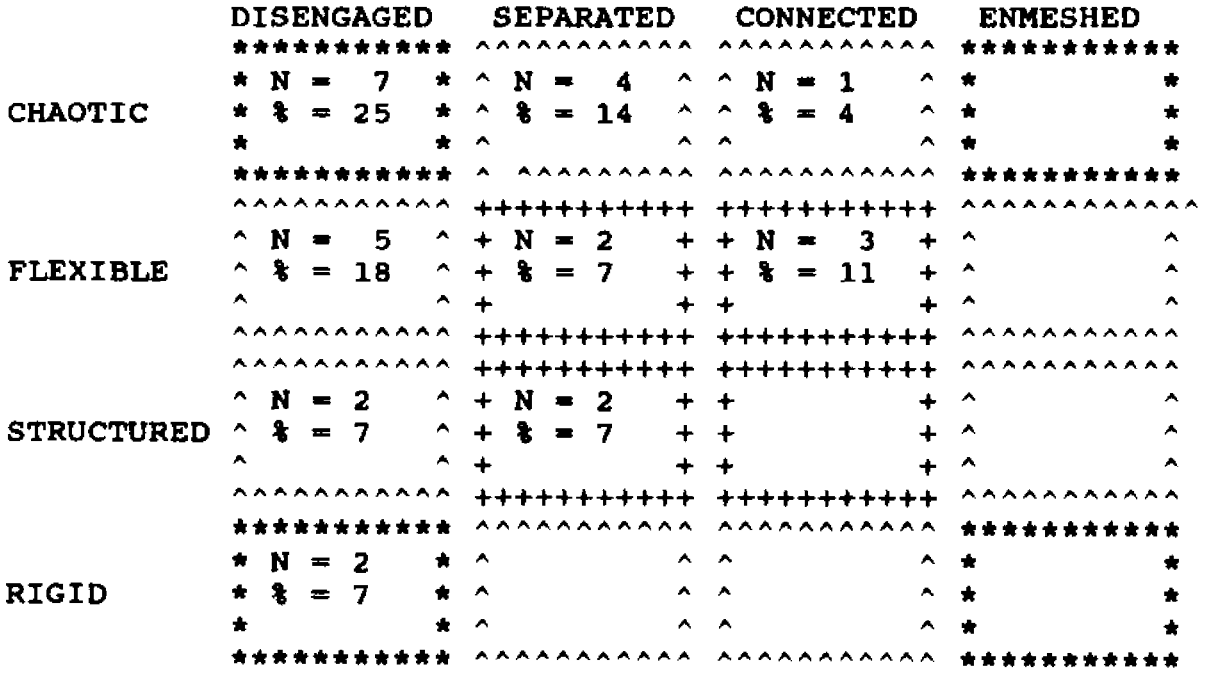
(RAW SCORE)	%	N
DISENGAGED (10-34)	57	16
SEPARATED (35-40)	29	8
CONNECTED (41-45)	14	4
ENMESHED (46-50)	0	0
TOTAL	100	28

ADAPTABILITY

(RAW SCORE)	%	N
RIGID (10-19)	7	2
STRUCTURED (20-24)	14	4
FLEXIBLE (25-28)	36	10
CHAOTIC (29-50)	43	12
TOTAL	100	28

Figure 2

DISTRIBUTION OF SUBJECTS WITHIN CIRCUMPLEX MODEL



+++ = BALANCED RANGE

^^^ = MIDDLE RANGE

*** = EXTREME RANGE

n = 28

Table 11

Family Adaptability and Cohesion Evaluation Scales (FACES)

Subfactors and percentages of IDEAL family functioning

COHESION

(RAW SCORE)	%	n
DISENGAGED (10-34)	25.9	7
SEPARATED (35-40)	40.8	11
CONNECTED (41-45)	25.9	7
ENMESHED (46-50)	7.4	2
TOTAL	100.0	28

ADAPTABILITY

(RAW SCORE)	%	N
RIGID (10-19)	0	0
STRUCTURED (20-24)	0	0
FLEXIBLE (25-28)	11.1	3
CHAOTIC (29-50)	88.9	24
TOTAL	100.0	28

the other hand, 88.9% of the subjects indicated a desire for a more "Chaotic" home environment in which rules changed rapidly in response to familial demands. 11% envisioned an Adaptive level of family functioning organized along a flexible range, without chaos or rigidity.

Uses of Objects Test

The Uses of Objects Test (UOBJ) was considered by most of the subjects to be fun and challenging to complete. The mean average number of responses generated (Ideational Fluency) was 40.89 with a standard deviation of 10.17 (Table 12). The different number of classes spanned (Spontaneous Flexibility) as to the use of the five objects ranged from 16 to 34 ($M = 23.82$; $SD = 4.76$).

Pearson Product correlations were significant in relating Ideational Fluency and Spontaneous Flexibility ($r = +.556$, $p < .001$). Mean differences on these two variables was also significant ($t = 10.50$, $p<.01$). Ideational Fluency was also significantly correlated with the adolescent's perception of Mother as a Trusting Figure, but as a negative relationship ($r = -0.4023$, $p < 0.01$). The more the adolescent viewed mother as trustworthy, the less the number of responses generated on this particular cognitive measure.

A relationship was also noted between Ideational Fluency and the Paternal Figure viewed as Fostering

Table 12

Means of Uses of Objects Test (UOBJ):

Means and standard deviations

FACTOR	MEAN	SD
IDEATIONAL FLUENCY	40.89	10.17
SPONTANEOUS FLEXIBILITY	23.82	4.76

Note:

n = 28

Independent Functioning. Here the correlation was found also to be negative, $r = -0.541$, $p<.01$.

Category Widths Test

Within measure correlations were very high between Wide and Narrow ($r = +.824$, $p = <.01$), and obligatory relationships existed with Wide and Narrow respectively on Total Category Width (CW) Sum (Wide: $r = .964$, $p = <.01$; Narrow: $r = .945$, $p = <.01$). Mean differences were significant between Wide ($M = 31.67$, $SD = 11.64$) and Narrow ($M = 34.76$, $SD = 9.51$), $t = 2.49$, $p<.01$.

Inter-correlations with UOBJ were strongest between the Narrow category width estimates and Ideational Fluency ($r = .231$, $p =$ n.s.). All other correlations between cognitive measures were less than $r = .01$, indicating a strong lack of relationship between variables across cognitive measures. This finding indicates that the cognitive variables are orthogonally related. Correlations between CW and Spontaneous Flexibility were negative in direction, indicating that CW and UOBJ may not be measuring the same cognitive processes.

The Category Width test is heavily weighted with quantitative estimates which might favor males (Pettigrew, 1958). To explore this aspect, the data were examined in accordance with the sex of the subject. Paired t-tests of mean differences were found to be significant within the

Table 13

Gender distribution and category width score: means, range and standard deviation

A) FEMALES

	N	M	RANGE	SD
WIDE	11	28.09	14-42	7.50**
NARROW	11	33.91	26-48	5.97**
TOTAL	11	31.00**	14-48	7.09

B) MALES

	N	M	RANGE	SD
WIDE	17	34.00	9-60	13.38
NARROW	17	35.35	11-54	11.38
TOTAL	17	34.68**	9-54	12.07

Note:
Mean differences were significant in comparison to the norms:
females: t = -14.94, p<.01
males: t = -12.31, p<.01

Norms are reported as:
males: M = 71.87, SD = 17.32, range = 23-117.
females: M = 64.46, SD = 12.04, range = 34-99.

Paired t-tests were significant p<.01 on variables Wide and Narrow within female group.

** = p<.01

female subjects (Table 13) on the variable of Wide and Narrow ($t = 3.341$, $p<.01$). Both male and female subjects differed in their mean scores in comparison to the reported norms (females: $t = -14.94$, $p<.01$; males: $t = -12.31$, $p<.01$). The results indicate that these subjects are broader categorizers than Pettigrew's (1958) sample. The female scores also reflect changes in socialization practices, whereas Pettigrew's female sample was believed to do poorly on the quantitative dimension of the ranging test based on the lack of emphasis on females to know mathematical reasoning. The present data indicate that this ability is equally strong in the female sample as in the males, reflecting social changes and expectations of gender roles.

Statistical trends

Further analyses were conducted to examine differences within and between parental attachment groups once hypotheses testing was completed. Correlations among subtest items of the Mother-Father-Peer Scale (Epstein, 1985), the Family Adaptability and Cohesion Evaluation Scale (Olson, et al, 1985), the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1984), the Uses of Objects Test (Guilford, 1968), and the Category Widths Test (Pettigrew, 1958) were computed and examined for significance (See Appendicies A and B). It was determined that there were distinct clusters of intercorrelations within the High

Security (HS) and Low Security (LS) groups as well as significant intercorrelations shared by both groups. The following is a discussion of those significant correlations that were distinctly characteristic of the HS and LS groups.

High Security

Many qualitative aspects of adolescent's relationship with parents were noted in examining factor relationships within the High Security group (Table 14). Cohesion appeared to be a significant variable within the High Security (HS) group. Cohesion was highly correlated with variables assessing qualities inherent in the adolescent's relationship with parental figures. Trust, Communication, and adolescents' perceived attachment to parental figures, were all positively correlated with Cohesion within the HS group. Idealization of the maternal figure was also significantly related to currently perceived family Cohesion ($r = +.534$, $p<.05$).

Similarly, strong relationships were noted between perceived Trust within the adolescent-parent relationship along dimensions of Parental Acceptance and Parental Attachment. Adolescents' feelings of Alienation maintained a strong negative relationship with aspects of the parental relationship such as Acceptance, Communication, and Trust. This alienation variable appeared to be less highly related to variables within the Low Security group.

Table 14

Correlation of variables within

parental High Security group

	e MOTHER ACCEPTING	f COHESION	i TRUST	i COMMUNI-CATION	e FATHER ACCEPTING
f IDEAL ADAPTABILITY	-.559**				
e MOTHER IDEALIZED	-.538*	+.554*			
i TRUST	+.794**	+.703**			
i COMMUNI-CATION	+.558*	+.574*			
e FATHER ACCEPTING	-.533*	---	+.621*		
i PARENTAL ALIENATION	-.653**	---	+.598*	-.545*	-.591*
i PARENTAL ATTACMENT	+.767**	+.691**	+.918**	+.901**	+.657**

Note:

n = 15

* = p<.05

** = p<.01

Coding for measures:

e = MFP

f = FACES

i = IPPA

Whereas parental attachment scores were highly correlated with several factors within the HS group, the same degree of relatedness was not found with the LS group. Acceptance, Cohesion, and Trust appear to be salient factors of adolescents' perception of a secure attachment relationship to parents.

Low Security Group

In examining Pearson correlations within the Low Security (LS) group several variables emerged with statistical significance (Table 15). Whereas significant correlations arose chiefly with the Cohesion, maternal acceptance and overall parental attachment within the High Security group, the Low Security group appeared to be sensitive to factors involving aspects of relating to father.

Idealization of Father was highly correlated with Spontaneous Flexibility ($r = +.711$, $p<.05$). Those adolescents who experience some degree of Alienation from parental figures appear to be aided in their ability to span a variety of ideational concepts to the degree to which they Idealize their Fathers.

In addition, perception of Father as an Accepting figure was negatively related to perception of Ideal Family Cohesion ($r = -.816$, $p<.01$), as well as Idealization of Mother ($r = -.721$, $p<.05$), and perception of mother

fostering independent functioning ($r = -.762$, $p<.05$). Overall examination of Cohesion factors within the LS group indicated that significant differences between balanced ($M = 39.50$, $SD = 3.53$) and extreme ($M = 25.28$, $SD = 6.72$) ranges on Cohesion ($t = 2.78$, $p<.05$) existed. Analysis of mean difference between optimal and extreme ranges on the Adaptability variable within the LS group did not yield significant results.

Table 15

Correlation of variables within the parental Low Security group

	e FATHER IDEALIZED	f ADAPTA-BILITY	e FATHER ACCEPTING	f COHESION
i COMMUNICATION	+.752*			
i PARENTAL ATTACHMENT	+.850**			
u SPONTANEOUS FLEXIBILITY	+.711*			
i TRUST	+.856**			
e FATHER ACCEPTING	+.779*			
e MOTHER IDEALIZED	---	---	-.721*	
f IDEAL COHESION	---	---	-.816**	
e MOTHER FOSTERS INDEPENDENCE	---	+.827**	-.762*	
e FATHER FOSTERS INDEPENDENCE	---	---	---	-.749*

Note:

n = 9
* = p<.05
** = p<.01

Coding for measures:
e = MFP
f = FACES
i = IPPA
u = UOBJ

Chapter V

Discussion of the Results

Principal Findings

Hypothesis 1:

Security of attachment to parents affects the cognitive functioning of adolescents.

1.1: Adolescents who are securely attached to their parents have a greater span of ideational concepts.

The results of this study indicate that this hypothesis was not supported. There did not appear to be a relationship between adolescent's attachment status and their ability to utilize ideational concepts. This finding supports literature which suggests that cognitive processes are more determined by developmental factors than interactions with others in the environment (Gutteter, 1976; Piaget & Inhelder, 1958).

However, noted trends suggest that Spontaneous Flexibility is related to aspects of relationships with father. The Low Security group of adolescents were found to be more expansive in their performance on this cognitive task which was also found to be related to the degree to which they endorsed idealized views of father. This finding was not noted within the High Security group and raises question as to the dynamics operating within HS and LS adolescents and their relationship with father.

The avoidance of idealization which was found in adolescents who are conservative in approaching tasks, the more secure group of adolescents, seems to be consistent with Main's findings (Main, et al., 1985). From an attachment theorist's perspective, securely attached individuals were found to more realistically evaluate and assess relationships with others (Berman, 1984) as opposed to less secure individuals.

Less securely attached individuals were found to organize their perceptions of others in one of three ways, all thought to ensue from the unresponsive or unpredictable interactions with attachment figures. It is believed that less securely attached persons tend to negate the abilities of the attachment figure, to drastically inflate the qualities of this significant person, or to have no impression, memory, or mental picture of the attachment figure at all (Main, et al., 1985). Suppositions which were consistent with the current findings.

1.2: Adolescents who are securely attached to their parents will demonstrate greater ideational frequency.

Adolescents were not found to differ in their response rate to cognitive tasks based on their attachment status. Secure adolescents were no more likely to generate a greater

number of responses than were less secure adolescents. Response rate does not appear to be related to aspects of relationships with significant others.

This finding would put into question the generalizability of results by Sroufe and Fleeson (1985) who suggest that toddlers' cognitive style tends to vary according to attachment status. The present research does not suggest that the findings by Sroufe are in error, merely that processes involved in the development from childhood into adolescence may produce changes in cognitive style that cannot be explained solely by parental attachment.

1.3: Adolescents who are securely attached to parents will demonstrate a greater risk taking approach to problem solving tasks.

Adolescents did not show any difference in estimation of category width or risk-taking abilities based on attachment to parental figures. HS adolescents were no more likely to be daring in their approaches to tasks than LS adolescents.

The current study lends support to the attachment theory premise of securely attached persons being less likely to idealize attachment figures, or at least fathers. However, the study did not support the hypotheses examined under the belief that parental attachment status affects cognitive functioning.

This study's findings are perhaps more in congruence with researchers such as Rothenberg (1983) or John-Steiner (1985) who emphasize that cognitive processes exist on its own, without reference to relationships with parental figures.

Speculation must also be made regarding the aspect of cognition, and subsequently what component of creativity which this task is measuring. After discussing the remaining hypotheses, we can return to cognitive representation of creativity.

Hypothesis 2:

Perceived cohesiveness of family environment affects the cognitive functioning of adolescents.

2.1: Adolescents who perceive their family environment as cohesive will demonstrate a greater span of ideational concepts.

This hypothesis did not prove to be valid under the current study. Adolescents who estimated their current family environment as either extreme or balanced, along the dimension of family Cohesion, did not differ in utilization of ideational concepts. Nor can a relationship be drawn by

stating that the type of family environment to which an adolescent is exposed affects cognitive development, or at least the cognitive processes which are measured by the instruments used in this study.

2.2: Adolescents who perceive their family environment as cohesive will demonstrate greater ideational fluency.

A similar pattern was found in examining ideational fluency and perceived family cohesion. There was no relationship detected between these variables. In fact, there was very little variance between the two groups, indicating that this variable of ideational fluency rate is not related to adolescent family perception.

2.3: Adolescents who perceive their family environment as cohesive will demonstrate a greater risk taking approach to problem solving tasks.

The data did not support this hypothesis. The current study found that perceived family cohesion did not predispose an adolescent toward conservative or daring risk taking behavior.

The obtained results do suggest a trend toward expansive estimates among those adolescents who perceive

their families as disengaged and enmeshed. The implications of this trend are unclear. Initial musings, however, might consider that those adolescents who perceive their families as chaotic or unrelated may expect or imagine a greater number of possible scenarios, predicting more unregulated life situations.

These adolescents may also come to expect that any form of communication within the home environment might be received with a myriad of responses. In order to prepare for the interactions, the adolescent learns to become daring, and to take risks. This perspective may become internalized and generalized to the extra-familial environment, and eventually becomes incorporated into the adolescents' expectation and diagram of self in the world.

Even with this possible explanation for these results, perception of family environment appears to be a complex dimension which was not found to be related to an adolescent's type of thought modality. The assessment of Current Family environment in terms of optimal range versus extreme range does not appear to predispose the adolescent toward a broad or constricted approach in cognitive style. We, therefore, must accept the evidence which suggests that these two concepts are totally unrelated. Or, we might question whether our concepts were being adequately tapped.

Hypothesis 3:

> There will be a constancy between security of attachment to parents and perception of family environment as cohesive and adaptive.

This hypothesis was partially supported by the obtained results. A clear relationship was noted between Cohesion and attachment status which was demonstrated in the expected direction. Securely attached adolescents were found to score high on perceived family Cohesion; the reverse was found for the less secure adolescents.

Perceived family Adaptability however, did not prove to be significantly related to attachment status, neither were perceptions of Ideal Family Cohesion or Ideal Adaptability.

These findings can be understood by analysis of the data which revealed a high correlation between the subfactors involved in the attachment measure: Trust, Communication, and Alienation. All three factors were highly correlated with the Cohesion factor, and less powerfully correlated with the Adaptability variable.

This finding also supports data reported by Armsden and Greenberg (1984), who found that adolescent well-being was positively correlated with attachment status, such that more securely attached adolescents tended to report a greater sense of comfort and less anxiety.

This finding is also congruent with reports by theorists who suggest that the quality of attachment to parental figures is reflected in the person's approach to the external world (Main, et al., 1985; Sroufe, 1979; Winnicott, 1971). The degree of felt comfort within the environment is believed to result from the quality of the attachment relationships. Therefore, adolescents who feel securely attached to parental figures, also appear to feel a sense of unity and connectedness within their family, and conceiveably may be more readily able to find comfort in other environments.

Although not related to attachment status, noteworthy trends were found along gender differences in perceptions of the opposite sex parent. Female adolescents were more likely to perceive their maternal figures as accepting and encouraging of independent functioning than were female perceptions of father figures. The male adolescents demonstrated a similar trend toward the father figure with less acceptance being perceived from the maternal figure. Although this trend was not supported with statistical significance, it is believed to be an important aspect to consider. Given the sexual emphasis of the developmental tasks of adolescence and the potentially threatening relationship with the opposite sex parent it is not surprising that trends such as these were found. The adolescent may need to perceive the opposite sex parent as

unavailable or unsupportive which may serve a functional and adaptive role for the adolescent in the attempts to thwart off incestuous urges. This may assist the adolescent in negotiating and mastering sexual identity.

In examining the second aspect of this study, it was discovered that perceived family relationships and quality of attachment to parental figures had very little effect in differentiating adolescents based on cognitive processes. Only through examination of the attachment groups separately were significant results discovered involving the cognitive measures.

Within the securely attached group, cognitive tasks were unrelated to adolescents' perception of parental figures. In contrast, the utilization of conceptual classes based on the degree to which father figures were idealized was found to co-vary within the less securely attached adolescents. These are intriguing findings as they were only discovered with the male parent, and solely with the less secure attachment group.

If, as Piaget and cognitive theorists would like us to believe, cognitive abilities are more innately determined, then how can one account for the relationship found with this father figure? Are there aspects of adolescent attachment which make the father a more salient figure than

the mother, who is believed to be of central importance during the infant and childhood attachment years?

In examining factors which contribute to the impact the father has on these adolescents, one consideration was that 32% of the subjects came from divorced homes, of which 56% were classified in the LS group and 33% in the HS group, results which were statistically significant. Although not attaining statistical significance, of the LS and HS adolescents whose parents had divorced, 40% and 67% respectively had fathers who remarried.

The presence of the father in the home appeared to have implications for the LS group more so than the HS group. The present data suggest that parental divorce has an impact on the degree of freedom and spontaneity adolescents manifest in their cognitive style, increasing the likelihood that a more diverse, broad, and creative approach would be taken in response to these familial changes. This is conceivable if we believe that adolescents who experience familial trauma and a subsequent rearrangement of family environment, have to integrate these new experiences into a meaningful perspective of self and family.

Lieberman (1967) reports that adolescents tend to adhere more to "rules and regulations for their own sake and [in so doing] a decrease in divergent thinking" occurs (Lieberman, 1967, p. 396). If the adolescent emphasizes

rules, fathers may be important symbolizers of these rules and enforcers of regulations.

The current findings suggest that when adolescents come from divorced families there is a tendency to idealize fathers and an accompanying trend toward less restriction of possibilites in thinking. So that when fathers are not present, there may also be a less adherence to rules and expected regulations, consistent with Lieberman's report.

Additionally, gender distribution may have skewed the results toward this emphasis upon father. A large portion of subjects were male. This, in conjunction with the trend of male subjects idealizing Father more than did female subjects, may have contributed to this finding about fathers which was not found with mothers.

Implications of the Study

This study explored one dimension of the cognitive processes believed to be a component of the general area of creativity, namely, flexibility of thought and approaches to problem solving. The findings revealed that neither flexibility nor problem solving skills seem to be related to assessed level of security of attachment.

This would support A. Freud's notion of adolescent behaviors, defenses, and styles being ubiquitous products of the biological and psychical changes during this period. Cognitive processes would therefore, be subsumed as one of these products which exists with little regard to external

influences. A more systemic drive-theory model would appear to mesh with current results which seem to imply that external forces have little impact on the adolescent cognitive style. Yet full agreement cannot be made with A. Freud, as significant trends and relationships were noted within each attachment group with cognitive style.

This study found that less securely attached adolescents have greater access to abstract conceptualizations dependent on the degree to which paternal figures are idealized. These findings can be thought of as an adaptive process for the less securely attached adolescents. We would also expect that High security adolescents might use caution in expressing their individual ideas. This might also imply that creative ideations may be harnessed and less readily expressed in securely attached adolescents.

A second way to understand the findings with the Low security group is that perhaps these adolescents need to utilize greater imagination and to conceive of wider ranges of possibilities, as a means of creating a perception of attachment figures that are more soothing and less alienating. In this way less securely attached adolescents may change their experience of the parental figure.

The creativity described by Winnicott (1971) and Masterson (1985) is not in agreement with those examined in

this study. Winnicott states that creativity reflects the degree of freedom parents have given their children to express themselves. This study suggests that creative behaviors as described by Winnicott and Materson are not the cognitive components of novel and unique responses, fluidity of ideational concepts, or daringness in ideational approach.

The aspect of creativity explored in this study, has a narrow and specific focus. It may be more likened to aspects of intellecutal functioning congruent with Arieti's belief of creativity involving primary and secondary process mentation. In this way, these cognitive functions are part of a more complex and integrative system.

In order to achieve this level of cognitive refinement, perhaps much sublimation of affects and divestment of energies from people into the cognitive task must occur. Similar to Rothenberg's (1983) janusian forms of thought, a separation of self and task must be accomplished. In this way, one may begin to abstract the sentiments regarding the attachment figures, to utilize the internal working models, allowing for a more concentrated and intense focus to the tasks. This might explain the lack of relationship between the concepts of parental attachment and cognitive components of creativity.

These findings do not rule out that cognitive processes may at some point have been informed by security of

attachment to parental figures, but are not governed by these relationships at the time of adolescence. This would be consistent with Weiss' (1982) suppositions that parental figures lose their salience as attachment figures during adolescence, even though residual effects of this relationship remain.

The data more strongly suggest that attachment is an ongoing process still evidenced during adolescence. Attachment status tended to be more highly reflective of qualitative aspects of the adolescent's relationships with parents. Family cohesion appeared to be a major factor that influenced the theoretical construct of "security". Additional related factors such as Acceptance, Idealization, and Communication all appeared as significant differentiators of attachment groupings to parents.

The major factor appearing to be negatively related to attachment as measured in this study, involved the feelings of alienation. This finding is not surprising. In order for the adolescent to acquire benign internalized representations of others, the internalized figure must be seen as nonrejecting or at least having interest in the adolescent. Otherwise malevolent transformations of objects is likely to occur, or, perhaps, primitive defenses such as splitting or projection employed.

These findings indicate that while there may be other possible effects of attachment during the adolescent period, cognition per se, does not appear to be related to the level of security or quality of attachment established to parents.

One finding indicated that male subjects showed a trend toward seeing the maternal figure as less accepting than did female subjects. This finding suggests that in the process of males asserting their independence, there is a greater need to perceive the maternal figure as aloof or rejecting. Female adolescents may also experience similar difficulty with opposite sex parents during this period. Gender differences are known to exist throughout human development (Blos, 1958). This difference may well reflect the male adolescent's need to detach from his mother and to join his father as described by Blos (1958).

Likewise, we found that females are more likely to perceive greater acceptance from mothers while male adolescents are more likely to perceive greater acceptance from their fathers. Neither of these latter, however, were related to creative cognitive style.

On the whole, this study concluded that specific cognitive components of creativity were not dependent upon attachment status, which is consistent with A. Freud's (1958) notions about adolescent biological and psychic drives. Our findings, however, did support Armsden and

Greenberg's (1984) premise that adolescents can be differentiated along identifiable dimensions in examining security of attachment. Family cohesion, trust, and alienation were all significant in describing adolescent parental attachment status. However, these same qualifiers and aspects of relating to parents, did not distinguish flexibility of cognitive style or cognitive approaches used in generating solutions to tasks.

To the degree that such cognitive factors represent creativity, our findings conclude that adolescent creativity is not a result of the quality of attachment to parents. We did find, however, that intermediate variables related to father presence and his idealization by the adolescents of low security affect divergence of thought and, therefore, in the terms of our study, the creative style of those adolescents.

Limitations of Study

A major limitation of this study was the small sample size. Meaningful tests of significance may have emerged on certain factors (cognitive and family environment) had the sample size been larger, and degrees of freedom been more generous.

Homogeneity of the sample was also deemed to be of concern. The subjects all were drawn from a wealthy college preparatory academic institution. There was perhaps more similarity of values and beliefs than might have been

achieved had a more diverse sampling been made. This would result in either a more varied set of responses and/or stronger confirmation and generalization of the results.

The concepts of cognition and creativity may need to be further defined and specified in order to increase generalization of these results. This aspect of research on cognition has also been suggested by Wallach and Kogan (1984). The current concepts examined cognition mainly from a problem solving perspective along divergent-convergent realms, and flexibility of thinking as manifested by response rate and conceptual classes. As Guilford's (1968) structure of intellect model proposes, there are numerous other dimensions inherent in cognitive processes.

In addition, there was no attempt made to assess creative productions or behaviors of adolescents as might be seen in musically or artistically gifted adolescents. This accompanies the recognition that the definition of creativity used in this study was narrowly defined and not at all representative of the numerous dimensions of human creativity.

Kohn (1987) proposes that creativity is not a quality of a person, but rather, creativity is "quality of ideas, of behaviors, of products" (Kohn, 1987, p. 54). What is certain is that creativity is an immense concept which may defy the kind of operational definition attempted in this study.

Thus, while we did not find creativity among adolescents to be related to attachment to parents, had we tapped other aspects of the cognitive processes of creativity we might have found some relationships. Further study in this area is warranted.

Conclusions

Based on these findings and the limitations of this study, the following conclusions are tenable:

1. The concept of attachment applied during the adolescent period appears to have validity. Adolescents were found to perceive parental figures along qualitative dimensions found to differentiate secure and insecure attachment groups.

2. Adolescent attachment to parents does not seem to impact on cognitive processes or cognitive components of creativity. This suggests that adolescent cognition is an ability which emerges regardless of parent-adolescent bonding, and may, therefore, be resistent to external changes in relationships.

3. Perceived family environment was not a factor in adolescent cognitive style or creative expression. Family cohesion was found to be a salient aspect of felt security of attachment, especially for securely attached adolescents, but this was unrelated to cognitive style.

4. Relationships with father appear to have much salience in both securely and less securely attached

adolescents. Idealization of father appeared to be an important differentiator of attachment groups.

5. Gender differences appear to be present during the adolescent period as adolescents tend to differ in their perception of the opposite sex parent, along dimensions of independence and acceptance.

Suggestions for further research

A larger sample size can be used in further exploration of these or related topics involving adolescent attachment and cognition. In addition, a more varied sample in terms of cultural and geographic background might lend frutiful investigation. A very interesting study might also involve a comparison of the creative cognitive products of identified "gifted" adolescents or aspiring artists, and those without such recognition or whose aspirations are more scientific. One can anticipate that if subjects were drawn from a school of performing arts versus a high school geared toward science and mathematics, that very interesting findings would emerge.

APPENDIX A: INTRA-CORRELATIONS WITHIN HIGH SECURITY GROUP (N = 15)

	c NARROW	c WIDE	c TOTAL CW	f COHESION	f ADAPTA-BILITY
c NARROW	1.00				
c WIDE	.897**	1.00			
c TOTAL CW	.970**	.977**	1.00		
f COHESION	.116	-.069	.017	1.00	
f ADAPTA-BILITY	.457	.353	.412	.004	1.00
f IDEAL COHESION	-.304	-.523	-.433	.157	-.011
f IDEAL ADAPTABILITY	-.597*	-.518	-.570*	-.505	.060
e MOTHER FOSTERS INDEPENDENCE	-.051	-.201	-.135	.412	-.156
e FATHER FOSTERS INDEPENDENCE	.343	.250	.301	-.090	-.054
e MOTHER ACCEPTING	.229	-.022	.097	.678**	.072
e FATHER ACCEPTING	-.237	-.344	-.302	.228	.246
e MOTHER IDEALIZED	.235	.298	.276	.554*	-.037
e FATHER IDEALIZED	-.624*	-.416	-.526	.121	-.198
i TRUST	.031	-.169	-.078	.703**	.124

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX A: INTRA-CORRELATIONS WITHIN HIGH SECURITY GROUP (N = 15)

	c NARROW	c WIDE	c TOTAL CW	f COHESION	f ADAPTA-BILITY
i COMMUNI-CATION	-.012	.028	.009	.574*	.084
i PARENTAL ALIENATION	-.061	.113	.033	-.475	-.135
i PARENTAL ATTACHMENT	.023	-.092	-.039	.691**	.126
u SPONTANEOUS FLEXIBILITY	.094	.092	.095	-.153	.162
u IDEATIONAL FLUENCY	-.121	-.187	-.160	.151	.145

	f IDEAL COHESION	f IDEAL AD-APTABILITY	e MOTHER FOSTERS INDEPENDENCE	e FATHER FOSTERS INDEPENDENCE
f IDEAL COHESION	1.00			
f IDEAL AD-APTABILITY	.163	1.00		
e MOTHER FOSTERS INDEPENDENCE	.331	-.135	1.00	
e FATHER FOSTERS INDEPENDENCE	.000	-.379	.498	1.00
e MOTHER ACCEPTING	.438	-.559*	.259	.096

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX A: INTRA-CORRELATIONS WITHIN HIGH SECURITY GROUP
(N = 15)

	f IDEAL COHESION	f IDEAL ADAPTABILITY	e MOTHER FOSTERS INDEPENDENCE	e FATHER FOSTERS INDEPENDENCE
e FATHER ACCEPTING	.702**	.119	.409	-.103
e MOTHER IDEALIZED	-.085	-.538*	-.194	-.204
e FATHER IDEALIZED	.184	.404	-.088	-.452
i TRUST	.341	-.457	.542*	.231
i COMMUNICATION	.220	-.306	.444	.159
i PARENTAL ALIENATION	-.702**	.424	-.460	-.313
i PARENTAL ATTACHMENT	.419	-.446	.555*	.250
u SPONTANEOUS FLEXIBILITY	.467	-.237	-.125	.194
u IDEATIONAL FLUENCY	.211	-.117	.006	.140

	e MOTHER ACCEPTING	e FATHER ACCEPTING	e MOTHER IDEALIZED	e FATHER IDEALIZED
e MOTHER ACCEPTING	1.00			
e FATHER ACCEPTING	.533*	1.00		

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX A: INTRA-CORRELATIONS WITHIN HIGH SECURITY GROUP (N = 15)

	e MOTHER ACCEPTING	e FATHER ACCEPTING	e MOTHER IDEALIZED	e FATHER IDEALIZED
e MOTHER IDEALIZED	.236	-.150	1.00	
e FATHER IDEALIZED	-.249	.124	.433	1.00
i TRUST	.794**	.621*	.187	-.066
i COMMUNI-CATION	.558*	.523	.363	.353
i PARENTAL ALIENATION	-.653*	-.591*	-.225	.003
i PARENTAL ATTACHMENT	.767**	.657*	.300	.126
u SPONTANEOUS FLEXIBILITY	.261	.292	.176	.056
u IDEATIONAL FLUENCY	.439	.327	-.002	.030

	i TRUST	i COMMUNI-CATION	i PARENTAL ALIENATION	i PARENTAL ATTACHMENT
i TRUST	1.00			
i COMMUNI-CATION	.714**	1.00		
i PARENTAL ALIENATION	-.598*	-.545*	1.00	
i PARENTAL ATTACHMENT	.918**	.901**	-.752**	1.00

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX A: INTRA-CORRELATIONS WITHIN HIGH SECURITY GROUP
(N = 15)

	i TRUST	i COMMUNI-CATION	i PARENTAL ALIENATION	i PARENTAL ATTACHMENT
u SPONTANEOUS FLEXIBILITY	.039	.259	-.602**	.274
u IDEATIONAL FLUENCY	.344	.432	-.371	.437

	u SPONTANEOUS FLEXIBILTY	u IDEATIONAL FLUENCY
u SPONTANEOUS FLEXIBILTY	1.00	
u IDEATIONAL FLUENCY	.581*	1.00

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX B: INTRA-CORRELATIONS WITHIN LOW SECURITY GROUP (N = 9)

	c NARROW	c WIDE	c TOTAL CW	f COHESION	f ADAPTA-BILITY
c NARROW	1.00				
c WIDE	.805**	1.00			
c TOTAL CW	.937**	.962**	1.00		
f COHESION	.142	.134	.144	1.00	
f ADAPTA-BILITY	.231	-.040	.083	.187	1.00
f IDEAL COHESION	-.665*	-.549	-.631	.042	-.094
f IDEAL ADAPTABILITY	-.485	-.166	-.322	.234	-.416
e MOTHER FOSTERS INDEPENDENCE	.409	.047	.217	.458	.827**
e FATHER FOSTERS INDEPENDENCE	-.491	-.288	-.397	-.749*	-.371
e MOTHER ACCEPTING	.087	.135	.120	.713*	-.119
e FATHER ACCEPTING	.182	.304	.263	-.185	-.182
e MOTHER IDEALIZED	.265	.178	.228	-.085	.327
e FATHER IDEALIZED	-.000	.195	.115	-.021	-.186
i TRUST	.283	.464	.405	.392	-.230

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX B: INTRA-CORRELATIONS WITHIN LOW SECURITY GROUP (N = 9)

	c NARROW	c WIDE	c TOTAL CW	f COHESION	f ADAPTA-BILITY
i COMMUNI-CATION	.251	.305	.296	.413	.119
i PARENTAL ALIENATION	-.326	-.607	-.509	.286	-.212
i PARENTAL ATTACHMENT	.319	.484	.433	.337	-.013
u SPONTANEOUS FLEXIBILITY	-.408	-.346	-.393	.053	.248
u IDEATIONAL FLUENCY	.117	-.044	.028	.353	.451

	f IDEAL COHESION	f IDEAL AD-APTABILITY	e MOTHER FOSTERS INDEPENDENCE	e FATHER FOSTERS INDEPENDENCE
f IDEAL COHESION	1.00			
f IDEAL ADAPTABILITY	.622	1.00		
e MOTHER FOSTERS INDEPENDENCE	.076	-.269	1.00	
e FATHER FOSTERS INDEPENDENCE	-.080	-.184	-.762*	1.00
e MOTHER ACCEPTING	.441	.343	.367	-.664
e FATHER ACCEPTING	-.816**	-.447	-.502	.528

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX B: INTRA-CORRELATIONS WITHIN LOW SECURITY GROUP
(N = 9)

	f IDEAL COHESION	f IDEAL ADAPTABILITY	e MOTHER FOSTERS INDEPENDENCE	e FATHER FOSTERS INDEPENDENCE
e MOTHER IDEALIZED	.346	.259	.468	-.489
e FATHER IDEALIZED	-.630	-.128	-.533	.409
i TRUST	-.677*	-.044	-.329	-.015
i COMMUNICATION	-.481	.056	-.012	-.244
i PARENTAL ALIENATION	.386	-.020	.110	-.116
i PARENTAL ATTACHMENT	-.631	.010	-.184	-.105
u SPONTANEOUS FLEXIBILITY	-.137	-.029	-.163	.307
u IDEATIONAL FLUENCY	-.506	-.666*	.258	.043

	e MOTHER ACCEPTING	e FATHER ACCEPTING	e MOTHER IDEALIZED	e FATHER IDEALIZED
e MOTHER ACCEPTING	1.00			
e FATHER ACCEPTING	-.524	1.00		
e MOTHER IDEALIZED	.080	-.721	1.00	
e FATHER IDEALIZED	-.564	.779*	-.451	1.00

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX B: INTRA-CORRELATIONS WITHIN LOW SECURITY GROUP
(N = 9)

	e MOTHER ACCEPTING	e FATHER ACCEPTING	e MOTHER IDEALIZED	e FATHER IDEALIZED
i TRUST	-.120	.685*	-.432	.856**
i COMMUNI-CATION	-.220	.309	.043	.752*
i PARENTAL ALIENATION	.485	-.324	-.326	-.391
i PARENTAL ATTACHMENT	-.255	.539	-.125	.850**
u SPONTANEOUS FLEXIBILITY	-.539	.293	-.195	.711*
u IDEATIONAL FLUENCY	-.095	.528	-.619	.384

	i TRUST	i COMMUNI-CATION	i PARENTAL ALIENATION	i PARENTAL ATTACHMENT
i TRUST	1.00			
i COMMUNI-CATION	.813*	1.00		
i PARENTAL ALIENATION	-.276	-.371	1.00	
i PARENTAL ATTACHMENT	.928**	.947**	-.499	1.00
u SPONTANEOUS FLEXIBILITY	.422	.651	-.171	.552
u IDEATIONAL FLUENCY	.402	.265	.175	.290

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX B: INTRA-CORRELATIONS WITHIN LOW SECURITY GROUP (N = 9)

	u SPONTANEOUS FLEXIBILITY	u IDEATIONAL FLUENCY
u SPONTANEOUS FLEXIBILITY	1.00	
u IDEATIONAL FLUENCY	.427	1.00

Note:
*<.05
**<.01

Coding for measures:
c = CW e = MFP i = IPPA
f = FACES u = UOBJ

APPENDIX C: GENERAL INFORMATION

1. Circle the members of your present household:
   mother father
   brother(s) [number:] sister(s) [number:]
   half-brother(s) [number:] half-sister(s) [number:]
   step-brother(s) [number:] step-sister(s) [number:]

maternal	paternal
aunt	aunt
uncle	uncle
grandfather	grandfather
grandmother	grandmother

   other--please identify:

2. Is your mother, or the woman who raised you, still living? Yes No

3. How often do you have contact with her (if living)?

4. Is your father, or the male person who raised you still living? Yes No

5. How often do you have contact with him (if living)?

6. Has anyone very close to you died? Yes No
   If YES,
   a) How old were you when this person died?
   b) What was your relationship to this person?

7. Were you adopted? Yes No

8. Are your parents separated or divorced? Yes No
   If YES,
   a) how old were you when they separated or divorced?
   b) which parent do you primarily live with? Mother/Father
   c) have either your mother or father remarried? Yes No
      Which parent: MOTHER FATHER BOTH

9. How old are you?

10. Think of one of your close friends, and pick the one you have known for the longest time. How long have you known this friend?

11. What is your gender? Male Female

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