



1991

A Theoretical and Methodological Inquiry into the Construct of Adaptive Emotional Resiliency

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LOYOLA UNIVERSITY OF CHICAGO

A THEORETICAL AND METHODOLOGICAL INQUIRY INTO
THE CONSTRUCT OF
ADAPTIVE EMOTIONAL RESILIENCY

A DISSERTATION SUBMITTED TO THE FACULTY OF THE
THE GRADUATE SCHOOL IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF COUNSELING AND EDUCATIONAL
PSYCHOLOGY

BY

JACK JOSEPH

CHICAGO, ILLINOIS

MAY 1991

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ACKNOWLEDGEMENTS

A dissertation may be thought of as representing the culmination of one's graduate school studies. In this case, the present endeavor reflects a lifetime of personal and professional experiences and thus sheds light on the individuals who have left their permanent imprints on the author. Some of these individuals have been unwitting contributors while others such as Dr. Mark Swerdlik and Dr. John Klanderman have openly offered their friendship and wisdom in equally generous portions.

This project would not have been possible without the support and cooperation of the school administrators, classroom teachers, and evaluators, too numerous to mention here by name, who generously gave of their time and to the parents who contributed their child and family profiles upon which the present study is based. I am especially indebted to the four members of my dissertation committee which included: Dr. Ronald Morgan and Dr. Robert Clark, two outstanding school psychology program directors, Dr. Martha Wynne whose keen analytic eye played a major role in shaping the SRS, and Dr. Anne Juhasz, my director. The

special relationships that I have developed with these individuals and the distinctive contributions of each member of the committee have indeed left their imprints.

Finally, I wish to express my love and deepest appreciation to my family for their respective imprints. I thank my parents, Rubin and Henia Joseph, for their imprint of courage and the ability to persist and prevail against all odds. Most of all, I thank my loving wife, Linda, and son, Matthew, for their unswerving support, devotion, and tolerance beyond any reasonable standard.

The author therefore dedicates this volume of work to Linda and Matthew in recognition of their life-sustaining imprints of love, faith, and trust.

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CHAPTER I

INTRODUCTION

There is an old saying that into every life some rain must fall. Yet a haunting question may be raised as to why some individuals seem to wither under the lightest of spring showers, whereas others stand firm in the face of the fiercest monsoons. After having worked with high-risk children for many years, it has become apparent to this investigator that there are children who grow up under horrendous home conditions involving abuse, neglect, serious illness, abject poverty or psychic traumas and yet somehow manage not only to "survive" but in certain instances even to thrive. In contrast, other children exposed to similar or even less harsh circumstances seem to be less resilient and therefore break under the strain. Are some individuals more vulnerable to stressful life events than others or are such observations merely illusions created by an observer's incomplete understanding of one's total life circumstance?

Background of the Study

These thoughts, originally pondered more than a decade ago, led the investigator to casual unsystematic readings aimed at shedding light on issues related to the adaptive concept of emotional resilience. These intriguing early readings quickly escalated into an intensive systematic research inquiry which has involved journeying through a multitude of related - or in some cases apparently unrelated - literature fields.

The original goal of this journey was the development of an instrument that would provide an objective assessment of one's level of emotional resilience. However, as the investigative journey unfolded through a series of logically related research fields, it seemed clear that a coherent theoretical perspective needed to be developed before constructing that instrument.

Purpose and Overview of the Study

The dual purpose of the study was to develop a viable theoretical perspective for the investigation of the concept of Adaptive Emotional Resiliency in children and to begin to operationalize this newly conceived theoretical construct via the development and validation of an objectively scored parent interview instrument, the Stressor Risk Scale (SRS).

The first goal of the study, the development of a viable theory of emotional resilience, was conceptualized within the context of two broad

theoretical domains. It is believed that these two areas are critical for positive emotional development and the subsequent unfolding of a healthy self-concept. The first area of focus was related to the attachment process, while the second involved a region that the investigator labeled adaptive control. It was assumed that these two areas are affected by environmental and genetic elements. The resultant interaction of these complex factors represented the essence of what will be formally labeled and defined in Chapter II as one's level of Adaptive Emotional Resiliency. In Chapter II, the first goal was addressed by initiating an in-depth review and integration of the literature which was organized into three major subsections. The first major section deals with the self-concept and its theoretical antecedent processes of attachment and adaptive control. The second major section deals with theoretical and applied risk research. As a result of integrating these first two sections, a uniquely woven "fabric" of theory and research emerges to provide a theoretical framework in which to study Adaptive Emotional Resiliency or one's ability to maintain mastery and competence in the face of exposure to stress. The resultant fabric serves as the structural foundation upon which the SRS is developed and as a backdrop upon which the primary research hypothesis of goal two is posed. The third major section of Chapter II provides a review of stress assessment.

This section provides the necessary transitional link between theory and assessment and thereby serves as a direct lead-in to Chapter III and methodology issues.

The second goal of the proposed research study represents an initial step in operationalizing the notion of Adaptive Emotional Resiliency. This focus directly involves assessment of stress exposure. Obviously, before one can validly assess an individual's level of emotional mastery in the face of stress, it is necessary to accurately gauge that individual's exposure to stress. Therefore, goal two of the study involves the development and validation of an objectively scored parent interview instrument, the Stressor Risk Scale. This measure will be designed to assess potential emotional vulnerability in the child as a function of stress exposure in three areas: perceived child personality-temperament characteristics, stress related life events history of the child and family, and parental personality characteristics and attitudes.

Chapter III provides both a description of the research study, hypotheses related to addressing goal two, and an in-depth description of the SRS construction and design format. Chapter III also supplies a description of the pilot study. The concurrent validity study, which represents the major focus of this research project was designed to test the hypothesis that SRS scores will predict and differentiate among three

groups of children. By virtue of actual adaptive functioning in their respective school settings, these three groups are presumed to possess a low, moderate, or high-risk emotional and/or behavioral status. Within the context of this concurrent validity study, Chapter III also contains a description of the research method and design employed, sample selection, and procedures for data collection and statistical analyses. In Chapter IV, data from the concurrent validity study is presented and analyzed. Chapter V contains a summary of the concurrent validity study, conclusions, review of limitations, and suggested future research directions.

Significance of Study

In recent years, a growing body of research has established a strong link between stressful life events and the development of psychological disorders in adults (Kasl, Gore and Cobb, 1975; Lloyd, 1980; Paykel, 1978; Rutter, 1983). In sharp contrast to these adult studies, there is a paucity of evidence regarding links of generalized stress and stressful life events to psychological disorders in children (Colton, 1985; Yamamoto, Soliman, Parsons and Davies, 1987). The further development and validation of the SRS could be viewed as a means of detailing such links and could also serve as a step toward providing researchers and practitioners with an empirically derived data base for use in related investigations. Furthermore, the elaboration of a coherent theoretical

perspective for studying Adaptive Emotional Resiliency and its subsequent role in underpinning the development of the SRS represents a first major step toward establishing a non-biased multi-dimensional assessment system aimed at empirically measuring a child's level of emotional resilience on a vulnerable-invulnerable continuum.

CHAPTER II

THEORETICAL UNDERPINNINGS OF SCALE DEVELOPMENT

Introduction to the Study of Emotion

In attempting to investigate the concept of emotional resilience, researchers are likely to focus their initial interest on the term "resilience," since the term "emotional" may seem quite clear. However, throughout the 20th century, social scientists have been unable to reach a consensus regarding the definition of emotion despite the near universal belief that a child's emotional development plays a key role in understanding overall development (Strongman, 1978). Plutchik (1980) illustrates this dilemma by reviewing 28 definitions of emotion. However, investigators need venture no further than to ordinary dictionaries published in the past 50 years to appreciate the complexity involved in defining this concept. For example, Webster's Columbia Concise Dictionary (1939) defines emotion as "A moving of the mind or soul; a state of excited feeling of any kind, as pleasure, pain, grief, joy, astonishment; one of three fundamental properties of the human mind, the other two being volition and intellect"

(p. 245). In more recent publications, definitions feature a stronger physiological focus. Emotion is defined in Webster's Seventh New Collegiate Dictionary (1967) as "a psychic and physical reaction subjectively experienced as strong feeling and physiologically involving changes that prepare the body for immediate vigorous action" (p. 271). Similarly, Webster's Third New International Dictionary (1976) defines emotion as "a physiological departure from homeostasis that is subjectively experienced in strong feeling" (p. 275). However, psychoanalytically oriented dictionaries typically view emotions as states of tension associated with instinctual drives such as sex or hostility (Longman Dictionary of Psychology and Psychiatry, 1984). Interestingly, the clearest lay person's view of this term may be illustrated in a relatively recent children's publication, Webster's New World Dictionary For Young Readers (1983), which defines emotion as "any of the ways in which one reacts to something without careful thinking" (p. 240). Although dictionary reviews do not represent a scholarly treatment of this concept, they do serve as a departure point for discussing historical issues which have contemporary relevance.

Aristotle is considered to be the earliest major philosopher to have developed a theory of emotion which has had a significant impact on contemporary theorizing (Diamond, 1974). In the 4th century B.C.,

Aristotle identified four structural components involving emotion; an object or stimulus which acts as an emotional triggering device, a perception and a cognitive evaluation of the triggering stimulus as being good or bad, a physiological state expressed as a feeling of pleasure or pain, and a pursuance or avoidance of the object or stimulus. More than 2,000 years would pass before the next major theorist wrote about emotion. In the 17th century, Descartes offered a theory which suggested that emotion involved the excitation of the soul caused by a liquid body regulating substance called animal spirits (Strongman, 1978). Although considered the major theory of its era, Descartes' views apparently have had little impact on contemporary scientific theories of emotion. Nevertheless, Descartes' conception of emotions resulting in disorganized, chaotic behaviors because of a somewhat irrational soul may have had a monumental, albeit subtle, impact on the direction of contemporary lay and scientific thought for this area.

A broader perspective for understanding Descartes' views may involve tracing the course of modern science and the scientific revolution. The prevailing viewpoint which fueled the scientific revolution between the years 1500 and 1850 suggested that the world was divided into two spheres: the physical world, composed of tangible objects, and the spiritual world, involving the abstract world of the mind and feelings which reflected the

human soul (Lynch, 1976). It was thought that the physical world could be measured scientifically, whereas the spiritual world could not. Because of this perceived dichotomy between mind and matter, the scientific study of emotions was largely ignored until the latter part of the 19th century. At this point, Charles Darwin proposed that man had evolved from a lower species of animal. He also suggested that the expression of emotions in higher animals such as dogs or monkeys was similar to the way that man expressed emotions (Darwin, 1871, 1934). Although bitterly opposed by many religious groups, these revolutionary thoughts were quickly embraced by the scientific community and opened the door to the scientific study of emotions via animal experiments.

Contemporary scientific approaches to the study of emotion typically have featured three directions. Because of the many definitions of emotion which focused on somatic or visceral changes, physiological approaches generally have been devoted to identifying the physiological correlates of emotion (Black, 1970). However, despite some promising studies that attempted to evaluate central nervous system and neurochemical reactions, no specific mechanisms have been found that directly trigger particular human emotional behaviors (Lewis and Michalson, 1983). Furthermore, much of this physiologically oriented research has involved nonhuman subjects, thus making the generalizability

of findings to humans quite speculative.

Physiologically oriented investigators generally have been concerned with the underlying physical correlates related to emotions. However, theories generated from this approach have been highly inadequate in examining the subjective phenomenological experiences that are generated by human emotions. A cognitive approach therefore has been extensively utilized in accounting for the individual differences seen in emotional responsiveness (Lazarus and Folkman, 1984). Subsequently, there is widespread research support for the position that cognition is a necessary precondition for emotional responses to occur (Arnold, 1970; Kagan, 1974; Lazarus, Coyne and Folkman, 1982; Mandler, 1980). Lazarus (1982) typifies the cognitive approach theorists by focusing on the role of cognitive appraisals, that is, the way individuals tend to interpret their own plight, in determining the type and degree of emotional responses. The bases for most cognitive appraisals are closely related to memories of past experiences. Thus, Lazarus views emotions as the outcome of a cognitive appraisal process that aims at adaptively coping with various situations, particularly stressful events. Other major contemporary emotional theorists who subscribe to a cognitive approach focus on discrepancies rather than cognitive appraisals (Berlyne, 1970; Kagan, 1978). They consider emotions as products of certain

discrepancies between external events and internal representations or schemata. The type of emotion created is contingent upon how these discrepancies are perceived. Emotional adaptation, in this view, involves an individual's ability to assimilate an incongruous or unexpected event into an existing cognitive schema.

In contrast to the perspective provided by the cognitive approaches, researchers such as Zajonc (1980) have promoted the notion that emotions do not require cognitive appraisals since they seem to possess separate anatomical structures. Thus, motivational approaches to the study of emotion suggest at least a partially independent affective process that is presumably derived from biological instincts. In this view, emotions are equated with hedonistic drives or motives which are necessary for survival. Such biological explanations of emotion are associated primarily with two camps; the evolutionary theorists (Darwin, 1872; Izard, 1977; Plutchik, 1980) and the psychoanalytic theorists (Freud, 1920; Rapaport, 1960). Some theorists have also advocated a mix of evolutionary and psychoanalytic principles (Bowlby, 1969, 1973). Motivational theorists suggest that emotions act as antecedents of action rather than as consequences of behavior (Zajonc, 1984). This "primacy of affect" position therefore implies that at times emotional states may produce cognitive behaviors rather than the reverse (Bower, 1981).

Perhaps Lewis and Michalson (1983) have proposed a more viable explanatory resolution to the controversy of cognitive versus emotional primacy. They have viewed these two processes as interacting in a complex fashion similar to the themes in a musical fugue. In this transactional view, one key element involves the interpretive-cognitive structure of the self which underlies emotional experience. The emergence of the concept of one's self seems to be an ingredient that is necessary in order for an emotional experience to occur (Lewis and Brooks-Gunn, 1979). However, maintaining an emphasis on the paramount importance of the self-concept construct, which resides at the core of a child's emotional development, is not a new and unique idea. Instead, it is a viewpoint that traditionally has been held by many personality theorists (Branden, 1969; Briggs, 1970; Combs and Snygg, 1959; Maltz, 1970; Rogers, 1951; Rosenberg, 1965). A more detailed discussion and analysis of the self construct is thus in order.

Self-Concept Theory and Background

Similarly to the rich historical background noted in theories about emotion, the concept of self has intrigued man for centuries. This fascination stems from the ancient writings of St. Augustine in the 4th century A.D. (Diggory, 1966). Early 20th century pioneers who studied the self construct included James (1890), Freud (1920), Adler (1927), Mead (1934), and Lewin (1935). Despite the efforts of these and other

individuals, Wylie (1961) points out that the self received little attention from the behavior oriented psychologists who dominated American psychology from the 1920's through the 1940's. In addition, Diggory (1966) suggested that much of the work done on the self construct during this period lacked rigorous experimental design and was therefore vulnerable to being unduly criticized or dismissed. Nevertheless, many of the early researchers provided significant insights and guidelines for studying the self-concept.

Several contemporary theorists have placed a central importance upon the self as a primary psychological entity. Carl Rogers developed a system of psychotherapy which he labeled as "client centered" (Rogers, 1951). This system saw the structure of self formed basically as a result of interactions with the environment and, moreover, as a function of evaluational interactions with others. Rogers viewed the self as a phenomenological unit which developed from a pattern of conscious perceptions that was experienced by the individual. These perceptions were seen as having a strong bearing on the individual's subsequent behavior and adjustment. Rogers (1951) formally defined the self-concept as "an organized, consistent, conceptual gestalt composed of perceptions of the characteristics of the 'I' or 'me' and the perceptions of the relationships of the 'I' or 'me' to others, together with the values attached to those

perceptions" (p. 498). He further noted that the self was a fluid and constantly changing gestalt, but that at any given moment it was also a specific entity which was at least partially definable in operational terms by means of some instrument. Rogers' insights had made such a great impact on integrating earlier notions regarding the self-concept that his entire theoretical framework became known as "self theory" (Patterson, 1961).

Stanley Coopersmith was another notable and influential contemporary researcher in the field of self study. His theoretical formulations of self-esteem focused sharply upon the idea of self-evaluation or the esteem attached to the self (Coopersmith, 1959). According to Coopersmith (1967), self-esteem was:

the evaluation which an individual makes and customarily maintains with regard to himself; it expresses an attitude of approval or disapproval and indicates the extent to which the individual believes himself to be capable, significant, successful, and worthy. In short, self-esteem is a personal judgment of worthiness and is expressed in the attitudes the individual holds toward himself. It is a subjective experience which the individual conveys to others by verbal reports and other overt expressive behavior. (p. 5)

In contrasting these prototypic formulations, certain commonalities become apparent. Both Rogers and Coopersmith suggest that the initial development of a favorable self-attitude is in great part determined by individuals' perceptions of how others are treating them. The self-image is therefore heavily laden with evaluative judgments

regarding perceived self-experiences. Furthermore, individuals tend to perceive experiences based solely upon their own unique subjective reality; subsequently, their present and future behaviors are largely a function of these idiosyncratic perceptions. Obviously, positive self-judgments are closely related to personal satisfaction and effective functioning.

Despite these commonalities, however, some investigators have proposed that self-concept and self-esteem are separate and unique entities (Calhoun & Morse, 1977; Germain, 1978). The logic behind their definitive arguments seems less important than the idea that any attempt to differentiate these terms should be based upon the assumption that commonly accepted definitions of each exist. This, in fact, has not been the case. Although self-esteem typically has been used in a more molecular fashion, there is presently no single theoretical context in which either self-esteem or self-concept may be considered. Currently, scores of theories and definitions of these terms are found in the literature. Wylie (1974), summarizing her comprehensive review of work on the self-concept, noted that theoretical definitions concerning the self have been "stretched to cover so many inferred cognitive and motivational processes that their utility for analytic and predictive purposes has been greatly diminished" (p. 317). Analogously, Coopersmith (1959) stated that "a clarification and definition of what is meant by self-esteem is essential" (p.

92). Adding to this confusion, a number of investigators have studied the self construct under other headings, such as: self-satisfaction, self-acceptance, self-favorability, self-actualization, and self-identity (Allport, 1961; Erickson, 1959; Goldstein, 1940). Thus, many researchers have recognized that various self terms have become nearly impossible to differentiate since, in some cases, a particular term may have various meanings while, in other instances, a particular meaning may be attached to several terms (Wylie, 1989).

Attempts to restore some order to this perplexing field have been made by Hall and Lindzey (1970), who reported that the term self as used in modern psychology has come to have two distinct meanings. On the one hand, it represents people's attitudes and feelings about themselves. On the other hand, it symbolizes a group of psychological processes which govern behaviors and adjustment. The first meaning reflects the self-as-object definition, since it denotes the person's attitudes, feelings, perceptions, and evaluations of himself or herself as an object. In this sense, the self is what individuals think of themselves. The second meaning reflects the self-as-process definition. The self is a doer in the sense that it consists of an active group of processes such as thinking, remembering, and perceiving. A comprehensive definition of self-concept should therefore take into account and integrate the self-as-object and self-as-process aspects

of this complex construct. Joseph (1979) proposed such a definition in his efforts to develop a self-concept measuring device. He defined self-concept as:

the way an individual perceives himself, his behaviors, how others view him, and the feelings of personal worth and satisfaction that are attached to these perceptions...this personal judgment is based upon five general dimensions. However, these dimensions may not be considered equally important. The two dimensions that are of primary importance include: Significance - the extent to which we perceive ourselves as being valued by significant others; and Competence - the perceptions of being able to successfully perform and master environmental demands. In considering the dimension of Significance, we see that human beings tend to value themselves as they are valued... Competence may be considered a key area of self concept development in that even the very young child seems to innately experience a pleasurable sense of efficacy that accompanies his encounters with the environment... The remaining three dimensions of the self concept.... include: Power - the perceived ability to influence, manipulate, and control others; General Evaluative Contentment - feelings of satisfaction with one's present life circumstance; and Virtue - perceived adherence to moral standards... As a group, these three secondary dimensions are considered to be derivative or indirect expressions of the two primary dimensions of Significance and Competence...the dimension of Virtue may be looked upon as a derivative of the Significance dimension. Analogously, the dimension of Power is basically an indirect expression of Competence and is therefore looked upon as its derivative. The dimension of General Evaluative Contentment (GEC) holds a special place in this schematic structure since it may reflect an individual's contentment or discontent with his Significance and/or Competence dimensions. (p. 8)

If one embraces this general interpretation of the self-concept, it may be assumed that the attitudes that children hold toward themselves and the extent to which they value their own worth will significantly influence their emotional growth, academic achievement, interpersonal relationships,

and the outcome of major life experiences. The self-concept may, therefore, be considered the best single predictor of a child's ability to "succeed" as a human being. One key aspect of this view which has been extensively investigated relates to academic achievement. In fact, many researchers have questioned the commonly held assumption that ability is the most important factor in achievement. Instead, a number of studies have supported the notion that students' attitudes may establish a limit on their ability to achieve in school (Bailey, 1971; Battle, 1982; Brookover, Thomas and Patterson, 1964; Coopersmith, 1967; Fink, 1962; Hirt, 1970; Purkey, 1970; Shaw, Edson and Bell, 1960; Silverman, 1964; Wattenberg and Clifford, 1964). Furthermore, there is considerable empirical evidence to suggest that even cognitive outcome variables such as grades in school are not good predictors of future occupational success (Berg, 1970; Jencks, 1972; McClelland, 1973). Thus, in order to evaluate the relationship between an individual's self-appraisal and functional behaviors such as academic achievement, the idea of consistency must be carefully considered as well.

The consistency of global self-evaluations seems theoretically and empirically supported by prominent researchers (Combs and Snygg, 1959; Engel, 1959; Festinger, 1962; Horney, 1945; Jersild, 1952; Lewin, 1935; Rogers, 1951). Typically of these theorists, Lecky (1945) pointed out

that the preservation of one's perception of one's self is the prime motive in all behavior. According to Lecky, self-consistency is necessary in order to maintain or preserve the identity of the self. Even individuals who believe that they are weak, incompetent, or immoral will adhere to these perceptions and bolster this picture of themselves while refusing to acknowledge any perceptions that would suggest otherwise (e.g., that they may be powerful, competent, or moral). Subsequently, experiences which are incongruent with an individual's self-concept tend to be denied regardless of their social character. The individual's self-image must be considered as both the product of past experiences and the producer of whatever new experience he or she may be capable of. Current behaviors therefore may be considered a direct expression of the self-concept. In light of this perspective, the idea that self-perceptions may have a significant bearing on critical adaptive behaviors seems quite reasonable (Antonovsky, 1974; Juhasz, 1989; Sroufe, 1978).

Despite the support cited for the importance of the self-concept and general emotional development in children, social scientists and educators continue to emphasize the importance of cognitive variables in measuring the developmental status of children (Anderson and Messick, 1974; Cohen, Montague, Nathanson and Swerdlik, 1988). This preoccupation with the importance of cognition has also manifested itself in

a variety of other ways; these range from practices seen in parental child rearing priorities to instructional teaching approaches utilized in many public schools. Furthermore, educational and social program accountability guidelines which have resulted from governmental policy reform directives have focused on promoting cognitively oriented outcomes (Lewis and Michalson, 1983). In contrast, critical aspects of competence involving key emotional variables such as the self-concept, social awareness, and interpersonal relatedness have been largely ignored in contemporary educational and social policy making (McClelland, 1973; Zigler and Trickett, 1978). Although it seems difficult to account definitively for this all consuming societal preoccupation with intelligence at the expense of adaptive emotional functioning, the earlier discussed Cartesian influence may have subtly predisposed the contemporary Western world toward downplaying the scientific and practical importance of various emotional processes. Despite this apparent cognitive "bias," however, in recent decades the notion that interpersonal relatedness may represent a critical aspect of human competence has received an increased level of attention (Anderson and Messick, 1974; Sroufe, 1979). Thus, a more detailed analysis of close emotional ties, or attachment, between individuals is required. One major task of this analysis should be to address how such attachments relate to competence and provide the initial

foundation upon which the self-concept forms.

Theoretical Antecedent Processes of the Self-Concept

The Attachment Process - Foundational Structures

The image of a mother expertly caring for her baby is so natural and pervasive that it has practically been "burned" into Western society's consciousness. It is assumed that mothers will supply food, shelter, and unlimited amounts of loving warmth to their newborns. This assumption follows from a more basic assumption that mothers are intrinsically capable of and motivated to care properly for and become instantly attached to their babies. But what are the effects on a child if an intimate attachment with one person does not form? Given the earlier discussion of Darwin, it is not surprising that one of the first research teams to shed light on this question was Harlow and Harlow (1969). Beginning in the 1940's, they conducted research regarding the effect of maternal deprivation on infant monkeys. What first came to the Harlows' attention was the observation that when physically healthy baby monkeys were separated from their mothers to avoid the spread of disease in the colony, they became withdrawn and antisocial. In attempting to discover what needs the mother monkey satisfied in her offspring and how an early separation from the mother would affect the baby, the Harlows placed baby monkeys in total isolation. These monkeys soon huddled in the corners of their cages

and engaged in self-destructive or bizarre behaviors. When some of the same monkeys had babies of their own, they often ignored or abused them. They did not know how to "mother" since they had never been mothered themselves. Although there were attempts to intervene therapeutically with the isolated monkeys, many did not recover. The Harlows concluded that mothering and intimate contact were crucial to the normal development of monkeys.

The work of Spitz (1945, 1946) and Bowlby (1969) extended this animal research to humans. Spitz's observations of children living in an orphanage seemed to support the Harlows' theories of mothering. Although the physical needs of these children were being met, many were still unhealthy and, in fact, were not developing normally in either a physical or emotional sense, due in large part to staffing shortages. Spitz felt that for a majority of the orphaned children, staffing shortages resulted in a lack of consistent loving care from the same person. Bowlby's complementary research led him to observe that a baby's behavior is specifically designed to elicit an emotional closeness to the mother. Bowlby proposed that the attachment process begins with such visceral "overtures." In effect, the baby starts to single out a particular caregiver from all others and establishes a special vocal and body language with that person. Once the attachment begins, the relationship between the caregiver and the baby

normally expands and serves as a potent source of security and strength for the infant. Subsequently, this special attachment provides the child with the impetus for establishing rich interpersonal relationships with others over time. Therefore, both Spitz and Bowlby promoted the idea that an intimate relationship with a nurturing caregiver is essential to an infant's overall development.

Whereas Spitz and Bowlby saw the first year of a child's life as being the most critical period in developing a special relationship with a principal caretaker, the work of Klaus and Kennell (1976) accelerated this process dramatically. They posited a critical period between the first few minutes and the 12th hour after birth during which close physical contact between the infant and the parent was necessary if the appropriate bond was to be formed. Although Klaus and Kennell never specifically defined the term "bonding," they clearly were pointing to the aforementioned critical period concept as if it were a form of imprinting. The bonding process was discussed as being a close attachment which suggested "a unique relationship between two people that is specific and endures through time" (Klaus and Kennell , 1976, p. 18). The period of early contact was deemed special in that it could alter a mother's later behaviors. Early separations from mother during the immediate postpartum period could result in difficulties in establishing a normal or optimal mother-infant

bond. An initial failure could then lead to such extreme forms of disorders of mothering as abuse and neglect. This early period of contact was considered critical in promoting a close bond, because of a presumed special readiness on the part of both parents and infants to communicate with each other. Infants were described as being in a state of "quiet alert" in the first moments after birth which made them optimally open to the signals of others.

Although this theory seemed to represent a radical view of how the mother-infant attachment process unfolds, other investigators such as Verny (1981) have posited critical birth and prenatal experiences which are deemed to have primary importance in the attachment process and subsequent social-emotional development. Just as the emotional patterns after birth, as suggested by Bowlby, Klaus and Kennell, were presumed to have long term implications in shaping the mother-child relationship, so too were those before birth, according to Verny. Hence, the concept of intrauterine bonding has become very meaningful to a handful of non-mainstream researchers and clinicians. These individuals believe that the bonding process after birth is in fact a continuation of the process that began in the womb. Although extrapolating a great deal from the literature, Verny (1981) has synthesized and provided some coherent logic for the work of these pioneers in prenatal psychology.

In studying this area, an intrauterine communication system must obviously be at work. Yet how could unborn children sense their mothers' thoughts and feelings? Furthermore, when would such a system be activated and how could it operate? To begin to answer these questions, Montagu (1962) noted that the most obvious type of physiological communication from mother to fetus involves anxiety and stress-related hormones. These hormones, released by the mother when she becomes fearful or upset, in turn pass through the placental barrier, upsetting the fetus as well. Possibility of this relationship was originally considered by Sontag (1944). During World War II, he noted that severe maternal anxieties, such as occasioned by thousands of pregnant women married to soldier husbands, could negatively influence fetal personality development by increasing maternal neurohormonal production (e.g., adrenaline, noradrenaline, serotonin). This would flood the bloodstream, altering the mother's body chemistry and ultimately, the fetus' as well, which in turn would heighten the child's biological susceptibility to emotional stress. Subsequent growth would then be hindered by these prenatal experiences. Sontag (1963) eventually named this phenomenon somatopsychics.

Somatopsychics represented the mirror image of psychosomatics because of the aforementioned hormonal imbalance. Thus, the child could become predisposed toward such psychological disorders as anxiety or

depression. Nevertheless, early in the pregnancy, these *in utero* hormonal "messages" seemed largely directed toward the fetus' body rather than his or her mind and could have resulted in physiological reactions. However, by the end of the second trimester, Sontag concluded, the fetus' brain and nervous system had gradually matured. Consequently, fetuses developed a relatively sophisticated awareness of their mothers' feelings as well as their own anxieties, fears and general emotional status (via the hormonal messages). Stott (1973) demonstrated this notion in a study which developed from the premise that a child's physical and emotional state at birth and in subsequent years could provide a measure which was reflective of the maternal messages received *in utero*. It was further reasoned that short-term maternal upsets would not affect a child as significantly as long-term ones. Obviously, the fetuses and newborn children in the study could not be interviewed regarding what feelings they sensed *in utero*, but like all human beings, they were subject to the psychosomatic effects of stressful negative experiences. No ill effects of either a physical or emotional nature were apparent in the children of women who had suffered fairly intense but brief stress during pregnancy. Therefore, the study supported Stott's premise.

Interestingly, however, not all the babies whose mothers had been exposed while pregnant to intense long-term stresses were born sickly.

Closer examination revealed that the nature of the long-term stress was critical. For example, prolonged stress due to an illness of a close relative had little or no effect on the fetus. However, long-term personal stresses such as marriage difficulties which presumably threaten the mother's emotional security did seem frequently to have a very negative effect on the fetus' subsequent physical and emotional status at birth. Stott (1973) concluded that fetuses may be able to perceive and accurately differentiate the nature of their mothers' distress and the extent to which this distress reflects a real threat to mother and themselves. Lukesch's study (cited in Verny, 1981) supported Stott's research with a study that concluded that the mother's attitude toward her unborn child had the single greatest effect on how an infant turned out when other key prenatal factors were held constant. Subsequently, the children of accepting mothers who looked forward to their child's birth were much healthier emotionally and physically at birth and afterward than the children of rejecting mothers. Stott's (1977) follow-up study also supported the conclusion that, in determining infant risk outcome, the quality of a mother's relationship to her spouse or companion was second only to her attitude toward being a mother. Stott found that women who were involved in stormy marriages ran a 237 percent greater risk of bearing a psychologically or physically damaged child than women who enjoyed a secure relationship. This later

study pointed out that such widely recognized dangers as physical illness, smoking, and heavy physical work during pregnancy posed less risk to the unborn child than the aforementioned stresses. Stott added that the offspring of the high-risk mothers' group continued to be plagued with problems at five years of age (e.g., many were acutely undersized, timid, and emotionally dependent on their mothers).

If it is assumed that *in utero* or birth related experiences have long term implications with regard to an individual's social-emotional development, then an implicit acknowledgment regarding the existence of a fetal state of consciousness and the capability of a fetus to possess a long term memory must logically follow. Traditional cognitive psychology would probably reject such a notion, since it is widely believed that memory is dependent upon the child's cognitive development (Piaget and Inhelder, 1973). Therefore, the potential for possessing a functional memory seems unlikely prior to the development of object permanence which is seen well into the child's first year. However, some researchers have questioned the validity of this position; they have demonstrated the existence of memories in one-minute to sixty-minutes-old newborns and other perinatal populations (Meltzoff and Moore, 1977). These investigators concluded that the information processing and memory capabilities of the young infant may be much more complex than had been

previously believed. Nevertheless, empirical evidence regarding the existence of a long term memory storage system is presumed not to exist in infants before six months of age (Meltzoff and Moore, 1977).

The basis for these conclusions rests primarily on the results of formal laboratory experimentation. Obviously, since the fetus and newborn are limited with respect to understanding verbal directions and possessing discernable response modes, formal experimentation for these children has been greatly restricted. Yet Verny (1981) suggests that fetal consciousness and memory probably begin to develop in the sixth month of pregnancy. As had been discussed earlier, negative maternal hormonal messages transmitted to the fetus prior to the sixth month may have a largely physical impact. The ability of fetuses to perceive meaning and experience feelings from these messages are contingent upon their becoming neurologically mature. The fetal nervous system must be capable of transmitting sensations to higher brain centers which, according to Verny, does not happen until the sixth or seventh month, when the ego starts to form. Maternally transmitted anxiety at this stage, within normal limits, is probably beneficial to the fetus since it begins to create an awareness of the fetus' own separateness. Perhaps the "normal" depression noted in infants during the first year of life by Mahler, Pine and Bergman (1975) is one effect of these prenatal anxiety experiences and, in fact, represents a

continuation of the individuation process as described by Mahler.

In sharp contrast to Klaus and Kennell's position that the best period for bonding is seen in the first few minutes or hours after birth, Verny contends that the last two to three months of pregnancy is the optimum period for (intrauterine) bonding. At this stage the fetus is maturationally ready for and optimally receptive and responsive to the mother's signals. Conversely, the fetus is more vulnerable at this stage should those signals prove to be negative.

Verny supports the validity of these assumptions in a review of a number of case studies. Given the aforementioned concerns regarding formal experimentation in this area, such anecdotal evidence seems noteworthy. The following case is an example:

Dr. David B. Cheek, in contrast, has focused his attention specifically on birth memories. In a remarkable clinical experiment done several years ago, he took four young men and women he had delivered during his years as an obstetrician in Chico, California, put them under hypnosis, and asked each to describe how his or her head and shoulders were positioned at birth. Positioning was selected as a measure of the reliability of birth memory because Dr. Cheek knew there was no way his subjects could know the answers beforehand. Information like this rarely finds its way beyond the obstetrician's delivery notes, and the delivery notes of these young men and women had been under lock and key in Dr. Cheek's files for more than two decades. They were the test's corroborating proof. In every case what the hypnotized patient told Dr. Cheek was confirmed by what he found in his files later (he was careful not to consult them beforehand for fear of leading the subjects on). Each man and woman accurately described how his or her head had been turned and shoulders angled at birth, and also the way he or she was delivered. (Verny, 1981, pp. 99-100)

In contrast to the amorphous state of the fetal and infant memory literature, the intriguing and provocative position that a mother-infant bond may develop *in utero* or in a relatively short period of time after birth has led to a flurry of research. The ramifications of such notions are potentially far-reaching. Since the concept of intrauterine bonding is obviously more difficult to examine scientifically, a natural avenue of exploration has been to study the bonding process after birth. Once again, the Klaus-Kennell bonding premise suggests a critical period in the first few minutes or hours after birth. During that time close physical contact between the infant and the parent is necessary if the appropriate bond is to be formed. This early period is deemed special in that it can alter a mother's later behaviors. Therefore, early separations from the mother can result in bonding difficulties and possibly lead to serious disorders of mothering (e.g., abuse, neglect). Against this theoretical backdrop, a number of early separation studies have compared the progress of groups of separated and non-separated infants and their mothers.

Although the Klaus and Kennell theoretical framework of bonding was based largely on analogies made with the behaviors of newborn chicks and goats, in one study they observed two groups of mothers. Those in the first group were allowed to hold their babies for one hour immediately after birth and then again for extended periods on each of the next three

days. The second group of mothers were given routine hospital treatment: a glimpse of their baby at birth, brief contact for identification, and short visits of twenty minutes for feeding. When mothers and their babies were observed after one month, the doctors found that the mothers who were given more time with their children immediately after birth stood closer, engaged in more eye-to-eye contact, soothed their babies when they cried, and were more reluctant to leave their infants with someone else (Klaus and Kennell, 1976). In a two year follow-up, the children who had been exposed to greater initial contact with their mothers demonstrated greater verbal abilities. When both groups of children were evaluated at five years of age, the children with extended contact scored higher on two language tests and manifested higher IQ scores. In a similar study, greater attachment behavior, longer breast feeding, and more rapid weight gains were seen in infants who had one hour of skin contact with their mothers immediately after birth (Hales, Trause, and Kennell, 1976).

In contrast, the majority of studies in this area seem to suggest a pattern of findings which have been generally unsupportive of the research and theory generated by Kennell, Klaus and their associates (Egeland and Vaughn, 1981; Field, 1977; Leifer, Leiderman, Barnett and Williams, 1972; O'Connor, Sherrod, Sandler and Vietze, 1978; Rode, Chang, Sroufe and Fisch, 1981; Seashore, Leifer, Barnett and Leiderman, 1973; Svedja,

Campos and Emde, 1980). Typically, these studies, which have examined varying lengths of separation and early contact, full term seriously ill and healthy babies, high-risk premature infants and mothers from white middle class and poor black welfare backgrounds, have reported changes in the patterns of mother-infant interaction in the first few months after reunion with the separated infant. The main changes in interaction that have been found after separation are reductions in: face-to-face interaction, affectionate holding, kissing and talking, and close attention paid to the babies during pediatric examinations. A common finding of possibly greater importance was that the mothers of separated infants suffered a reduced level of confidence in their own ability to adequately cope with their babies after discharge from the hospital. This was especially true if the child was their first. Nevertheless, by the time the children were one year old, the aforementioned problematic patterns of mother-infant interaction seemed gradually to have disappeared. Furthermore, at age one the separated infants did not manifest differences in attachment behaviors to their mothers. There was no evidence that limited contact after birth was directly implicated in the etiology of child abuse or neglect, although a few retrospective studies noted pathological parenting to be more common after early separation caused by perinatal complications (Klein and Stern, 1971; Shaheen, Alexander, Truskowsky and Barbero, 1968).

If indeed much of the research into bonding seems to suggest that either extended or lack of early neonatal contact with mothers may have short term effects that "wash out" over time (Chess and Thomas, 1982; Clark and Clark, 1979), what factors could then be considered critical for an optimal parent-child attachment to occur? Fraiberg (1977) and Hess (1982) have suggested that two critical conditions must be present; continuity and stability. Continuity was described as consisting of a parent's predictable availability during the period of the child's needs. This would include both parent constancy and the amount of time necessary to allow for the repetition of parent-child interactions. Therefore, continuity is seen as a prerequisite in order for attachment to persist. The second condition, stability, determines the strength of the parent-child attachment. Stability may be viewed as the absence of serious environmental change or stress. For example, economic pressures (e.g., lack of food, medical care, housing and other physical needs) may represent a major obstacle in establishing stability.

Although research has not yet specified an acceptable minimum degree of continuity and stability required for attachment formation, Ainsworth and her colleagues have helped to shed light on this issue. They have accomplished this by means of the development of the Strange Situation Assessment Procedure, which assesses the attachment behaviors of

one-year-old children (Ainsworth, 1979; Ainsworth, Blehar, Waters and Wall, 1978). Ainsworth has suggested that there are distinct differences in the attachment quality of babies which may be attributable to maternal behaviors that interact with the baby's constitutional endowment. The overriding importance of this attachment involves the way infants organize their behaviors toward their mothers, since it also affects the way in which they organize their behaviors toward other aspects of their environment. Attachment organization then provides a core of continuity in development which may become for each individual his or her prototypical way of relating to others throughout life. The concept of attachment continuity is reflected in Ainsworth's observation that maternal behaviors and attitudes seen in the first three months of an infant's life are significantly correlated with the infant's attachment pattern classification assessed at 12 months of age (Ainsworth, 1979). Other researchers have also noted a general stability in the quality of the mother-infant attachment relationships between 12 and 18 months of age (Egeland and Sroufe, 1981; Rode, Chang, Sroufe and Fisch, 1981; Vaughn, Egeland, Sroufe and Waters, 1979).

Sroufe (1979) further extended the concept of attachment consistency by noting that Ainsworth attachment patterns were highly stable for a group of infants not only between 12 and 18 months, but also at 2 years of age. The securely attached group exhibited more enthusiasm,

greater problem solving persistence, more positive affect, less oppositional behaviors, less frustration, less anger, and less distress. In another group, Sroufe conducted attachment ratings at fifteen months of age. A follow-up at 3 1/2 and 5 years of age revealed the securely attached group as being peer leaders, more socially involved and rated by teachers as superior to poorly attached groups with regard to personal competence and resilience. However, these researchers also noted that for some children the quality of the attachment could change in a positive or negative direction. Consistent with the aforementioned criteria of continuity and stability, the securely attached groups were the most stable over time, yet stressful life events seemed potentially capable of undermining some secure attachments. Conversely, a reduction of stressful life events (e.g., a less chaotic life style) in conjunction with increased family support had an apparent positive impact for some infants who initially were assessed as anxiously attached. The improved infants may have also been inherently more robust and resilient. Therefore, under certain circumstances, it would seem that attachment relationships have the potential to change across time despite their generally coherent nature.

In relating this review of the attachment process to the primary self-concept dimensions of Significance and Competence, a close theoretical linkage seems obvious. With respect to the dimension of Significance, it

was noted that the self was formed primarily as a function of evaluational interactions with others. If one's prototypical way of relating to others throughout life relates directly to the quality of the individual's early attachments to primary caregivers, then it seems reasonable to conclude that such attachments provide the core of continuity in development most closely linked to interpersonal relatedness (Rutter, 1979a,b). It then follows that these attachments subsequently shape the Significance dimension of the self-concept. However, in contrast to the Significance dimension, the theoretical linkage of the attachment process to the Competence dimension of the self-concept seems more complex. On the surface, such a linkage could be accounted for by noting that Competence, perceptions of the ability to perform and master environmental demands, results from close positive attachments, since such attachments provide a secure base from which children can openly explore their environments (Ainsworth and Bell, 1970; Lewis and Brooks-Gunn, 1979; Sroufe, 1979). A closer examination of the attachment process suggests that its generally coherent nature seems more intimately linked to Fraiberg's earlier discussed prerequisite conditions of stability and continuity. The connection between the Competence dimension and Fraiberg's notions are subtle but critical. If the attachment process hinges on the parent's predictable availability (continuity) in conjunction with an environment

which features a lack of serious change or stress (stability), then such a predictable and relatively stress-free milieu may provide infants with an intuitive sense of control over their own environments.

It is precisely this perceived control which may represent the most rudimentary aspect of the Competence dimension of the self-concept. Goldberg's (1977) analysis of contingency experiences seems to support this view of early infant competence. She argues that infant competence initially must be learned and maintained by contingency experiences. Contingency experiences are defined as "experiences which are controlled by or dependent upon the infant's behavior. The amount of control the infant actually has is less important than the infant's perception of a relationship between behavior and its consequences" (Goldberg, 1977, p. 164). Roberts and Maddux (1982) have made similar observations regarding what they call response-contingent stimulation. In this scheme, infants perceive competence to the extent that they are able to elicit and thereby anticipate appropriate caretaking responses from their respective environments. This discussion suggests that even if a newborn infant's cognitive, perceptual and social repertoire is intact, feelings of competence may be significantly hindered by an unresponsive caretaker. Conversely, a handicapped infant may experience feelings of high competence in the presence of a responsive caretaker and a highly predictable environment

(Ainsworth, 1979; Ainsworth and Bell, 1974; Lewis and Goldberg, 1969).

It therefore appears that the attachment process as it relates to perceived control may play a vital role in shaping the most fundamental aspects of the Competence dimension of the self-concept. In a broader sense, this earliest form of Competence is able to develop into a variety of other competencies including the ability to explore, effectively relate to others, and maintain a level of ego resiliency (Arend, Gove, and Sroufe, 1979; Block and Block, 1980; Dweck, 1977; Garmezy, Masten and Tellegen, 1984; Halverson and Waldrop, 1974). Thus, the most elemental roots of emotional resilience must also in part derive from the attachment process (Anthony, 1987; Antonovsky, 1974; Egeland and Sroufe, 1981; Sroufe, 1978). However, in order to more fully understand how an individual is able to develop the capacity for highly sophisticated, emotionally resilient behaviors, it seems necessary to trace the theoretical origins of Competence as they relate to various adaptive control processes.

The Adaptive Control Process - Parallel Structures

In attempting to investigate structures related to adaptive control competencies, it seems apparent that the concept of emotional resilience does not possess a well-defined theoretical lineage. Nevertheless, the provision of an historical theoretical perspective is possible through a "bootstrapping approach." Such an approach must examine and

meticulously build on the writings of a diverse group of theorists and researchers, then forge a conceptual hybrid which will formally come to be known as Adaptive Emotional Resiliency. Since the term "historical" is being used in a conceptual rather than purely chronological sense, theorists in this section will be reviewed in order of idea development.

One of the first theorists to shed light on this construct was Sigmund Freud, whose psychoanalytic theory has permeated modern thinking regarding personality development (Freud, 1946; Hall, 1954; Hall and Lindzey, 1970). Freud proposed that man's behaviors could best be described within a tension reducing model. According to Freud, instincts were the most important determinants of behavior. These inborn instincts were contained in the id, which represented the individual's original system of personality. Behavior was then directed toward reducing instinctual tensions via utilization of the primary process. The goal of the primary process was to avoid painful tension and to obtain pleasure. Unfortunately, the id functioned on a totally unconscious level and was not in direct contact with reality. Therefore the id, operating alone, would not have been able to accomplish its goals effectively or rationally. Subsequently, the ego came into existence because of the individual's needs, which required more realistic transactions with the external demands of reality. The superego was the third and last system of personality to be developed. The

superego represented introjected societal norms and values. In some respects, it was similar to the ego in that it attempted to exercise control over the id's constant striving to gratify instinctual needs. However, unlike the ego, the superego did not merely postpone or rechannel instinctual gratification but tried to block it permanently. On its own, it was just as maladaptive and irrational as the id. Freud then conceptualized the dynamics of personality as representing the interplay among these three major forces: the id - the biological component, the superego - the social component, and the ego - the psychological component. The ego, as the only component that was in touch with external reality, was considered to be the executive of personality, it operated by means of the secondary process, which essentially represented realistic practical thinking. The ego was capable of formulating adaptive plans to satisfy needs and, by creating compromises among the demands of the id, superego and external reality, to reduce tensions. The "tools" or mediating functions by which the ego was able to accomplish its goals were called defense mechanisms.

In Freud's theoretical scheme, the operation of sophisticated defense mechanisms was the key to optimal effective and adaptive functioning. Thus, through Freud's conception of the ego, the defense mechanisms of the ego, and the secondary process, a rather broad setting may be seen for a variety of forms of adaptive control. More specifically,

the Freudian concept of a defense mechanism represents the theoretical prototype of all personality control, which in turn may be considered as the earliest and most primitive conceptual ancestor of the current notion of emotional resilience.

Along similar lines, George Klein (1954) who clearly was influenced by psychoanalytic thinking, developed the concept of cognitive controls (or delay mechanisms). Similarly to Freud, Klein saw man as being in a constant struggle to gratify inborn needs. Cognitive controls were seen as the governing mechanisms that regulated the path and strategy of need satisfaction. In Klein's view, the adaptive force or strategy used by these cognitive controls usually involved the delaying of needs gratification through detouring or rechanneling needs energy in conformity with immediate reality. As such, Klein's cognitive controls appeared to be very similar to Freud's defense mechanisms. However, Klein differentiated the two concepts by noting that effective cognitive controls did not necessarily reduce one's tension levels. Instead, they resolved problems which at times could even increase tension, yet their overall impact usually led to creative cognitive reorganizations. He reasoned that cognitive controls originated within the individual's defenses but eventually achieved autonomy. Therefore, Klein viewed these cognitive controls as promoting a creative form of control as opposed to the restrictive control imposed by Freud's

defense mechanisms. Klein derived many of his theoretical notions from the results of experimental laboratory studies (e.g., artificially induced need state experiments). Eventually, he concluded that one's "cognitive disposition" toward adaptively controlling needs gratification could be the key intervening personality variable in accounting for personality consistency in human beings. Therefore, individuals were seen as being predisposed toward functioning with a certain level of control. Control by constriction was at one end of this continuum. Individuals whose behaviors favored this end of the continuum were viewed as being overly-controlled, rigid, compulsive and perhaps, as Freud would have noted, dominated by their superegos. The other end of the continuum was labeled flexible control, which connoted loose, impulsive undercontrol and perhaps id dominated behavior. Adaptive control was seen as functioning somewhere between these two extremes.

The writings of Robert White (1959, 1976) regarding the concept of competence seemed to move away from biologically oriented notions of control and, as such, viewed flexible adaptation in a more positive and optimistic light. White viewed competence as the ability to exert control over one's life and to interact effectively with one's environment. Competence was characterized as a learned motive or directed urge rather than merely a biological drive. White saw the urge to attain competence as

lying at the root of the individual's physical and mental accomplishments. Individuals typically developed in the direction of improving their effectiveness in dealing with the environment and thereby promoting their own personal feelings of efficacy. The seeking of feelings of efficacy would then lead to the building of actual competence in dealing with the environment. This search, also, typically would lead to the development of a subjective "sense of competence" which, according to White, was a very important aspect related to the organization of an individual's personality and ego identity. This sense of competence was demonstrated most clearly in the confidence with which the individual approached new experiences. As discussed earlier, other theorists have also pointed out that this sense of competence (or perceptions of competence), rather than objectively attained competence levels, forms the actual basis for developing feelings of efficacy which in turn become internalized into the individual's self-esteem structure (Burns, 1979; Rogers, 1951; Rosenberg, 1979, Wylie, 1974).

Overall, White's theory of competence was similar to Klein's theory of cognitive controls in its proactive stance and focus on cognitive oriented adaptive strategies. White viewed man as possessing adaptive strategies of learning. The four major aspects of these strategies included: "cognitive - the securing and processing of relevant information,

motivational - adequate satisfying of aroused motives, affective - the enhancing of positive feelings... and active - discovering and attempting competent actions" (White, 1976, p. 212). In some respects, White's theoretical formulation of competence (as representing flexible adaptation) diverged radically from that of Freud or Klein. For example, White would have argued that many of a 2-year-old child's behaviors, such as negativism and defiance, in fact represent a heroic struggle for independence and the urge to be efficacious. Similarly, this toddler's toilet training triumphs would be better described by his or her concept of competence than that of control of needs-gratification.

Lois Murphy's (1962) formulation of coping patterns in part represented a refinement of White's competence motive. Through her Coping Project, a comprehensive longitudinal study which carefully scrutinized how 32 children were able to deal with the new demands and difficulties of their everyday lives, Murphy carefully generated a theory which focused on how these children were able to develop flexible adaptational modes. She defined coping as "the process of developing ways of dealing with new and difficult situations which cannot be handled by reflexive, habitual, or automatic functional responses" (Murphy, 1962, p. 6). Once such methods were consolidated, competence and adaptation resulted. As such, coping was viewed as a precursor to competence.

Serving as the first link in the chain toward developing a sense of competence, successful coping could be seen as leading to enhanced self-esteem.

Murphy also delineated many different strategies that children used for coping effectively. Although the number and pattern of strategies varied from child to child, they included: the ability to orient, explore and appraise the environment, the potential to develop reality testing skills, and the capacity to set limits to the demands and pressures of the environment by responding with delay or caution. This cautious familiarization process protected the child against over-stimulation. Children who coped effectively were also characterized as being autonomous and flexible. Autonomous children were described as possessing a good awareness regarding the demands of their situations, an accurate recognition of their own limitations such that they could respond to offers of help when appropriate, and "the capacity to explore new opportunities for gratification and to use them for growth" (Murphy, 1962, p. 253). These children had a wide range of pleasure resources and therefore could more easily accept a substitute when frustrated. In short, they could find potential gratification in most new situations. Adults and peers reacted more positively to this type of child as well.

Murphy's notion of flexibility was also closely related to that of autonomy. Flexibility implied the capacity to respond appropriately in varying ways to different situations and demands. This flexibility manifested itself as a freedom in "distributing energy" and usually involved a creative restructuring of the environment. Cognitive and affective flexibility was important in developing the "capacity for recovering and restoration of perceptual clarity... and emotional well being" (Murphy, 1962, p. 260). Flexibility also involved the capacity to delay or postpone gratification and to utilize a variety of defense mechanisms. In Murphy's view, defenses were a part of the overall coping effort, since they assisted in dividing a complex situation into manageable parts. This was accomplished through repressing the excessive threat and focusing on the part of the situation that could be mastered. Underlying all aspects of flexibility, there appeared to be the child's sense of ability to control what he or she would react to, how much he or she would accept and express, how much he or she would respond to or invest in a situation, how close he or she would let others come, and what demands others would be allowed to impose. Anxiety and stress were thereby controlled and effectively managed.

Similarities to Murphy's coping theory may be seen in Klein's proactive notion of control, the cognitive restructuring emphasis noted by

both Klein and White, and the Freudian role of defense mechanisms. Furthermore, in line with Klein's concept of cognitive dispositions, Murphy characterized children as being predisposed toward functioning somewhere on the continuum between active and passive coping. Children whose behavior favored active coping constructively and creatively shaped and transformed their environments, were more assertive, and were excited by new challenges. In contrast, children who favored passive coping strategies were shaped by the environment, experienced new challenges as stressors, and aimed at maintaining old balances. Of course, active coping was considered by Murphy to be the more adaptive strategy pattern. Murphy (1962) noted that these coping predispositions in children probably were linked to inborn constitutional factors interacting with complex learning situations. They were seen, for most children, as coherent and consistent tendencies observed in early infancy, fairly well established by age 3, and perhaps persisting through adulthood. Murphy's theoretical construct of coping (especially related to aspects of autonomy and flexibility) may therefore represent a giant conceptual step toward formulating a relevant theory of emotional resilience.

Although the writings of Kurt Lewin generally predated most of the aforementioned theorists by several years, his work may best be viewed at this point in the "conceptual chronology." Lewin's (1935, 1936, 1951)

innovative field theory utilized mathematically oriented models to represent psychological reality. He characterized field theory as "a method of analyzing causal relations and of building scientific constructs" (1951, p. 45). Lewin believed that the behavior of a person was a function of a field of interrelated conditions and forces that existed at the time the behaviors occurred. Lewin's mathematical formulations were represented topologically by spatial regions such that the boundaries of these regions, rather than their respective sizes or shapes, were their most important characteristics. Within this context, Lewin defined the person as being an entity set apart from everything else in the world. The separation of the person from the rest of the universe was accomplished by drawing an enclosed figure. The boundary of the figure defined the limits of the person. The next step in representing psychological reality was to draw another bounded figure which was larger than and enclosed the person. The region between the boundary of the person and that of the larger figure was conceived as the psychological environment. The psychological environment consisted of all those psychological factors, external to the person, that determined behavior. The life space consisted of the two regions, the person and the psychological environment. It included the totality of possible facts which were capable of determining the behavior of an individual. Lewin also postulated two important properties of the

person. The property of "differentiation" suggested that one was separated from the rest of the world by a continuous boundary. At the same time, the person was included as part of the rest of the world, which Lewin referred to as the "part-whole relationship" property.

Lewin maintained that the structure of the person and the psychological environment was differentiated into a number of regions. Furthermore, the number of regions in both areas tended to increase with age (differentiation tendency) which reflected the greater psychological complexity of the adult as compared with the child. If the adaptive requirements of a given situation demanded that the person undergo any form of cognitive restructuring, his or her most immediate problem, in Lewinian terms, would have been to allow two or more of his differentiated regions to access or influence one another. Since each differentiated region was separated from another by boundaries that acted as resistors or barriers to accessibility, it was primarily the properties of these region boundaries that determined one's ability to adapt flexibly and in effect become "connected." Lewin (1936) postulated two boundary characteristics, permeability and elasticity. Permeability referred to the notion that a boundary resembled a permeable membrane or screen more than it did a wall or rigid barrier. Excessive boundary permeability implied impulsive undercontrolling tendencies, similarly to Klein's notion

of flexible control or Freud's id. Excessive boundary impermeability suggested rigid overcontrol, as seen in Klein's notion of control by constriction or Freud's superego. The other major characteristic of boundaries was referred to as elasticity. Boundary elasticity was defined as "the capacity of a boundary to change its characteristic level of permeability-impermeability depending upon impinging psychological forces and to return to its original modal level of permeability after the temporary accommodation-requiring influence is no longer pressing" (Block and Block, 1980, p. 47). Obviously, greater elasticity implied greater adaptive recoverability.

Lewin thus creatively conceived within a tight mathematical model a notion closely related to emotional resiliency via his formulation of boundary elasticity. In addition, the concept of need (either inborn or learned) was Lewin's basic motivational concept. Needs typically released energy and increased tension in the individual. The greater the tension, the greater was the force exerted on the boundary of a region (Lewin, 1951). In general, tensions tended to spread to neighboring regions such that differences of tension between regions were diminished. However, whether tension differences would actually be equalized in two given regions was dependent upon the regions' respective level of fluidity or rigidity. Lewin noted that fluidity involved the force (or tension)

necessary to produce a certain change in a region. The smaller the force or influence necessary, the more fluid the region. The bigger the force that was necessary, the more rigid the region. Whereas elasticity involved boundary permeability change characteristics, the fluidity-rigidity dimension involved the characteristic ability of regions to change. However, neither extreme of the fluidity-rigidity dimension represented adaptive modes. Again, the fluidity end of the continuum represented undercontrol, whereas the rigidity pole represented overcontrol. Overall, in Lewin's field theory formulations striking similarities are noted to that of need states seen in Freud and Klein, the need for cognitive restructuring abilities represented in Klein, White, and Murphy, and the notion that energy and tensions in a psychological system are equalized and evenly distributed, which Murphy illustrated in her concept of flexibility.

In an effort to develop a viable theory of emotional resilience, the writings of various personality theorists, clinicians and philosophers have been reviewed. Therefore, focusing on the area of field dependence - field independence seems to be a rather unlikely topic to introduce at this point. The early work on field dependence - field independence focused on perceptual and intellectual functioning. Originally, researchers in the 1950's viewed field dependence and field independence as tendencies to use one's body or field as referents for perceiving an upright perceptual stimulus

(Witkin and Goodenough, 1976). These early studies sought to clarify the processes underlying perception of the upright stimulus. They did, in fact, confirm that there were individual differences in the manner of perceiving such stimuli. These self-consistent individual differences in the tendency to use the external visual field itself as a primary referent or the body itself came to be known respectively as field dependence and field independence (Witkin and Goodenough, 1976, 1977). Individual differences were also noted in one's ease or difficulty in separating an item from an organized field or overcoming an embedded context. Field dependence and field independence were again designated as being linked to perceptual analytical abilities which manifested themselves pervasively throughout an individual's perceptual functioning. However, subsequent research on this dimension has been extended to the domain traditionally subsumed under personality (Witkin and Goodenough, 1977).

Field dependent and field independent cognitive styles currently seem best conceived as tendencies to function with less or greater autonomy of external referents manifested in both the cognitive and social domains. Associated with these contrasting tendencies, field dependent people display more of the interpersonal competencies involved in getting along with others, whereas field independent individuals do well in cognitive tasks, particularly in the spatial domain (Witkin and Goodenough, 1976).

Specifically, it seems that field dependent individuals make greater use of external social referents when situations are ambiguous, are more attentive to social cues, manifest an interpersonal orientation, show strong interest in others, prefer to be physically close to people, are emotionally open, tend to undercontrol impulses, and gravitate toward social situations (Witkin and Goodenough, 1977). In contrast, field independent individuals typically manifest an impersonal orientation, are not very interested in others, show both physical and psychological distancing from others, prefer non-social situations, tend to overcontrol impulses, and evidence relatively unsophisticated social skills. Nevertheless, these individuals typically possess greater skills in cognitive analysis and restructuring, the ability to act on the field rather than adhere to its dominant properties (Witkin and Goodenough, 1977; Witkin, Goodenough and Oltman, 1979). Since the clusters of characteristics found in field dependent and field independent individuals have components that are respectively useful in dealing with particular situations, neither style can be viewed as inherently positive or negative, as their value can be judged only with reference to their adaptiveness in a particular situation. The same argument could be offered for many of the previously discussed bipolar constructs (e.g., fluidity-rigidity, flexible control-control by constriction, id-superego).

In order to better understand the enlarged picture of self-consistency in psychological functioning, it should be noted that the field dependence-independence dimension is currently subsumed within the framework of the theory of psychological differentiation (Witkin, Goodenough and Oltman, 1979). The differentiation construct was introduced into the general area of field dependence-independence research in 1962 to accommodate new research findings associated with individual differences in perceiving the aforementioned upright stimulus in space. The implications of the theory of differentiation for interpersonal behavior have been receiving steadily increasing research attention in recent years. Briefly stated, differentiation, which is currently considered a high-order individual differences construct, is a salient formal property of a psychological system (Witkin, Goodenough, 1976; Witkin, Goodenough and Oltman, 1979). A less differentiated system is in a relatively homogeneous state. In a system that is more differentiated, greater heterogeneity is noted. A system that is more differentiated also shows greater self non-self segregation, which implies definite boundaries between an inner core of attributes and an outer core. As such, particular attributes are identified as one's own and recognized as being distinct from those of others. This sense of separate identity enables the person to function relatively autonomously. In contrast, in a less differentiated

system there is greater connectedness between self and others. Differences in the degree of self non-self segregation lead to differences in the extent to which the self or the external field is likely to be used as a referent for one's behavior. These differences regarding one's tendency to rely on the external field or on the self as primary referents are the essential characteristics described by field dependent and field independent cognitive styles.

A further distinction may be drawn between people who are fixed with regard to the characteristics associated with a field dependent or field independent style and those who are mobile and have access to the characteristics of both styles (Goodenough and Witkin, 1977; Witkin and Goodenough, 1976). As had been noted, relatively field dependent and field independent individuals seem to make their main developmental investments in different psychological areas (e.g., social or cognitive domains respectively). In effect, their psychological growth proceeds along different lines. However, some field independent individuals who possess refined restructuring skills and display autonomy in interpersonal behavior also develop sophisticated social skills that are more commonly found in field dependent individuals. The converse is also possible, although less likely. Thus, while some individuals are fixed in their prototypical use of a field dependent or field independent mode, others are

able to adopt either mode as required by the situation at hand.

The work of Witkin, Goodenough and others related to field dependence-independence dimensions and the concept of mobility seem to broaden understanding of flexible adaptation and move the current investigation closer to a viable theoretical formulation of emotional resilience. Despite the initial focus of this research, which seemed far afield from that of exploring personality oriented issues, striking similarities were apparent relative to the cognitive restructuring focus seen in the writings of Klein, White, Murphy and Lewin, to the notion of autonomy in Murphy's work, and to the Lewinian constructs of differentiation, part-whole relationships, regional boundaries, and connectedness. It seems especially noteworthy to observe that the highly theoretical formulations of Lewin developed in the 1930's would to some extent be "experimentally validated" by seemingly unrelated research conducted nearly half a century later!

Perhaps the most contemporary and useful theoretical formulation related to the concept of emotional resilience stems from the writings of Jack and Jeanne Block, whose landmark longitudinal studies of more than 100 children have been the focus of nearly 4 decades of research (Block and Block, 1980). In examining their constructs of ego-control and ego-resiliency, it seems apparent that the Blocks were influenced by most of the

theorists and researchers who have thus far been reviewed in the Adaptive Control section. After years of rigorous research efforts and subsequent data support, the Blocks have concluded that there exists a continuity of individual adaptation in one's early years and over time (Arend, Gove and Sroufe, 1979; Block and Block, 1980). In support of this conclusion, they posit two broad characteristics of ego functioning which they believe are enduring structural aspects of personality that are closely related to resourceful adaptation; ego-control and ego-resiliency. They define ego-control as the ability to control impulses, to temper aggression, and to suppress the urge for immediate gratification or relief from frustration (Block and Block, 1980). It is therefore the preferred threshold of an individual with regard to the expression or containment of impulse feelings and desires. Although the Blocks suggest that the antecedents of ego-control are strongly related to genetic and constitutional factors, they also believe that children develop preferred ego-control modes via socialization experiences (Block, 1971). Some children learn "too well" and thus become ego overcontrollers. They are described as typically being constrained, emotionally inhibited, conforming, and unduly delaying of gratification. Ego overcontrol seems conceptually linked to such aforementioned constructs as; the superego, control by constriction, rigidity, excessive boundary impermeability, and a field independent

cognitive style. In contrast, some children develop ego undercontrolling tendencies which are related to such behaviors as spontaneity, impulsiveness, distractibility, and the inability to delay gratification. The construct of ego undercontrol seems conceptually linked to: the id, flexible control, fluidity, excessive boundary permeability, and a field dependent cognitive style. As had been noted with these other bipolar constructs, each pole of the ego overcontrol-ego undercontrol dimension may possess qualities that are adaptive in particular circumstances, although, on the whole, being prototypically fixed at either continuum end may be maladaptive.

This discussion directly leads to the notion of ego-resiliency, whose definition will serve as the cornerstone for the currently evolving construct of emotional resilience.

Ego-resiliency when dimensionalized is defined at one extreme by resourceful adaptation to changing circumstances and environmental contingencies, analysis of 'goodness of fit' between situational demands and behavioral possibility, and flexible invocation of the available repertoire of problem solving strategies (problem solving being defined to include the social and personal domains as well as the cognitive). The opposite end of the ego-resiliency continuum (ego-brittleness) implies little adaptive flexibility, an inability to respond to the dynamic requirements of the situation, a tendency to persevere or to become disorganized when encountering changed circumstances or when under stress, and a difficulty in recouping after traumatic experiences. (Block and Block, 1980, p. 48)

Maintaining an ego-resilient posture also implies the ability to modulate one's level of ego-control in situationally appropriate ways. The ego-resilient person is therefore resourceful in new and unfamiliar situations, can maintain an integrated performance while under stress, and is less likely to become overloaded in the face of competing stimuli. Conversely, the ego-brittle individual maintains a rather rigid pattern of adaptation, may become immobilized in responding to new situations or stress and is easily overloaded by competing demands. As had been noted with ego-control, the Blocks suggest that the antecedents of ego-resiliency seem likely to involve genetic and constitutional factors complexly interacting with experiential influences (Block, 1971). Therefore, ego-resiliency reflects a coherent and enduring aspect of personality which varies widely from person to person. Furthermore, as a reflection of the most versatile adaptive modulator thus far reviewed, the construct of ego-resiliency represents a highly sophisticated synthesis of the more salient aspects of the previously discussed adaptive control processes (e.g., defense mechanisms, cognitive controls, competence, coping flexibility, boundary elasticity, and mobility).

In relating this "landscaped" review of adaptive control processes to the Competence dimension of the self-concept, the theoretical linkage seems critical. It would appear, as noted earlier, that the Fraiberg

attachment prerequisite conditions provide infants with the opportunity to develop the most primitive aspects of early Competence involving perceived control. It is precisely this provision of a predictably appropriate and responsive environment that not only provides the infant with a sense of control, but may intuitively introject an orderly set of limits as well. This intuitive limit setting process would then set the stage for the development of appropriate internal impulse control systems. The nature and quality of these early "braking" systems seem to be intimately linked to the eventual development of flexible and sophisticated adaptational modes involving emotionally resilient competence behaviors. Thus, one's Competence could be developmentally charted from its inception as an infant's sense of perceived control (feeling in control of the environment), which serves as the main precursor to developing appropriate impulse controls (being in control of oneself). This development, in turn, may eventually lead the individual to developing a repertoire of adaptive efficacious behaviors (exerting control over the environment).

The Unfolding Self within a Resilience Continuum

With such a rich theoretical reservoir serving as a backdrop, it seems clear that the structural foundation of the self-concept is developed through the progressive growth of the attachment process. Specifically, the attachment process is integrally linked to the development of the

Significance dimension of the self-concept and to early structures involved in the development of the self-concept's Competence dimension. In contrast, a variety of adaptive control processes seem more closely involved in refining the Competence dimension of the self-concept (see Figure 1). The antecedent processes of attachment and adaptive control in tandem seem to provide the core of continuity most closely linked to emotional development and the unfolding of the self-concept. One major by-product of these two interactive processes which plays a mediational role in self-concept development is the construct of Adaptive Emotional Resiliency, which may at this point be formally defined by the investigator as follows: It is the dynamic and coherent capacity of the individual to modify behaviors and adaptive modes in accordance with the contextual demands of reality, to react resourcefully, creatively, and in an organized manner to environmental problems or changes, to flexibly cope with and recover from the stress of such changes within a reasonable time frame, to persistently and appropriately engage and exert control over one's physical and interpersonal environment, and to actively maintain or enhance one's self-concept in the face of negative competition from stressful experiences or circumstances.

Therefore, the construct of Adaptive Emotional Resiliency represents a powerful proactive mechanism which accents innovative and

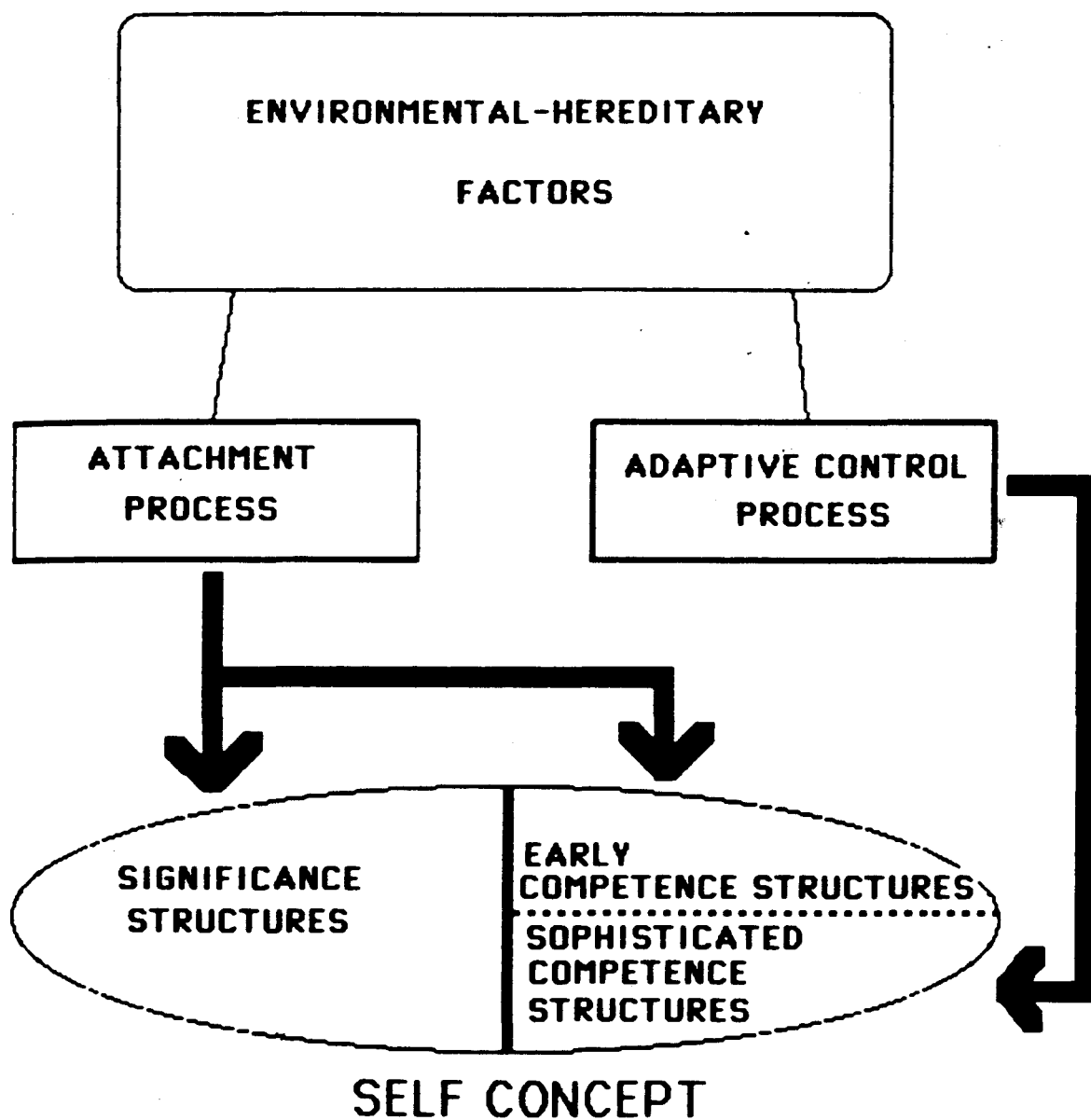


Figure 1. A schematic illustration of the theoretical antecedent processes of Attachment and Adaptive Control as they relate to the shaping of specific Self Concept dimensional structures.

energetically adaptive behavioral response predispositions. However, its definition does not preclude the possibility that emotionally congruent behaviors that seem maladaptive may be manifested prior to the mobilization of an individual's resilience resources. Emotional congruence is defined as a state of general conformity between one's emotional behaviors and triggering circumstances. As such, it represents an expected response parameter. For example, fearful or depressed behaviors are deemed congruent when conditions warrant such emotions. Similarly, a general sense of happiness or a positive self-image may also be viewed as congruent in the presence of a benign nurturing environment. In contrast, emotionally incongruent behaviors are viewed as unexpected or unwarranted responses relative to one's general life circumstance. Thus, the individual who develops a genuinely positive self-image in the face of a rejecting hostile environment may be viewed as manifesting emotionally incongruous behavior. Along the same lines, the individual who develops a poor self-image within the context of a benign nurturing environment may also be viewed as emotionally incongruent. The key point regarding the congruence-incongruence dimension suggests that it is difficult to fully ascertain the degree of adaptiveness of a given behavior without first determining the context in which the behavior is being manifested. As Nobel Laureate Sir Peter Medawar once commented, "It is not informative

to study variations of behaviors unless we know beforehand the norm from which such variants depart" (Garmezy, 1981, p. 214). Although a seemingly obvious point, this notion runs counter to the prevailing thought underlying traditional adaptive behavior and personality assessment practices which typically define adaptive behavior by the expectations or standards of others (Sparrow, Balla, and Cicchetti, 1984). In such a "bedrock" view of reality, the adaptiveness of various behaviors is measured on a one dimensional absolute basis and outside the context of an individual's personality characteristics, past life experiences, present environment, and family value system.

The proposed theoretical system makes no judgment regarding the adaptiveness of either congruent or incongruent behaviors before it takes into account these important contextual factors. It is possible for a resilient individual to manifest emotionally congruent behaviors which on the surface appear to be undesirable (e.g., a period of depression). Expected episodes of stress provoked psychological disruption may indeed be viewed as natural and initially adaptive (Barron, 1963; Flach, 1988). However, the truly resilient individual will eventually utilize resourceful adaptational mechanisms in order to resist incapacitation, restore equilibrium to a premorbid baseline within a reasonable period, and perhaps, through cognitive restructuring strategies, achieve an even higher plane of

adaptational functioning. Therefore, such hardy individuals must at some point manifest emotionally incongruous behaviors, that is, unexpected behaviors in the direction of health. Emotionally healthful behavior in the absence of substantial adversity provides no assurance that the individuals under observation possess resilient resources, since in effect they represent the "unchallenged" (Anthony, 1987). A contrasting point would also suggest the possibility of intense and/or prolonged stress exposure which is capable of totally and permanently incapacitating even the hardiest of individuals (Garmezy and Rutter, 1983). Subsequently, in the absence of emotionally incongruous behaviors, obtaining a valid reading of one's level of resilience is difficult, particularly if environmental conditions are extremely positive or negative.

Overall, in the currently proposed theory of Adaptive Emotional Resiliency, each individual falls somewhere on a continuum of adaptability risk which ranges from Highly Invulnerable (e.g., the unexpectedly healthy) to Highly Vulnerable (e.g., the unexpectedly unhealthy). A considerable body of research supports the existence of such a continuum (Garmezy and Masten, 1986; Masten and Garmezy, 1985; Murphy and Moriarty, 1976; Werner and Smith, 1982). However, individuals who consistently manifest emotionally congruent behaviors may at best be tentatively classified as either functionally vulnerable or, in the case of the

unchallenged, functionally invulnerable. As attempts are made to operationalize this newly conceived construct, the notion of Adaptive Emotional Resiliency may eventually come to represent the ultimate life "survivability" index. In addition to profiling the unfolding self process as illustrated in Figure 1, Table 1 provides an integrative conceptual overview of the various adaptive control process structures that have been reviewed. Having forged a coherent theoretical perspective for the study of Adaptive Emotional Resiliency, it seems appropriate to more closely examine the environmental and hereditary factors which impact on this conceptual hybrid.

Theoretical and Applied Risk Research

Risk Research Background

In delineating a conceptual model for understanding emotional development, the two theoretical cornerstone processes of attachment and adaptive control were viewed as being integrally involved in self-concept formation. The focal mediational role played by the construct of Adaptive Emotional Resiliency was implicitly presumed to have genetic origins interacting with environmental factors. In a larger sense, the entire process was seen as being complexly affected by hereditary and environmental factors. However, shifting from the theoretical origins of Adaptive Emotional Resiliency to field based research investigations will

TABLE 1

A Review of Salient Adaptive Control Processes:
Parallel Structures Within A Conceptual Chronology

<u>Adaptive Modulators</u>	<u>Bipolar Dimensions</u>	<u>Adaptation</u>
Ego Defense Mechanisms (Freud)	Id..... Superego (*) Sophisticated Primitive Defenses..... Defenses (**)	Sophisticated Defenses
Cognitive Controls (Klein)	Flexible Control by Control..... Constriction (*) Adaptive Maladaptive Control..... Control (**)	Adaptive Control
Competence (White)	Not Addressed (*) Efficacy..... Inefficacy (**)	Efficacy
Coping (Murphy)	Not Addressed (*) Active Coping.....Passive Coping (**)	Active Coping

(*) Relative Dimension - neither end of continuum is inherently adaptive or maladaptive

(**) Absolute Dimension - continuum has clear adaptive and maladaptive directions

Table 1 (continued)

<u>Adaptive Modulators</u>	<u>Bipolar Dimensions</u>	<u>Adaptation</u>
Boundary Elasticity (Lewin)	Fluidity..... Rigidity (*) Elastic..... Inelastic (**)	Elasticity
Mobility (Witkin, Goodenough)	Field Dependence..... Field Independence (*) Mobility..... Fixity (**)	Mobility
Ego Resiliency (Block, Block)	Ego Undercontroller..... Ego Overcontroller (*) Resilient..... Brittle (**)	Resiliency
Adaptive Emotional Resiliency (Joseph)	Emotional Incongruence..... Emotional Congruence (*) Highly Invulnerable..... Highly Vulnerable (**)	Invulnerability

(*) Relative Dimension - neither end of continuum is inherently adaptive or maladaptive

(**) Absolute Dimension - continuum has clear adaptive and maladaptive directions

again require a careful gleaning from a relatively recent body of empirical studies. These studies generally have focused on what has come to be known as risk research (Garmezy, 1981).

The risk research field has only recently become a viable area of study. Prior to 1970, only a few researchers, most notably Block and Martin (1955), Block and Turula (1963) and Murphy (1957, 1960, 1962), had systematically attempted to study children who were at risk for the development of psychopathology. A closer examination of the term "risk" suggests two connotations (Hersov, 1974). One connotation implies activity as in "risk taking." The other is a passive statistical concept applied to particular groups as being "at risk." All human beings are exposed to various hazards throughout their lives, as Vaillant (1977) noted in his detailed longitudinal study of healthy individuals. A similar study concluded that "no especially blessed individual turned up in this assessment; the luckiest of the lives here studied had its full share of difficulty and private despair" (Vaillant, 1977, p. 3). In contrast, the hazards referred to in some contemporary risk research involve two focal points; the risk from exposure to severely detrimental environmental experiences (both acute and chronic) and the risk of inheriting highly maladaptive characteristics. However, before exploring the complex facets of these two areas, a brief historical review is in order.

Preordained Risk - Childhood Past and Present

Prior to the 20th century, just being a child was in itself a high-risk venture (Langer, 1974). "The history of childhood is a nightmare from which we have only recently begun to awaken. The further back in history one goes, the lower the level of child care, and the more likely the children are to be killed, abandoned, beaten, terrorized and sexually abused" (DeMause, 1974, p. 1). Over the centuries, adults were much more likely to victimize their children than to protect and nurture them. If children manifested emotional problems during these "dark ages," they would typically be labeled as "possessed" or "wicked," having apparently failed to meet the expectations of their family or society (Despert, 1965). Despert noted that only in recent years have adults modified their views of problematic children in favor of a more compassionate and understanding position. It would seem that the middle class focus of most Western cultures in the latter half of the 20th century has become child-oriented. In such a view, nurturing parents are seen spending time with and respecting their children, listening to them, and providing them with economic and social advantages. Unfortunately, this popular image of the dedicated parent and the idyllic existence of the modern day family seems to describe only a minority of children and their families (Felner, Gillespie and Smith, 1985).

Rexford (1969) points out that while it is true that Western society has become "less openly murderous" with children, a more insidious form of abuse and neglect has taken its place. Lasch (1979) shares Rexford's concern about the child-rearing ambivalence, insensitivity and self-centered qualities seen in many contemporary parents. Felner et al. (1985) concur; they suggest that many parents voluntarily choose work over child rearing. The obvious result involves large numbers of children who currently receive "pillar-to-post" day-care outside their own homes or who from an early age may be literally raising themselves since they are largely unsupervised for prolonged periods (Rutter, 1981). Other serious child hazards have currently become commonplace as well. For example, more than a million children yearly experience the divorce of their parents and thus become added to the millions of children already living in single parent homes (Norton and Glick, 1979). Many more grow up in so-called intact homes that are characterized by high levels of parental conflict which may be even more emotionally hazardous to children than divorce (Emery, 1982; Felner, 1984). More children are subject to abuse and neglect (Gelles and Strauss, 1979), are born to teenage mothers (Magrab and Danielson-Murphy, 1979), and/or live in poverty (Felner et al., 1985). The presence of any one of these stressors increases the likelihood that others will follow (e.g., parental strife may lead to divorce which may then

lead to economic difficulties). Furthermore, in the presence of real or anticipated turmoil, the suicide rates of young and adolescent children in the United States have nearly tripled in the past generation (Coleman, Butcher and Carson, 1988; Pfeffer, 1981). By even the most conservative estimates, as many as twenty percent of all children may currently require intensive mental health services (President's Commission on Mental Health, 1978). It therefore seems fair to note, as had been the case for earlier generations, that many of today's children are certainly no strangers to exposure to material, physical and particularly emotional risk.

Given this alarming state of affairs, it is not surprising that mental health practitioners and researchers historically have focused their attention on vulnerable individuals and their psychopathological behaviors (Vaillant, 1977). Murphy (1962) elaborated on this point:

It is something of a paradox that a nation which has exalted in its rapid expansion and its scientific technological achievements, should have developed so vast a 'problem' literature: a literature often expressing adjustment difficulties, social failures, blocked potentialities, and defeat... In applying clinical ways of thinking formulated out of experience with broken adults, we were slow to see how the language of adequacy to meet life's challenges could become the subject matter of psychological science. Thus there are thousands of studies of maladjustment for each one that deals directly with the ways of managing life's problems with personal strength and adequacy. The language of problems, difficulties, inadequacies, or antisocial or delinquent conduct, or of ambivalence and anxiety is familiar. We know that there are devices for correcting, bypassing, or overcoming threats, but for the most part these have not been directly studied. (p. 3)

Murphy was one of the first researchers in the field to point out this apparent researcher-practitioner predisposition toward accenting deviance and assuming the inevitability of maladaptive outcomes for children growing up in unhealthful settings. This focus has until recently been rigidly adhered to despite considerable research evidence of the tenuous nature of predicting outcomes for children in high-risk settings (Lebovici and Diatkine, 1974; Rutter, 1979b; Werner and Smith, 1982). The illusion of an inevitability of outcome may have been generated from retrospective studies which have, in fact, been fairly predictive (Escalona, 1974). The incidence of such stressors as neglect, abuse, loss, disruption and trauma usually has been found to be statistically higher for psychiatric than for non-psychiatric populations (Brown, Sklair, Harris and Birley, 1973; Gersten, Langner, Eisenberg and Simcha-Fagan, 1977). However, prospective studies have not fared as well in predicting which vulnerable individuals among a high-risk population will adapt and which will succumb to deviant outcomes (Garmezy and Nuechterlein, 1972). Favorable outcomes for children exposed to various forms of intense risk (e.g., pathological parenting, family turmoil, poverty, abuse, biological insult, loss) have been surprisingly common yet difficult to predict (Anthony, Koupernik and Chiland, 1978; Escalona, 1974; Etaugh, 1980; Fraiberg and Bennett, 1978; Gaensbauer, 1980; Garmezy, 1971, 1981; Rutter, 1979b; Ward,

1981; Werner and Smith, 1982).

Preordained Resilience

With the recent burgeoning of risk research, increased interest has been seen in the study of apparently stress-resistant children. Despite their abilities to thrive and function adaptively in the face of overwhelming adversity, these children have been curiously neglected (Antonovsky, Maoz, Dowty and Wijsenbeek, 1971; Block and Block, 1980; Chess, 1971; Clark and Clark, 1979; Krystal, 1968; Murphy and Moriarty, 1976; Sobel, 1973; Waddington, 1966). In recent years such children and their adult counterparts have been described as "invulnerable" (Anthony, 1974; Garmezy, 1974a,b). Garmezy (1976) noted two key components in the lives and psychological make-up of such children; the presence of sustained and intense life stresses and the maintenance of mastery and competence despite such stress exposure.

Goertzel, Goertzel and Goertzel (1978) documented the great achievements of famous individuals who overcame significant adversity during their childhoods and, for some, throughout their adult lives. Although an examination of the lives of such prominent invulnerables as Einstein, Edison and Kafka may be of interest, it offers little insight into the heroic struggles of the vast majority of invulnerables who have managed to overcome equally traumatic life experiences without the benefit

of extraordinary talents and/or intellect. The ability of these "extraordinary ordinaries" to lead relatively normal lives reflects a remarkable level of accomplishment that deserves a greater research focus. Early mythological views of invulnerability may also provide a valuable guiding light for such studies.

The notion of invulnerability dates back to the mythology of ancient man where immunity from illness and injury was granted to or obtained by certain individuals (Anthony, 1974). These myths fell into two general categories. In the first group, invulnerability was fostered by a mother who was usually overprotective and able to manipulate and insulate her child's environment. The story of the warrior Achilles fits this profile. In the second group of myths, the hero was continually exposed to various risks rather than protected from them. Overcoming each risk seemed to strengthen the hero's confidence and competence, thus self-generating greater levels of immunity. The story of Hercules was an example of this category. In both instances, the immunity was limited yet the self-generated immunity of the latter story group seemed longer lasting and generally more viable.

A contemporary fictional analysis of the vulnerability-invulnerability continuum was provided by Jacques May, a disease ecologist, who described three dolls (Anthony, 1974). One doll was

made of glass, one of plastic, and the third of steel. As each was exposed to an equally strong blow from a hammer, the glass doll broke down completely, the plastic doll evidenced a permanent scar, and the steel doll remained intact. In this analogy, vulnerability was represented as a function of the intensity of the external risk (impact of hammer) interacting with the internal constitutional characteristics of the dolls. For this particular external threat, the glass doll's constitution placed it in a highly vulnerable state. Furthermore, past experiences such as being chipped or cracked due to mishandling could have left it in an even greater state of susceptibility. Thus, vulnerability was seen as stemming from an accumulation of risk experiences which interacted with internal constitutional factors. To complicate matters, one could alter the level of vulnerability for any of the dolls by applying a protective coating or by changing the nature of the external threat. In this context, if the risk stemmed from a massive temperature change instead of a hammer blow, the level of vulnerability for each doll would need to be reassessed.

Environmental Risk - The Concept of Stress

The vulnerable-invulnerable continuum needs to be examined from the aforementioned dual focus that typically has been utilized in risk research: the risk from exposure to severely detrimental environmental experiences and the risk of inheriting highly maladaptive characteristics.

The initial and perhaps primary focus for most risk researchers has been to examine the risk from exposure to severely detrimental environmental experiences. As a throw-back to an earlier era when behaviorism reigned supreme and one's environment was considered to be a key or even the sole factor in development, this area has generated intense research interest (Gersten et al., 1977; Rabkin and Struening, 1976). Simply stated, exposure to severely detrimental environmental experiences may be equivalently viewed as exposure to stressful experiences. The study of such experiences would at first seem to be straightforward, thus allowing for ready access to an empirical inquiry of stress-resistant children. However, a closer examination of the concept of stress offers no such clarity.

In recent years, the term "stress" has enjoyed widespread popularity. Daily conversations focus on stressful experiences, media reports are filled with stressful events, and stress education centers abound, yet there seems to be little consensus regarding how this concept should be used or defined (Mason, 1975; Selye, 1983a). Therefore, an in-depth analysis which initially focuses on the derivation of this term may begin to shed light on this rather elusive phenomenon.

The term stress, derived from the Latin, was used as early as the 14th century (Rutter, 1983). By the 17th century, it implied hardship or

adversity as it related to human experience (Hinkle, 1973). Furthermore, Hinkle noted, during the 18th and 19th centuries the term took on a more scientific description as an external force or pressure imposed on an object or person. This eventually led to its adoption as a precisely defined scientific term used in the areas of physics and engineering. In this context, it was applied to the notion of elasticity and the distorting predispositions of solid bodies. By the late 19th to early 20th century, the term was finding its way into the medical and mental health fields. For example, the non-scientific anecdotal observations of Osler in 1910 (cited in Hinkle, 1973) pointed out the deleterious effects of such stressful experiences as hard work and worrying on one's physical and mental well being. As an interesting aside, Hinkle's (1973) historical analysis of the concept of stress noted that the "specific cause of disease" model of medicine, which had been largely created and influenced by Pasteur during the 19th century, was being replaced in modern medicine. Its replacement was the notion that disease was as much a function "of the adaptive reactions of the host as...of the damaging effects of pathogenic agents" (p.31). The evolving concept of stress was to contribute heavily to this change in medical philosophy.

The work of Cannon in the early part of the 20th century laid the foundation for a large number of empirical research investigations.

Cannon's experiments related observations of bodily changes which were connected to physical sensations and emotional reactions (Dohrenwend and Dohrenwend, 1974). Cannon (1929) viewed living organisms as striving to maintain a homeostatic condition and seeking restoration to this desirable original state after any disturbing external force became apparent. Cannon described stress as a stimulus and provided the scientific basis for arguing that stressful life events could prove harmful.

Selye (1956a,1980) advanced Cannon's work by detailing the response of laboratory animals to a variety of threatening stimuli (e.g., heat, cold, trauma). He described the concept of stress as a pattern of physiological responses which he termed the "general adaptation syndrome" (GAS). Selye (1956a) defined this syndrome as a set of non-specific physiological reactions to various noxious environmental agents. The GAS specified three stages that reflected changes in responsiveness in the pituitary, adrenal, thymus, and gastrointestinal tract areas when stress was prolonged. In Stage 1, the alarm stage, noxious stimuli resulted in disturbances in various physiological functions. These disturbances represented the body's protective reaction in preparing itself for "flight or fight" survival behaviors. In Stage 2, the resistance stage, the body's defenses were mobilized to contain the noxious stimuli. In effect, the body attempted to force itself to return to a stable equilibrium. However, if the

noxious stimuli were to persist, the stage of exhaustion would ensue. In this final stage, failure of the body's defenses resulted in serious bodily damage or even death. Whether an individual actually reached the stage of exhaustion was determined by the personal resources available to the individual to contain the external threat in conjunction with the severity and chronicity of the threat itself.

Selye (1980) formally viewed stress as the specific biologic result of any non-specific demand upon the body. He labeled such demands as stressors (situations, events or people who produce the stress reaction) and their effects as "wear and tear" on the person's body which required an extra effort of adaptation. Although Selye's 1936 conceptual formulation of stress was highly influential for many decades, it reflected a vague "chameleon like" quality. For example, Selye distinguished the state of stress from the GAS syndrome by noting that the presence of the state was manifested only by the appearance of the syndrome (Selye, 1956b). This distinction suggested that a stimulus may be considered a stressor only if it results in a stress reaction. In this complex formulation, this apparent circularity may have ultimately proved to be the theory's greatest explanatory strength. Selye (1974) also noted that stressors may result in either positive or negative behavioral effects. Thus, much like the Chinese character for the word "crisis" which can be used to denote both danger

and opportunity, Selye's "two edged sword" viewpoint brought forth the possible role of individual differences in determining stressful reactions.

Selye's major emphasis upon physical trauma resulting in biochemically induced debility also seemed to converge with the work of Franz Alexander, who in the 1930's studied the relationship of personality characteristics to psychosomatic diseases (Rabkin and Struening, 1976). In retrospect, Selye's physiologically pathological viewpoint of stress may have been initially oversimplified; however, it eventually led to psychologically oriented studies where such views were powerfully expanded. His elusive "non-specific" view of stress resulted in dramatizing the complex nature of this phenomenon. Therefore, although Selye's earlier formulations did not readily account for psychological stressors, they did seem to lay the conceptual groundwork for their study. It should be noted that Cannon's stimulus oriented views, which portrayed stress as an external force, was in sharp contrast to the Selye response oriented view of stress, which accented biochemically induced physiological changes (Rutter, 1983). Subsequent stress researchers have also been divided along these lines (Engel, 1985). The question therefore remains as to whether stress represents a stimulus condition or a response pattern.

Although current thinking has not resolved these contrasting views regarding the inherent nature of stress, contemporary evidence suggests an

overlap of ideas and the more generalized notion that stress probably contains elements of both stimulus and response (McGrath, 1970). As a stimulus condition, it may refer to events or situations that impose adaptational demands upon the individual as a function of their newness, rapidly changing status, or threat potential (Garmezy, 1981). As a response pattern, physiological consequences are noted while adding the behavioral possibilities of performance deterioration, fatigue, and the tendency toward disrupted and disorganized behaviors (Gunderson and Rahe, 1974). To complicate matters further, distinctions regarding the particular consequences of various stress conditions or response patterns may be blurred by the idea of individual differences. For example, an imposed stimulus does not invariantly generate a particular effect. One of the first researchers to articulate this principle was Wolff (1953), who defined stress "as the interaction between the external environment and the organism with the past experiences of the organism as a major factor" (p. v). By expanding on Wolff's ideas, many researchers subsequently have incorporated a psychological component into their stress research endeavors (Appley and Trumbull, 1967). Prominent among these researchers was Lazarus (1966), who argued that outside powerfully intense universal stressors (e.g., death of a loved one, war combat), the individual's cognitive appraisal of the situation or event determines its

stressfulness. Indeed, Lazarus undoubtedly would have concurred with John Milton who observed in his 17th century epic, Paradise Lost, that "the mind is its own place and in itself can make a heaven of hell, a hell of heaven." Since individual perceptions of threat vary widely, Lazarus added that a variety of psychological stimuli potentially could result in similar stress responses. Interestingly, this hypothesis seems to serve as a close psychological parallel to the non-specific physiological stress response paradigm that was proposed by Selye.

At present, there is considerable empirical support for the mediating role of cognitive processes in psychological stress (Gersten et al., 1977; Lazarus, 1968; Lazarus, Averill and Opton, 1970; Lazarus, Cohen, Folkman, Kanner and Schaefer, 1980; Lazarus and Launier, 1978; Mandler, 1975; Meichenbaum, 1977). This more recent psychological focus has also paved the way for a broader understanding and inclusion of social and cultural factors within the stress research field. Due in part to its presumed ability to suppress the body's immune systems, the notion of psychological and socially induced stress precipitating or affecting susceptibility to chronic or infectious diseases and even death has gained widespread acceptance among scientists from a variety of fields (Engel; 1971; Kobasa, 1979; Lynch, 1976; Rahe, Bennett, Romo, Siltanen and Arthur, 1973). Dodge and Martin (1970), expanding on this view,

observed that most modern diseases are etiologically linked to excessive stress. They further noted that such stress is a product of socially structured situations that are inherently embedded in modern technological societies. Toffler popularized these ideas when he predicted that individuals were destined to become overwhelmed by an accelerating rate of social and cultural change and thus would suffer from "future shock." He defined future shock as "the distress both physical and psychological that arises from an overload of the organism's physical adaptive system and its decision making processes" (Toffler, 1970, p. 290). Other prominent researchers have since maintained similar arguments (Elkind, 1981; Hinkle, 1974).

The thread that binds these views together suggests that stress results primarily from the unprecedented rapid but often uncontrolled and unanticipated social change and impermanence that sets modern society apart from previous eras. It also seems clear that the number and variety of events or situations that directly or indirectly impose such adaptational demands upon children may be limitless. However, most childhood environmental stressors could be categorized in one or more of the following major risk areas; entrance events (e.g., birth of a sibling), exit-loss events (e.g., death of a loved one), issues related to school or child care setting, issues related to characteristics of the caregiving environment

(e.g., parenting skill levels, marital, legal, financial, work, and/or personal factors), issues related to the social milieu (e.g., family, peer, and/or community support), physical-medical factors, environmental stability factors (e.g., number of family moves), traumatic experiences (e.g., universal stressors), goodness-of-fit issues, idiosyncratic stressors, issues related to chronic high frequency thematic stressors and the multiplicity of chronic or acute stressors (Anthony, 1986; Anthony and Koupernik, 1970, 1973, 1974; Anthony, Koupernik and Chiland, 1978; Cobb, 1976; Cooper, 1983; DeLongis, Folkman and Lazarus, 1988; Dohrenwend and Dohrenwend, 1974; Dohrenwend, Krasnoff, Askenasy and Dohrenwend, 1978; Garnezy and Rutter, 1983; Humphrey, 1984; King, Stanley and Burrows, 1987; Peplau and Perlman, 1982; Rook, 1984; Rutter, 1979b; Selye, 1980, 1983a,b; Soloman, 1985; Terr, 1979; Werner and Smith, 1982).

The negative linkage of these environmental demands to the development of Adaptive Emotional Resiliency seems striking. Each of these stressors (individually or in various combinations with one another) may undermine the development of the self-concept by eroding either the attachment process (Garnezy, 1981; Lipsitt, 1983; Maccoby, 1983) or the adaptive control process (Dweck, 1977; McNamee and McNamee, 1981; Watts, 1978; Zautra and Reich, 1980). Since, as noted previously that

Adaptive Emotional Resiliency represents the major by-product of these two interactive processes, their erosion must also directly inhibit the development of effective adaptational modes. Ineffective adaptational resources may in turn intensify and prolong stress exposure, thereby setting the individual on a "negative trajectory" toward pathological emotional development. Of course, the present analysis of environmental risk as it relates to Adaptive Emotional Resiliency requires the balance of evaluating hereditary risk factors.

Inherited Risk - Temperamental Factors

The second broad area of hazard which concerns contemporary risk researchers involves the risk of possessing highly maladaptive inherited characteristics. An "internal" risk focus might have been ignored had the risk research field been viable in America prior to the late 1960's. In this pre-risk era, mainstream American psychology was invested in emphasizing the environment as the major and perhaps sole influence in human development (Skinner 1938, 1953). Such emphasis openly rejected the possibility of built-in predispositional tendencies in accounting for human behaviors. However, within this behavioristic wilderness, an occasional voice rang out that focused on the individual's biological inheritance. One early voice was that of Cimbal (1927), who characterized a particular group of children as being "cowards of living." He described

these children's prototypical behaviors as pervasively fearful, timid and withdrawn from early infancy through adulthood. These individuals avoided the unfamiliar, since even mildly novel situations were often experienced as stressful. Although Cimbali's work was largely ignored in the United States, it represents one of the earliest accounts of inherently vulnerable children in the social science literature.

By the early 1960's, there was a growing feeling among some factions of the American psychology establishment that simplistic behavioristic views could not adequately account for many of the complexities involved in human cognitive and emotional development (Allport, 1961; Kendler and Kendler, 1962). In the emotional areas, pediatric researchers such as Thomas, Chess and Birch (1968) investigated personality traits in children that were presumed to be related to later difficulties in adjustment. They coined the term "difficult child" to describe a temperamental constellation seen in particular children who typically manifested poor adaptability, negative mood states, a low threshold for arousal, intense reactions when aroused and various irregularities in biological functioning. These studies identified nine temperamental traits or preferred behavioral styles of children by longitudinally following 133 individuals from early infancy through their adulthood (Chess and Thomas, 1986). The studies of Thomas, Chess and

their colleagues laid the groundwork for modern day views which typically consider temperament to reflect early developing personality traits or individual differences that are thought to be relatively enduring across time and situations (Thomas and Chess, 1977). According to Buss and Plomin (1984), such traits are presumed to be largely biologically inherited, with the term "biological" loosely defined to include prenatal and perinatal events. Thus, inherited traits typically were seen by many researchers as being modified by environmental influences. Yet the earlier an individual's stylistic behavioral preferences surfaced in childhood, the more likely the behavioral styles were thought to reflect inherited predispositions. In addition to the Thomas and Chess temperamental categories, other categorical schemes have been developed to account for stable long term temperamental characteristics (Goldsmith, 1987). However, long term correlations of temperamental characteristics typically have been diminished by environmental factors which tend to modify the development of these inherited traits (Buss and Plomin, 1984). Subsequently, Buss and Plomin have argued that genetically determined temperamental characteristics merely influence development, they do not determine it. As such, they represent "tendencies that nudge development in one direction rather than another" (Buss and Plomin, 1984, p. 105).

In reviewing the variety of temperamental tendencies in the literature, four basic categories seem most relevant to the discussion of Adaptive Emotion Resiliency and risk research. The first of these four temperamental dimensions will be referred to as inhibitory control. The earlier review regarding adaptive control focused heavily on various environmental contingencies associated with the development of self-regulating processes. One critical aspect that was omitted from this discussion involved the individual's inherited predisposition toward developing proper internal inhibitory controls. Buss and Plomin (1975) initially conceived the impulsivity trait as possessing a variety of components. The first component was called inhibitory control, which involved resistance to temptation and delay of gratification. In this scheme, inhibitory control was regarded as the braking system which controlled one's tendencies to act. Although such controls may act as brakes for other emotional behaviors, they seem to have substantial predictive significance in risk research as a unique temperamental dimension. This dimension involves the regulation of one's: attention span, distractibility tendencies, motoric activity levels, persistence in completing tasks, intensity of reaction, and impulse inhibition (Goldsmith and Campos, 1982; Rothbart and Derryberry, 1981; Thomas, Chess, Birch, Hertzog and Korn, 1963). At the extreme maladaptive end of this dimension are children who have been

described as being hyperactive or possessing an Attention Deficit Disorder (Cantwell, 1982). These children seem predisposed to highly maladaptive functioning in both their school and home settings as well as being high-risk for developing psychopathology later in their lives (Garmezy, 1977; Garmezy, Masten, and Tellegen, 1984; Huessey and Cohen, 1978; Lambert, 1982). Rothbart and Derryberry (1981) have suggested that the aforementioned self-regulating tendencies may represent the individual's level of neural arousal. Medical researchers have offered similar arguments that the inhibitory power of neurons promotes adaptation (Pribham, 1971; Restak, 1984; Shepherd, 1974). Furthermore, these researchers have implied that neuronal inhibition, which represents internal control coping efforts at the molecular level, may play a more important role than excitatory processes in most generalized brain functions. A dramatic illustration of this notion was reflected in the widely accepted work of Melzack and Wall (1983), who proposed that even incoming pain signals triggered by severe injuries or illnesses may be inhibited by brain mechanisms under certain circumstances. Thus, the self-regulating process of inhibitory control, which is intimately linked to various adaptive control mechanisms, clearly seems to possess a bio-genetic temperamental component.

Mood state is the second temperamental dimension which seems relevant in discussing risk research. Although mood has usually connoted transient feeling tones that normally represent emotional reflections of one's actual situation, it seems that not all mood states are precipitated or maintained by such circumstances. Lewis and Michalson (1983) have used the term mood to reflect prototypic non-transient emotional states that are presumed to be more closely related to the in-born temperamental characteristics of the individual than to eliciting events or circumstances. Because of the long term nature of these emotional states, they seem to possess the capacity to influence perceptions of one's environment which often affect the individual's subsequent behaviors (Bower, 1981). Consequently, the mood state dimension reflects predisposed individual differences related to the expression of primary and derivative emotions such as fearfulness, anger, joy, sadness, distress, soothability, shame, and mood stability (Cattell, 1965; Izard, 1977; Plutchik, 1962; Thomas et al., 1963; White, 1976). The self-generating long term nature of mood states emphasizes their relevance in studying risk research, particularly as they impact on the attachment process.

In addition to infant and pediatric researchers, behavioral geneticists made major strides in promoting the field of temperament. They focused on early developing personality traits that presumably were

derived from evolutionary processes (Buss and Plomin, 1975). Such innate pre-programmed traits were considered highly adaptive and indeed necessary for survival. One of the earliest researchers to present this perspective was Diamond (1957), whose research on animals led to theoretical generalizations which described basic temperamental traits thought to be shared by all primates, including humans. He referred to one of these key traits as affiliativeness. Wilson (1978), another prominent animal researcher, proposed an even more extreme view of the importance of genetics in accounting for the social behaviors of humans. In a return to Darwinism, Wilson's sociobiological viewpoint suggested that human social behaviors were a function of evolution which has resulted in providing humans with genetic endowments stemming from a natural selection process. Similarly, other researchers have proposed that the early developing personality trait of social orientation possesses an evolutionary heritage (Bell, 1968; Gottesman, 1966). Various terms have been used to refer to this temperamental dimension (e.g., affiliativeness, sociability-shyness, extraversion-introversion, friendliness-unfriendliness). In its most basic form, social orientation refers to an individual's propensity to prefer the presence of others to solitude (Eysenck, 1947). Specifically, the social orientation dimension represents predisposed individual differences related to seeking out relationships with others as manifested by a variety of

behaviors including; approach-avoidance tendencies, verbal and tactile interactiveness, playfulness, trust tendencies, and social responsiveness. The principal significance of the social orientation dimension lies in its potential adaptive value as it relates to the attachment process. Thus, complementing the earlier discussion regarding various environmental contingencies associated with the formation of attachments, there is considerable research support for the position that individual differences in one's ability to develop appropriate social attachments may in part be determined by an instinctual-genetic temperamental component (Ainsworth, 1973; Bowlby, 1969; Schaffer and Emerson, 1964; Sugarman, 1977). In addition, such psychobiologic social tendencies may have a direct bearing on an individual's ability to cope with stress (Kagan, Reznick and Snidman, 1987; Lipsitt, 1983).

Whereas the dimensions of inhibitory control, mood state and social orientation represent relatively "clean" internal risk factors that result primarily in eliciting responses from caretakers and others, the dimension of coping tendencies places a greater emphasis on the individual's predisposed ability to negotiate the environment effectively as a function of responsiveness to various environmental contingencies and demands. Although this dimension is action oriented, it more heavily accents reactivity capabilities which seem to be influenced by a greater mix

of internal and environmental factors. As a result, it should be characterized as representing a set of personality characteristics or stylized behavioral preferences that develop from a more nearly equal balance of inherited predispositions interacting with environmental experiences. As discussed in an earlier section, Murphy (1962) defined coping as "the process of developing ways of dealing with new and difficult situations which cannot be handled by reflexive habitual, or automatic functional responses" (p. 6). Coping was viewed by Murphy as a process of strategies or behaviors that were aimed at managing one's world by responding to the demands of novel situations, opportunities, obstacles or conflicts. Gilmore (1974) added that such challenges or opportunities could also pose a threat to one's self-esteem. Along similar lines, Gibson (1960) and Gibson's (1982) affordance oriented psychology offered an additional perspective. They noted that all human beings are born with the innate ability to perceive. This ability keeps the individual in touch with information about opportunities in his environment, which then allows the individual to meet his needs. The Gibsons called these opportunities affordances. However, the affordability of an object was seen as varying with the ability of the individual to perceive its affordance. In sharp contrast to Piagetian views and to the Rogerian notion of phenomenology, the Gibsons felt that affordances were not constructed by the perceiver but

instead were present to be accurately perceived. Consequently, they viewed adaptive coping as the ability to correctly perceive and utilize affordances that are offered by the environment.

The coping tendencies dimension is therefore viewed as reflecting individual differences related to the possession of internal mechanisms that are used to master potentially threatening environmental demands. As such, it represents the prototypical way an individual is able to respond to a variety of survival and growth demands in order to manage the environment. This temperamental constellation is most vividly manifested by behaviors involving: alertness levels, tendencies toward autonomy or flexibility, problem solving or memory capabilities, hopefulness - the tendency to "expect well", communication and organizational skills, sensation or opportunity seeking, and adaptation tendencies in response to change or competition (Carver and Scheier, 1985; Farley and Farley, 1972; Garnezy, 1974c; Gilmore, 1974; Murphy, 1962; Zuckerman, Bone, Neary, Mangelsdorff and Brustman, 1972).

The primary significance of this dimension relative to the risk research field lies in its potential value for the adaptive control process. In complementing the earlier analysis regarding the various environmental contingencies associated with the most sophisticated stage component of the adaptive control process (e.g., exerting control over the environment),

research evidence supports the existence of preprogrammed biogenetic tendencies toward establishing mastery and competence (Watson, 1967; White, 1976). These predisposed adaptive capability levels must also be viewed as impacting on the individual's ability to control stress exposure (Garnezy, 1981; Murphy and Moriarty, 1976). The coping tendencies dimension, as well as the previous three dimensions, could be viewed as characteristics that are capable of being partially developed in response to stressful demands. However, all four temperamental dimensions are primarily considered to be stress producing or reducing internal characteristics of the individual. It should also be noted that such inherited traits as physical and health characteristics of the individual as well as cognitive aspects of development including intelligence, creativity, motivation, and curiosity may presently be considered relevant internal risk factors (especially related to the coping tendencies dimension). These traits are not traditionally considered in most discussions regarding the fields of personality or temperament (Anthony, 1974; Heider, 1966).

As a close parallel to the environmental risk section, the risk of inheriting highly maladaptive characteristics is viewed by the investigator as having a substantial impact on the development of Adaptive Emotional Resiliency and on the eventual unfolding of the self-concept. The temperamental dimensions of mood state and social orientation are seen as

development were independent of each other (Sheppard and Willoughby, 1975). Along similar lines, environmental and hereditary risk have thus far been discussed as separate factors in the development of Adaptive Emotional Resiliency. However, prospective studies aimed at predicting developmental outcomes as a function of examining unilateral risk factors have been largely unsuccessful (Escalona, 1974; Shaffer and Dunn, 1979). The risk research field has subsequently moved toward viewing human development as a complex dynamic interaction between hereditary and environmental forces (Kent and Rolf, 1979). At present, contemporary risk research provides empirical support for this transactional model of development (Sameroff and Chandler, 1975). The transactional model emphasizes that human behaviors unfold as a function of continuous, multidirectional interactions between internal person characteristics and environmental agents (Bowers, 1973; Endler and Magnusson, 1976; Rutter, 1979a). Therefore, developmental outcomes must stem directly from a careful analysis of these complex chains of reciprocal transactions. Similarly, a comprehensive review of environmental and hereditary risk related to Adaptive Emotional Resiliency must require an analysis of adaptive or maladaptive transactional chains.

One approach to illustrating such complex interactions involves an examination of the early and long term consequences of a particular

maladaptive chain that results in an attachment process breakdown. This analysis could be initiated by noting an observation from the earlier discussed Ainsworth related research which involved the idea that certain inherent characteristics of infants may have a direct bearing on their ability to become attached (Egeland and Sroufe, 1981). In contrast, much of the bonding and attachment literature focused on the environment, since the infant was regarded as a passive victim of external forces. As a result, in most attachment studies, infants were purposefully ignored since their role in the attachment process was considered to be largely irrelevant. Yet researchers such as Bell (1968) and Sroufe (1979) have suggested that many parental behaviors may be elicited by their child's own characteristics and behaviors. For example, the difficult child as described by Thomas, Chess, and Birch (1968) who manifested poor adaptability and an irregularity in biological functioning was often restless, colicky, overly aroused and subject to digestive difficulties. Such problematic behaviors were seen as increasing the chances of eliciting negative caretaking responses, which in turn could negatively impact the attachment process.

Following this line of reasoning, a growing number of researchers have noted that certain characteristics of children may predispose parents to battering or neglect (Sameroff and Chandler, 1975). Parents who are abusive will typically be abusive to only one or two of their children, not

all of them. Individual children may therefore differ in their ability to interact socially, face potential threat or arousal, and derive security from the presence of a caretaker. The child who enters the world with physical or temperamental difficulties (e.g., anoxia, low birth weight, blindness, socially unresponsive tendencies) or develops them shortly after birth may be at greater risk in the attachment process since these difficulties often overtax the resources of some parents and may in turn precipitate an acute emotional crisis (Fraiberg, 1975; Sameroff, 1975). There is evidence linking traumatic high-risk births with a host of subsequent severe psychological and behavioral difficulties such as schizophrenia and criminal activities (Mednick, 1970, 1971). Seen in this light, many of the retrospective studies noted earlier, such as Klein and Stern (1971) or Shaheen et al. (1968), seem more meaningful in that early separations were probably not in and of themselves an important causal factor in the documented abuse and neglect cases. Instead, they were most likely a by-product of the perinatal complications. These complications, when paired with parents who were also predisposed to be high-risk caretakers by virtue of their low socio-economic status, highly stressed demeanors, poorly educated backgrounds, adolescent ages, or personality disorders, combined to violently break down the attachment process, making the parent and child virtual "biological strangers." When factors such as these

merge, the attachment process may be severely disrupted. The subsequent effects on the child are often disastrous, resulting in such problems as failure-to-thrive syndrome, severe depression or suicide (Aleksandrowicz, 1975; Chatoor and Egan, 1983; Drotar, Nowak, Malone and Eckerle, 1985; Kashani et al., 1981; Schrut, 1964). Of course, these are extreme and easy to see effects of the failure of the parent-infant transactional attachment process. Less severe disruptions in the attachment process probably occur in the same way, but in such cases fewer factors are in play or multiple factors may be subtle and respectively less marked. In recalling the conclusion that one's prototypical way of relating to others throughout life is linked directly to the quality of the individual's early attachments to primary caregivers, it seems clear that any level of disruption in the early transactional chain involving the attachment process may have significant implications for the eventual development of interpersonal relatedness competencies.

The second part of this illustrative discussion closely examines the long term consequences of such an extended maladaptive transactional chain. In the previous section dealing with environmental risk, the notion of social support deficits was listed as one of many possible sources of environmental stress. However, present research evidence suggests that this potential stressor is neither ordinary nor solely environmental in

nature. Whereas social bonds have long been considered a key element in promoting psychological well being, the pervasive lack or inadequacy of such bonds has resulted in chronic feelings of loneliness for many individuals (Rook, 1984). In contemporary American life where divorce, mobility, uprootedness, living alone and detached independent self-sufficiency have become acceptable middle class norms, loneliness has become one of the more serious yet sometimes unrecognized stressors of society (Lynch, 1976; Peplau and Perlman, 1982). In accenting this view, Gordon (1976) wrote, "Knowing no limits of class, race, or age, loneliness is today a great leveler" (p. 16). Some national quality of life surveys, for example, suggest that as many as one in six Americans have reported that they did not possess a single friend in whom they could confide or to whom they could turn in times of trouble (Campbell, 1981). In related surveys, an average of 40 percent of the respondents indicated that their basic shyness had been causally related to serious personal difficulties in their lives (Pilkonis and Zimbardo, 1979). Given the scope and potential impact of these concerns in discussing a major extended maladaptive transactional chain result, a careful analysis of loneliness is in order.

Loneliness traditionally has been defined as being without companionship (aloneness) or as the experience of sadness from being alone. However, a closer look at this phenomenon suggests that it possesses

considerable complexity. It is generally assumed that loneliness or aloneness results in a negative affective state, yet this may not always be the case. Since loneliness is considered to be a highly subjective experience involving cognitive mediating factors such as causal attributions and expectations, feelings of loneliness are often more a function of such cognitive appraisals than that of the individual's actual social environment (Goetz and Dweck, 1980; Peplau, Micelli and Morasch, 1982; Revenson, 1981). Thus, being alone does not necessarily result in feeling lonely (Nisenbaum, 1984). There may even be aspects of aloneness that are positive and adaptive, a position supported by selected theorists, clinicians and philosophers. They have viewed feelings of aloneness as representing a basic condition of life which although painful at times, may also be a creative constructive state which leads to self-discovery, self-renewal and reflection (Larson, Csikszentmihaly and Graef, 1982; Moustakas, 1961; Suedfeld, 1982; Thoreau, 1947). Solitude and meditational activities were seen as helping some persons to develop a sense of individuality by bringing them in closer touch with their inner feelings.

Despite the adaptive qualities of loneliness and its phenomenological status, however, many of the same researchers have also suggested that periods of aloneness in one's daily life usually lead to

feelings of boredom, irritability, sadness and a generally negative affective state. In fact, the prevailing wisdom in the loneliness literature suggests that it is nearly always an aversive experience, particularly if one perceives his or her aloneness as involuntary. Rook (1984) supports this view in her definition of loneliness as "an enduring condition of emotional distress that arises when a person feels estranged from, misunderstood, or rejected by others and/or lacks appropriate social partners for desired activities, particularly activities that provide a sense of social integration and opportunities for emotional intimacy" (p. 1391). Investigators have represented a variety of theoretical camps, including psychodynamic (Fromm-Reichman, 1959), phenomenological (Rogers, 1973), sociological (Slater, 1976), cognitive (Peplau et al., 1982), ethological (Bowlby, 1969, 1973) and interactionist (Weiss, 1973). They concur with Rook's view of loneliness as a generally maladaptive state which often leads to depression, alcoholism, adolescent delinquency, aggressiveness, stress related physical illnesses, suicide, a variety of psychiatric disorders and other self-defeating maladaptive behaviors (Andersson, 1984; Asher, Hymel and Renshaw, 1984; Asher and Wheeler, 1985; Bronfenbrenner, 1974; Lynch, 1976; Shaffer and Fisher, 1981; Werner, 1978).

The ethological and interactionist positions seem to hold the greatest promise in examining loneliness as one major result of an extended

maladaptive transactional chain related to the attachment process. Representing the ethological camp, Bowlby (1969, 1973) viewed loneliness as stemming from the individual's inability or difficulty in attaching to a significant other. The writings of Lynch (1976) and Sullivan (1953) echoed this theme in viewing the need for intimate human contact and companionship as having adaptive survival value. Human companionship was seen by these individuals as acting as a natural tranquilizer in reducing harmful emotional stress. Weiss (1973) expanded on this attachment perspective by viewing loneliness as representing either of two types of affective states. Emotional isolation suggested the absence of attachment figures, whereas social isolation reflected an absence of meaningful friendships. According to Weiss' interactionist position, these relational deficits were caused by the interaction of situational environmental variables (e.g., being widowed or moving to a new city) with the internal personality characteristics of the individual (e.g., shyness). It seemed that some individuals were predisposed to becoming chronically lonely as a function of possessing maladaptive inherited personality characteristics. When individuals who possessed these characteristics found themselves in situations involving circumstantial isolating factors, the experience of loneliness became possible. Research by DeJong-Gierveld and Raadschelders (1982) has also suggested that Weiss' typology involving

affective states related to meaningful friendship deficits stems primarily from the emotional isolation of attachment deficits. Thus, it appears that the early transactional chains involving attachments to primary caretakers may set the stage for a complex chain of events. This chain heavily impacts on the eventual development of interpersonal relatedness competencies throughout adulthood.

It is clear that a lack of social support can become a major risk factor in a given transactional chain of events. Conversely, there is considerable research support for the position that a rich network of family, friend and community support is a major protective factor in mediating the effects of stress exposure (Cobb, 1976; Gove, 1973; Nuckolls, Cassel and Kaplan, 1972; Solomon, 1985; Stokes, 1983; Stokes and Wilson, 1984; Thoits, 1982). In general, protective factors such as social support may adaptively alter the direction and quality of various transactional chains or, at the very least, minimize the impact of negative transactions. In addition to the stress-buffering effects of social support and the previously discussed adaptive temperamental traits, other key internal and environmental protective factors play an "inoculative" role in promoting emotional health and adaptive functioning in children. These factors include: social competence (Anderson and Messick, 1974; Baumrind and Black, 1967; Halverson and Waldrop, 1974; O'Malley, 1977),

attendance in a superior school system (Rutter, 1979b), school related competence in the academic, behavioral and interpersonal spheres (Garmezy, Masten and Tellegen, 1984), good intelligence and adequate communication skills (Garmezy and Rutter, 1983; Werner and Smith, 1982), biological intactness involving a robust physique, good health and central nervous system integrity (Heider, 1966; Werner and Smith, 1982), emotionally intact and supportive caretakers and a positive relationship with at least one parent (Rutter, 1979a), if parent(s) are pathological, formal recognition of their condition by the community (Chiland, 1974), membership in a low density family and/or being first born (Drotar et al., 1985; Pollitt, 1973; Waldrop and Bell, 1966), maintaining high but appropriate levels of energy and activity and an internal locus of control (Gal and Lazarus, 1975; Heider, 1966; Werner and Smith 1982), and exposure to some recoverable level of stress which may foster a "steeling" effect (Garmezy and Rutter, 1983). Of course, some of these factors are inter-related and all are subsumed under the previously discussed categories of environmental and/or hereditary risk. On a basic level, many protective factors could be viewed as direct, indirect, or interactive reflections of one's ability to become attached to significant others or to develop adaptive controls.

The present examination of risk and protective factors that impact on transactional chains does not provide for the aspect of luck, a largely ignored phenomenon in science. Although no formal scientific definitions of luck are well accepted, it would seem that luck often plays a key positive or negative role in precipitating major life transactional chain sequences. Poets may refer to luck as a very delicate yet elusive fabric woven with the thread of circumstance. Statisticians would consider luck to be unaccounted for variance. Social scientists may view it as representing chance or random events. Many personal characteristics, as well as events or circumstances, seem generally uncontrolled, unanticipated and entirely random. Boarding a plane that soon will crash has little to do with one's personality characteristics, adaptive traits or past experiences, yet being in such an unfortunate place may override all other considerations in determining one's fate. Along similar lines, an individual's destiny in life may be largely determined by the family that brings him or her into the world. At least from a statistical standpoint, the prospects for exposure to extremely high stress levels, maladaptive behavioral consequences, and limited opportunities seem more likely for a racial minority child born to an economically disadvantaged family living in an inner city environment than for a white child born to an economically advantaged family in a comfortable suburban milieu (Dohrenwend, 1973; Eaton, 1978; Escalona,

1974; Syme and Berkman, 1976). Although such circumstances do not set individuals on an invariant course, they certainly can weigh heavily for or against adaptive growth (Lazarus and Launier, 1978). Ironically, the more unlucky individuals seem in this regard, the more likely it is that such individuals may need to rely on luck to change the transactional direction of what would seem to be their probable developmental fate. Indeed, the scientist Stephen J. Gould has taken the extreme position that the entire species of man has survived more as a function of random events than of natural selection (Gould, 1989). In contesting Darwin's theory, Gould views man's very survival as a matter of luck.

A more complex aspect of luck involves what could be referred to as the goodness-of-fit dimension. Children have no choice regarding who their parents will be, their birth order, what school they will attend, or what neighborhood they will be raised in. It seems less obvious, however, that common protective factors such as good intelligence or a positive social orientation are not invariably protective or adaptive in all circumstances. For example, an energetic socially extroverted boy born into a family of passive introverted individuals may find his gregarious nature to be a liability in such a setting. Consequently, many of the aforementioned protective traits or circumstances are protective to the extent that they foster a congruence between the characteristics and the

environment of the individual (Chess, 1970; Haggard, 1973). A good individual-environment match may represent a major stress-buffering protective factor, whereas a poor fit is likely to represent a significant stress producing risk factor which may trigger a maladaptive transactional chain of events (Caplan, 1983; Lazarus and Launier, 1978; Pervin, 1968). Therefore, the goodness-of-fit dimension represents an additional layer of complexity in analyzing the pinball-like role of luck as it precipitates protective or risk-laden processes.

A final point may be made regarding the potential importance of luck as a major developmental outcome factor. Although an earlier section discussed the notion that certain individuals seem predisposed to surviving high-risk circumstances as a function of their resilient characteristics, it seems equally clear to nearly all risk researchers that no individual is totally invulnerable (Anthony and Cohler, 1987). This position suggests the possibility of exposure to profoundly chronic and/or intensely severe stress which is capable of permanently incapacitating even the hardest of individuals. For example, Werner and Smith (1982) pointed out that many truly resilient children who grew up in pathological families manifested the highly adaptive tendency to actively seek out emotional and social support from appropriate role models in their communities (e.g., teachers, ministers, neighbors). However, in an environment where no such caring

individuals exist, even the most affordance-receptive child is likely to be left unattached and unsupported. Thus, the accurately perceived environmental opportunities envisioned by the Gibsons' affordance oriented psychology also seems to be captively delimited by factors involving random circumstance. It would seem that even the most resilient individuals may not be able to overcome the unlucky "assignment" of an affordance-impoverished environment, thereby condemning such individuals to what Freud referred to as "too searching a destiny."

An Integrated Synthesis of Adaptive Emotional Resiliency

The current research endeavor has delineated a coherent theoretical perspective for the study of Adaptive Emotional Resiliency. The conceptual model that has been proposed emphasizes the antecedent processes of attachment and adaptive control as providing the core of continuity most closely linked to emotional development and the unfolding of the self-concept. The construct of Adaptive Emotional Resiliency is seen as representing the major by-product of these two antecedent processes; it plays a key mediational role in self-concept development (see Figure 2).

Within this theoretical context, emotional development was portrayed as unfolding along transactional lines. The example used to illustrate this scheme involved a parent-infant attachment relationship. Subsequently, development was described as a sequential dynamic process

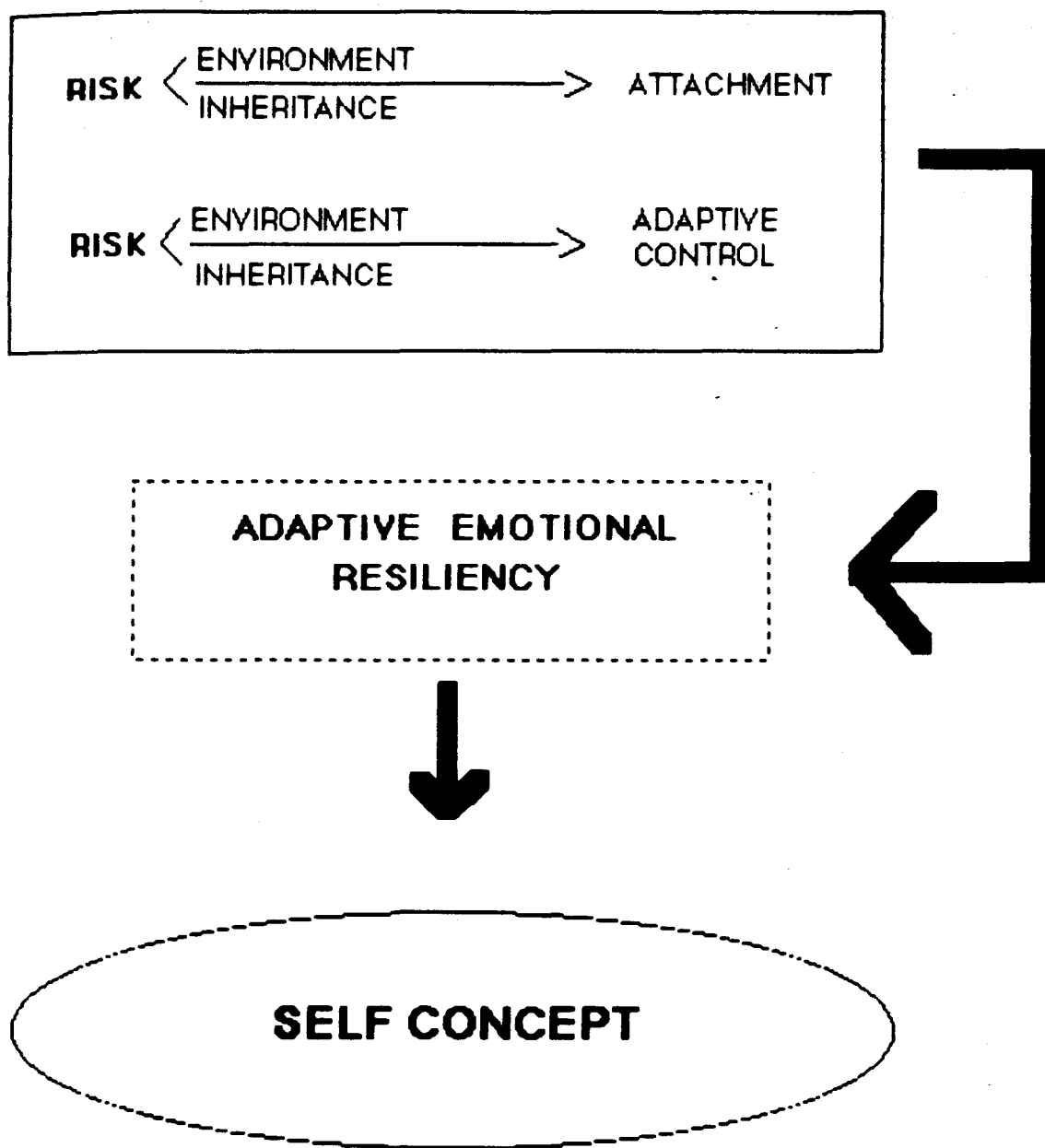


Figure 2. A schematic illustration of the mediational role played by Adaptive Emotional Resiliency as it relates to self concept development.

of continuous and mutual interaction between genetic and social-environmental forces. Experiences in the womb and shortly after birth were viewed as an important beginning but not an irreversible part of the process. Yet these beginning experiences took on increased importance, since single events such as an early separation of the infant because of physical problems were seen as potentially resulting in long lasting effects on parental attitudes and behaviors. Early separations, maladaptive constitutions or other stressors that impacted on parental attitudes and resources could, by themselves or in combination, start a chain of events leading to serious long term alterations in the attachment process. This "domino-effect" scenario was seen as a reasonable premise since the parents' initial attitudes (whether self-imposed or elicited by the child) could eventually be incorporated into the child's self-image and thus become actualized and represented as self-fulfilling prophecies (Joseph, 1979).

The attachment literature review further concluded that experiences in the womb and in the first 12 to 18 months after birth represented a highly predictive and crucial (but not irreversible) period of development which in large part set the direction, quality and momentum for the parent-infant attachment relationship to unfold. This momentum oriented model implicitly assumed that, given a relatively unchanging

environment, the perpetuation of good or poor development was in reality an indirect rather than direct effect of these early experiences because of the aforementioned self-fulfilling prophecies which tended to reinforce and propel complex chains of events. Nevertheless, future social-emotional development should to some extent be viewed as open-ended, since the reverse assumption

can lead, on the one hand, to a belief that if all has gone well in the first years of life, all will continue to go well. The later years, when for example, parental interest and affection are no less important, may not receive the same care and attention. On the other hand, a history of early adversity may lead to an underestimation of what might be done, and hence a tendency to inaction. (Clark and Clark, 1979, p. 148)

The open-ended nature of the proposed theoretical paradigm provides a major focus for the concept of Adaptive Emotional Resiliency. It highlights the idea that all children fall somewhere on a continuum of adaptability risk as a function of their resilience resources. Furthermore, a small percentage of children seem to function consistently at unexpected points in this continuum. A child's social-emotional development is therefore envisioned as a journey through a complex honeycombed route which at times may be pleasant and scenic, at other times monotonous or even hazardous. Each child must negotiate and endure these conditions within a uniquely woven fabric of planned action and circumstance. Some children seem to sail spectacularly through life with the wind at their backs

while others seem to be constantly bucking strong headwinds while facing grave obstacles in every direction. Children who can effectively utilize internal resilience resources and/or those subject to serendipitous circumstances are able to gather early momentum and consequently seem more likely to weather and capably negotiate the obstacles that they must face. On the other hand, children with limited resilience resources who are also subject to chronic misfortune seem perpetually to face uphill struggles while desperately attempting to maintain some meager degree of momentum. These latter children can often be "derailed" by even the smallest obstacles. Of particular interest are those children who travel the rockiest of roads yet finish the journey in great style. Because of these so-called invulnerables, many researchers have "implied that there is no set of adverse early experiences from which children have not recovered" (Clark and Clark, 1979, p. 136).

In delineating the variety of protective variables which foster emotional survival and growth, two cardinal factors seem to have the greatest bearing on an individual's potential to maintain, nudge or re-direct major developmental transactional chains in a positive direction. The first of these protective cardinal factors is a healthy self-concept which is modulated by the other factor, a robust level of Adaptive Emotional Resiliency. From a developmental perspective, the self-concept is largely a

reflection of how well an individual's Adaptive Emotional Resiliency has been functioning.

Historically, science has ignored the field of human emotions. However, it seems that with the full realization of society's "Future Shock" destiny, the Western world must currently acknowledge the reality and consequences related to poverty, suicide, physical and drug abuse, crime, deadly illnesses, war, environmental dangers and a host of other destructive epidemics. Understanding and enhancing human emotional development may result in harnessing the productive energies of individuals while simultaneously diminishing the impact of negative emotional developmental patterns that may underlie maladaptive conditions and behaviors.

Stress Assessment

Background

Although the physical effects of stress may currently be measured by a wide variety of established physiological and biochemical procedures (Carruthers and Path, 1983), the scientific measurement of stress as a psychological variable remains in its infancy.

Nevertheless, as a consequence of the earlier research into environmental risk, the study of stressful life events as they relate to disease etiology and psychological disorders, or life events research, has become the empirical focus of contemporary risk researchers

(Dohrenwend and Dohrenwend, 1974, 1980; Rabkin and Struening, 1976).

The two central issues related to life events research involve an examination of the properties that determine the degree of stressfulness of specific life events and the issue of identifying the particular pathological consequences of stressful events. The latter area boasts of a richer history and has therefore been researched more extensively. This is particularly true within the context of examining stressful life events related to disease etiology as seen in the work of Cannon (1929), Selye (1946) and Wolff (1953). Wolff's interactive approach and that of the psychologically oriented stress researchers who followed set the stage for an appreciation that social factors could trigger physiological reactions in the central nervous system and thereby influence the course of a disease process (Hinkle, 1974). This premise has gained widespread empirical support from a variety of scientific fields.

Meyer (1951), an early pioneer in such research, in the 1930's advocated the use of the life chart to aid in establishing medical diagnoses. Meyer believed that the life chart, which tracked life events, could be etiologically linked to a variety of medical disorders. He also pointed out that such events need not be dramatic or catastrophic to have pathogenic consequences. Even normal and necessary life events (e.g., school graduation) could have negative consequences. Meyer's development of

the life chart represented a first attempt in the social science literature to quantify environmental stressors formally.

Subsequently, the contributions to this area of most life events researchers have involved their attempts to demonstrate a temporal association between the onset of illness and a recent increase in the number of stressful events experienced by a given individual. The prototypical research tool used in such studies has been a 43 item checklist which was empirically derived from clinical experience by Holmes, Rahe and their associates (Hawkins, Davies and Holmes, 1957; Rahe, Meyer, Smith, Kjaer and Holmes, 1964). The 43 life events represented fairly common situations that stemmed from family, personal, occupational and financial matters. It was assumed that these events were all stressful in that they required some level of adaptive response from the individual. The underlying principle suggested that their stressfulness was related to the level of significant change and the amount of disruption that each life event imposed on the individual's ongoing life pattern. This approach established an emphasis on rapid change away from the individual's homeostatic steady state and was unconcerned with the psychological meanings attached to life events or their socially desirable character (Holmes and Masuda, 1974).

In its original form, known as the Schedule of Recent Experience (SRE), scores consisted of the number of items checked over a ten year

period. The impact of these events was presumed to be additive. Consequently, the more events that were checked, the greater their overall impact. The other underlying assumption for the SRE suggested that social events represented precipitating factors which influenced only onset rather than the type of illness (Rahe, 1974; Rahe, et al., 1964). Due in part to the studies of Stevens (1966), whose research in psychophysics involved the measurement of subjective magnitude estimations of experience, Holmes and Rahe (1967) were able to apply such work to the non-metric field of psychosocial phenomena. This subsequently brought greater precision to the modified SRE as a measuring instrument of life events.

In the original SRE, events such as the death of a spouse were weighted equally with more benign events. An estimate of the magnitude of each event in relation to its adaptational or readjustment demand upon the individual was clearly needed. Subsequently, weights, referred to as life change units (LCU), were assigned to each item of the SRE based upon ratings by a sample of judges. They were asked to rate the life events as to the relative degree of necessary readjustment (Masuda and Holmes, 1967). This modified version of the SRE, named the Social Readjustment Rating Scale (SRRS), was developed in order to measure the intensity and length of time necessary to adjust to a particular life event (Holmes and Rahe, 1967; Vinocur and Selzer, 1975). As an example, the SRRS assigned its

highest life change unit score to the death of a spouse (e.g., LCU=100) and its lowest score to a minor violation of the law (e.g., LCU=11). Marriage, considered a moderately stressful event, was assigned the LCU value of 50. As was the case for the SRE, the SRRS was unconcerned with the socially desirable character of a given event. Instead, it aspired to be a measure of pure change.

The SRRS and comparable derivative checklists, usually covering the previous 6 to 24 months, have been utilized as objective measures of stressful life events (Holmes and Rahe, 1967; Paykel, Prusoff and Uhlenhuth, 1971; Tennant and Andrews, 1976). For the most part, life event instruments have been used in prospective and retrospective studies. They have generally established a pattern of modest but statistically significant relationships between mounting life change and the occurrence or onset of: sudden cardiac death (Engel, 1971; Rahe and Lind, 1971), myocardial infarction (Rahe and Paasikivi, 1971; Theorell and Rahe, 1971), illness in various Navy personnel (Gunderson and Rahe, 1974), tuberculosis (Rahe et al., 1964), leukemia (Greene, Young and Swisher, 1956), diabetes (Holmes and Masuda, 1974), and minor health changes (Holmes and Holmes, 1970). In short, measures of mounting life change have been empirically connected to the entire spectrum of chronic diseases and illnesses that afflict modern society. They also seem to enhance

predictions for the course that an illness will take, including recovery (Rabkin and Struening, 1976).

Although life event scales such as the SRRS have considered psychogenic disorders to be subsumed under the broad heading of "disease," much of the earlier cited research which evaluated the relationship of life change to the occurrence of disease focused on the notion of disease within a medical context. In contrast, a growing body of research has established a strong link between recent stressful life events and the development of psychological and adaptive disorders in adults. For example, the impact of stressful life changes has been associated with; teacher absenteeism and performance (cited in Holmes and Masuda, 1974), beginning a prison term (Holmes and Masuda, 1974), job loss (Kasl, Gore and Cobb, 1975), an increase in psychiatric symptomatology (Meyers, Lindenthal, Pepper and Ostrander, 1972), acute schizophrenia (Brown and Birley, 1968; Brown, Sklair, Harris and Birley, 1973), and depression and suicide attempts (Lloyd, 1980; Paykel, 1974a,b, 1978). Rutter (1983) also concluded that life events preceding psychiatric illness were more likely to be "garden variety" disruptions (e.g., marital discord, problems at work, incompatible relationships) rather than dramatic crises.

In sharp contrast to these adult studies and despite some isolated attempts to apply the Holmes and Rahe methodology to children (Chandler,

1981; Coddington, 1972a,b; Cohen-Sandler, Berman and King, 1982), there appears to be a paucity of stress assessment devices and related evidence regarding the links of stressful life events to psychological disorders in children (Colton, 1985; Yamamoto, Soliman, Parsons and Davies, 1987). Some possible causes for this research "vacuum" involve complex intertwined factors related to definitional diagnostic issues, developmental considerations, individual perceptual differences, and the question of a cognitive bias.

Historical Assessment Barriers

Psychological measurement related to cognitive processes (e.g., intelligence tests) has been viewed by some prominent researchers as the crowning achievement in the psychometric field (Cronbach, 1970; Jensen, 1980). In contrast, the psychological phenomenon of stress traditionally has been associated with emotional processes (King, Stanley and Burrows, 1987). As such, it has most likely suffered from a previously discussed cognitive bias which has persisted in the educational and social scientific communities of the Western world (Anderson and Messick, 1974; Zigler and Trickett, 1978). Lewis and Michalson (1983) point out that this bias has emphasized the importance of cognitive variables in measuring individual differences and the developmental status of children at the expense of attention to emotional variables.

Another major factor which has dampened efforts to develop useful stress assessment devices involves the idea of individual differences. In a position originally articulated by Wolff (1953) and Selye (1956a), it became clear that specific stress conditions did not invariably generate a universal response pattern for all individuals. Instead, a number of studies have proposed that the individual's cognitive appraisal of the situation or event determines its stressfulness (Anthony and Koupernik, 1974; Dohrenwend and Dohrenwend, 1974; Field, McCabe and Schneiderman, 1985; Garnezy and Rutter, 1983; Gunderson and Rahe, 1974; Humphrey, 1984; Lazarus, 1966; Lazarus, et al., 1980; Maddi and Kobasa, 1984). This cognitive "intrusion" into the stress field suggests that an individual's perceptions of threat may vary widely. Consequently, a variety of psychological stimuli can result in similar stress responses. Conversely, a particular stimulus condition may evoke a variety of responses. Researchers such as Rabkin and Struening (1976) have attempted to develop a comprehensive model for viewing the variables that are presumed to be responsible for determining an individual's idiosyncratic perceptions of potential stressors. However, the suggestion that cognitive appraisals act as mediators in determining stressful reactions has represented a formidable stress assessment challenge.

Adding to the perplexity of individual differences in the perception of stressors, the issue of the effect of developmental differences on the potential impact of stressors on children needs to be addressed. Anthony (1974) has noted that "stress as experienced by the child and stress as estimated by the adult observing the impact of the stress on the child are frequently of very different orders of magnitude" (p. 106). Similarly, Yamamoto (1979) observed that numerous significant stressors experienced by children in school were related to what many adults would perceive as minor incidents (e.g., being picked last for a team, ridiculed by a classmate). For some students, the negative impact of such events was more potent than stressors thought by adults to be salient, such as the birth of a sibling. Thus, obtaining a valid estimate of the "child's eye view" of stressful life events has proved to be a treacherously difficult process (Colton, 1985).

Assessing developmental perceptual differences is further complicated because children typically lack the intellectual maturity and reasoning skills that are possessed by most adults (Flavell, 1982). A lack of reasoning power in conjunction with a relatively egocentric posture make it difficult for children to tolerate frustrations or to delay their need for immediate gratification (Piaget, 1963; Sheppard and Willoughby, 1975). Egocentricity also seems closely related to the complementary observation

that children, particularly those younger than 8 years of age, tend to think in dichotomous "black and white" terms (Elkind, 1981; Hughes, 1989). Subsequently, child attributions regarding negative events are relatively undifferentiated and often result in internalized self-blame. These developmentally oriented limitations impact negatively on a child's ability to cope with life's inevitable "assaults."

Children's efforts to cope are also hampered by what Burns (1979) has referred to as psychological selectivity. Psychological selectivity stems from the limited options and environmental restrictions that are imposed on children. For example, most children are highly dependent on their primary caretakers and have limited control over selecting where they will live, whom they will live with or deciding which school to attend. In fact, children are often punished for attempting to utilize the same types of stress reducing behaviors that are considered to be acceptable and effective for adults (Humphrey, 1984). Therefore, adaptational efforts are substantially hindered by a child's relative inability to conceive, develop, and/or implement an appropriate coping plan. To the extent that stress assessment efforts have failed to take developmentally oriented limitations into account, child's eye view measures of potential stress impact have yet to be developed.

Even if an abundance of psychometrically valid and reliable stress assessment devices were available, researchers would still face difficulty in examining the connection of measured stress to psychological disorders in children. The primary concern in establishing such links relates as much to issues of diagnostic clarity as it does to a lack of appropriate stress assessment instrumentation. The lack of clarity regarding a consensual definition for the concept of stress and its ambiguous nature was discussed in an earlier section. However, this lack of clarity seems minimal in comparison to the considerable confusion that exists in diagnosing psychopathology in children (Clarizio and McCoy, 1976; Lebovici and Diatkine, 1974; Munsinger, 1983). Using the medical model, mental health clinicians have traditionally viewed health as an absence of sickness (Anthony, 1974). Along similar lines, anomalous behaviors have often been viewed as prime evidence for a maladaptive pathological condition. Currently, such views increasingly are being called into question since many so-called unusual behaviors are not necessarily maladaptive, whereas many frequently encountered behaviors may not always be adaptive (Flach, 1988).

The challenge to properly assess risk factors for the purpose of diagnosing maladaptive conditions is particularly troublesome in populations of children. The main difficulty arises because psychological

disorders in children, such as depression, are more difficult to identify since they are likely to be masked by what appears to be developmentally commonplace behaviors (Joseph, 1979; Kashani et al., 1981). This is particularly true of younger children, whose idiosyncratic behaviors are often the norm. Furthermore, when significant behavioral symptoms do appear in younger children, they are frequently transitory and thus less noticeable. The consequences of possessing a psychological disorder are also less clear, since in contrast to adults, there are few areas of measurable breakdown in children that are systematically observed. Young children are not employed nor do they have marital or financial obligations. In addition, they cannot drive a motor vehicle or travel independently. In fact, children have few if any formal responsibilities which can be reliably used as an adaptive behavior gauge. In further contrast to adults, empirical links between childhood physical illness and emotional pathology related to environmental stressors have also been lacking (Rutter, 1983). Subsequently, schools offer the most promising settings for formal systematic analysis and detection of maladaptive behaviors or conditions in children (Battle, 1982; Chiland, 1974; Salvia and Ysseldyke, 1991). The school milieu would therefore serve as an excellent backdrop in efforts to develop and validate a norm referenced, nomothetically oriented stress assessment device.

Adopting an Organizing Structure

Given the scope and complexity of the various assessment barriers discussed, stress assessment researchers may be aided by adopting an appropriate scientific perspective as an organizing framework. The multidisciplinary field of developmental psychopathology may represent the perspective of choice. Developmental psychopathology has been defined as "the study of abnormal behavior within a context of measuring the effects of genetic, ontogenetic, biochemical, cognitive, affective, social, or any other ongoing developmental influence on behavior" (Rolf and Read, 1984, p. 11). As an interdisciplinary science field which is closely related to risk research, developmental psychopathology focuses on adaptive and maladaptive individual patterns by drawing upon many different areas of research including: developmental, academic and clinical psychology as well as psychiatry (Cicchetti, 1984). The key objective in this newly burgeoning discipline is to merge and thereby strengthen the efforts of clinicians and researchers.

In the process of making clinical predictions regarding the psychological status of individuals, two major approaches have been identified (Baughman, 1972). On the one hand, clinicians traditionally have relied on idiographic approaches for prediction. Such approaches have permitted practitioners to gather and intuitively evaluate information

which is usually qualitative in nature (Allport, 1937). In this case, the clinician develops a rich detailed case study profile of an individual via the subjective interpretation of data gathered through interviews, biographical accounts, etc. In contrast, because of advances seen in psychometric instrumentation in recent decades, a statistical or nomothetically oriented predictive approach has been widely utilized in predicting psychopathology (Chandler, 1985). In this approach, predictors are usually quantifiable scores which are weighted and then combined into a predetermined "best-fitting" mathematical prediction model. It would seem that the idiographic approach provides an in-depth sensitive view of a given individual. However, it has been criticized as being a time consuming, unreliably subjective decision making process which has little generalizable utility (Meehl, 1954). The nomothetic approach to decision making has been viewed as a more objective, reliable and practical process, although not all salient personal characteristics that are critical to understanding a given individual are readily quantifiable. Nomothetic approaches have also been criticized for providing trivial, insensitive and oversimplified profiles of individuals (Aiken, 1971). Despite these concerns, the principal underlying assumption for using nomothetic devices suggests that human beings possess traits which are reflective of various behavioral predispositions or personality characteristics. Nomothetic device proponents believe that such

traits can be validly measured and used for the purposes of classification and prediction since they presume that there are general laws of behavior which are universally applicable (Lanyon and Goodstein, 1971, 1982).

Developmental psychopathology supporters would be likely to advocate that a viable stress assessment device should employ a combination of idiographic and nomothetic features which would provide equal utility for clinicians and researchers (Garmezy and Masten, 1986). Given the role of idiosyncratic cognitive appraisals in determining perceptions of potential stressors, it would initially seem that stress assessment would be relegated to the domain of ipsative devices, case study materials or other idiographic techniques. Fortunately, a considerable body of research evidence supports the validity of utilizing nomothetic approaches in objectively measuring potential stressors in children (Dobzhansky, 1962; Garmezy, 1981; Sandler and Ramsay, 1980; Tennant, Smith, Bebbington and Hurry, 1979; Yamamoto and Phillips, 1981). The most obvious category of events which highlight this position has been referred to as universal stressors (Appley and Trumbull, 1967). Such stressors involve life threatening circumstances or the loss of attachment figures and seem to have aversive consequences for nearly all human beings, since individuals cannot control, ignore or often even anticipate them (Engel, 1971; Garmezy and Rutter, 1983; Rabkin and Struening, 1976). As the intensity of an event increases,

the less important the individual's internal characteristics (e.g., cognitive appraisals, self-concept) become in determining a response to the event. This is particularly true as the time period that is necessary for an individual to activate a response is shortened. As the activation period increases and/or as the intensity of the event decreases, individual differences play a more important role.

Nomothetically cataloguing stress response potential for less intense stressors also may be possible, since it has been observed that many stress triggering events or circumstances are learned vicariously (Coleman, Butcher and Carson, 1988; Dohrenwend and Dohrenwend 1980). Subsequently, where cognitive appraisals play a larger role in determining stress responses, it is possible to establish a modal pattern of reactivity, since the stressfulness of many events may in part be determined by group norms and cultural expectations (Dohrenwend and Dohrenwend, 1980; Garmezy, 1981; Lazarus and Launier, 1978; Mechanic, 1970, 1974). While some researchers have asserted that this collective environmental impact varies from culture to culture (Hinkle, 1973; Paykel, Prusoff and Uhlenhuth, 1971), others have noted striking cross-cultural similarities (Holmes and Masuda, 1974; Miller, Bentz, Aponte and Brogan, 1974; Yamamoto and Davis, 1982). As a direct consequence of developmental selectivity issues, it appears that the nature and impact of stressors become

more personalized with age. Hence, children's perceptions of the stressfulness of various life events seem particularly uniform within and across cultures (Maccoby, 1983; Yamamoto, Soliman, Parsons and Davies, 1987).

Despite the commonalities seen in stress responsiveness and the obvious nomothetic assessment opportunities that accompany these central tendencies, it should be recalled that a select group of children develop in ways that are unexpected, given an examination of their experiential history. The major point remains that individual differences in response to stressors, even universal stressors, is a well-documented phenomenon (Field, McCabe and Schneiderman, 1985; Gunderson and Rahe, 1974; Humphrey, 1984; Maddi and Kobasa, 1984). How this apparent assessment barrier may be transformed from representing a source of measurement error to becoming a dynamically new and useful fount of information will be addressed in the upcoming Present and Future Assessment Opportunities section.

Developmental psychopathology proponents would be likely to advocate that a viable stress assessment device should maintain a clearly delineated theoretical structure which explicitly defines the concept of stress. Similarly to the concept of anxiety, stress has been broadly used to describe an individual's reactions to environmental demands (Rabkin and

Struening, 1976). Although numerous definitions of stress have been offered in the literature, the elusive nature of this phenomenon has limited the degree of precision that may be utilized in generating a workable definition. Consequently, in keeping with the theoretical viewpoint underpinning the concept of Adaptive Emotional Resiliency, stress will be analogously viewed as a transactional process. Perhaps the most parsimonious definition that reflects this perspective is seen in the work of Mechanic (1983). He suggests that "stress results when the demands of a situation are greater than the individual's or group's capacity to deal comfortably with it. Such imbalances may exist in the perceptions of situations, in the objective facts, or both" (p. 125). The key focus for Mechanic was to examine objective events and perceptions in tandem, since each makes an important contribution to the stress equation. A substantial imbalance (either real or perceived) between demand and response capability is therefore the critical element in the proposed definition of stress. This imbalance upsets the person's equilibrium, strains physical and/or psychological processes, and eventually imposes adaptational demands. Adaptational coping is a reactive response to stress. Thus, the essence of stress involves real and/or perceived demands which overtax the individual's resources. The interaction of three factors determines whether a homeostatic imbalance will ensue. The first factor involves the objective

component, that is, the inherently stressful aspects that are embedded within each demand. The second component reflects the individual's perceptual predispositions. The person's internal resources and related ability to adapt to the event or circumstance completes the triad. The manner in which these factors merge determines the stressfulness of a given event or situation.

The Operationalizing Process

The practical importance of establishing a solid conceptual footing becomes apparent as the proposed definition of stress lends itself to directly resolving some of the key methodological issues in the stress assessment field. For example, one major controversy has involved the original Holmes and Rahe assessment premise. This premise suggested that the stressfulness of life events was related primarily to the level of significant change and the amount of disruption that events imposed upon the individual, irrespective of any psychological meanings attached to such occurrences. In contrast, it has been suggested that social undesirability and the presumed upset caused by the event should serve as the major criteria for determining its stressfulness (Gersten, Langner, Eisenberg and Simcha-Fagan, 1977; Paykel et al., 1971; Vinocur and Selzer, 1975). The debate regarding which approach is more likely to reflect valid stressors is resolved by examining the current conceptual structure. Within this

framework, all events are viewed as complex transactional chain processes which have the potential to possess desirable benign as well as undesirable components (e.g., perceived threat, upset, or challenging demands). These latter qualities may result in an imbalance in the person's homeostatic adaptational system. A job promotion may represent a positive opportunity for a given individual. In contrast, the same promotion may entail a degree of stress provoking threat, since promotions often involve a longer work week, greater responsibility, etc. By the same token, being fired from a job potentially may possess the same complex dynamic components of opportunity and/or threat. Although cognitive appraisals of the event in conjunction with the person's adaptational resources play a significant role in determining its stressfulness, the inherent properties of the event itself cannot be ignored. Consequently, for most individuals in Western society, the experience of losing one's job will be perceived as more stressfully taxing than the adaptational demands associated with the typical job promotion.

It has been asserted that a simple count of life event occurrences may be as effective as summing life event scores that have been weighted (Gersten, et al., 1977; Hutton and Roberts, 1990; Sandler and Block, 1979). However, developmental psychopathology purists would be likely to demand that a sophisticated stress assessment device should establish a

greater degree of precision in reflecting stress exposure. It seems unreasonable to assume, for example, that the long term impact on a child of being hospitalized for a week is likely to be equivalent to the impact on a child of suddenly losing a parent who is killed in an automobile accident. Assigning equal score weights to these two events seems unproductive. Instead, what is needed in the stress assessment field is a sensitive instrument that is able to weight and thus differentiate events of differing magnitudes of potential impact. Subsequently, as a function of determining modal response parameters, the establishment of magnitude scores which reflect a best guess as to how, on average, most individuals would respond to given events should lie at the heart of a nomothetically oriented approach (Anthony, 1974; Chandler, 1985; Dohrenwend and Dohrenwend, 1980; Dohrenwend, Krasnoff, Askenasy and Dohrenwend, 1978; Tennant, et al., 1979).

Along related lines, a nomothetically oriented instrument approach would recognize that personalized complex transactional chain processes underlying most events need to be more accurately assessed (Kasl, 1983). Assigning the same event score to two unrelated children whose parents have divorced does little to shed light on the potential stressfulness of each child's experiences. A more responsive device could incorporate clusters of items which as a group would add precision in measuring the

multifaceted aspects of the complex phenomena involved. Because of practical considerations, however, this multifaceted analysis would by necessity be limited to high impact areas such as family finances, child care, divorce, attachment losses, and caretaker personality characteristics and attitudes. In keeping with the proposed theoretical structure, and with other factors being equal, event processes that are likely to be perceived as disruptive to attachments or to result in a perceived loss of control warrant higher magnitude rating assignments. In all cases, however, a determination of magnitude should be a function of an event's net severity, intensity, and chronicity rated within the context of developmental considerations. Such ratings should also be subject to empirical validation.

The last major category of environmental stressors subject to close scrutiny involves what will be referred to as chronic event processes. This area has been largely ignored in traditional stress assessment. As had been previously noted, Meyer (1951), a life events research pioneer, and contemporary researchers such as Rutter (1983) and Lazarus (1984) have observed that many pathogenic life events that precede psychiatric illness are more likely to be mundane yet chronically disruptive processes as opposed to dramatic and discrete crises. While traditional stress assessment measures have focused on major life events (Holmes and Rahe, 1967), it would seem that the majority of stressors that challenge an individual's

ability to maintain homeostasis involve ongoing minor annoyances that have been referred to in the recent research literature as "daily hassles" (Anthony, 1986; DeLongis, Folkman and Lazarus, 1988).

Lazarus (1984) defines daily hassles as "experiences and conditions of daily living that have been appraised as salient and harmful or threatening to the endorser's well being" (p. 376). In contrast to universally stressful major life events, daily hassles are in greater part affected by cognitive appraisals. Although daily hassles are usually undramatic and generally less intense than major life events, their ability to strain and insidiously wear down individuals seems connected to their omnipresent nature (McLean, 1976). In an attempt to further delineate daily hassles, Gruen, Folkman and Lazarus (1988) have compared central hassles with noncentral hassles. Central hassles reflect important ongoing themes or problems in an individual's life. For example, an overweight person's continued inability to lose weight may represent a central theme which negatively impacts on self-image. Fighting heavy traffic in the daily drive to work may also result in a great deal of frustration; however, for most individuals, this would clearly serve as an example of a noncentral hassle. In keeping with the theoretical perspective that was noted in assigning potential stress magnitude ratings, central hassles that are perceived as disrupting attachments or resulting in a perceived loss of

control warrant higher magnitude ratings than noncentral hassles which presumably have no such connections.

The relative potency of chronic stressors is underscored by preliminary evidence which suggests that daily hassles may serve as better predictors of subsequent maladaptive psychological symptoms than major life event scores (Kanner, Coyne, Schaefer and Lazarus, 1981). In recent years, some clinically useful efforts have been made to assess daily hassles in older children and adults (Brantley and Jones, 1989; Hutton and Roberts, 1990; Kanner et al., 1981). Although these scales seem nomothetically oriented, they are essentially ipsative devices. A nomothetically anchored instrument which assesses a combination of major life events, chronic daily hassles and other relevant stress producing factors in the lives of children would be of great utility to both researchers and clinicians yet awaits development (Colton, 1985; DeLongis, Coyne, Dakof, Folkman and Lazarus, 1982).

In reviewing the developmental psychopathology perspective that has been utilized thus far, it seems clear that risk research reflects the basic elements related to investigating psychopathology (Garmezy and Masten, 1986). As Garmezy (1976) had noted, the two focal points in risk research involve the risk from exposure to severely detrimental environmental experiences and the risk of possessing highly maladaptive inherited

characteristics. This later category of risk reflects another area that has been largely ignored in traditional stress assessment. An internal risk focus suggests the existence of built-in predispositional tendencies that are closely related to stress exposure potential. Parents have been viewed by many researchers as reliable and valid sources of information regarding their children's behaviors and temperamental traits (Buss and Plomin, 1984; Chess and Thomas, 1986; Lyon and Plomin, 1981; McDevitt and Carey, 1978). Furthermore, research evidence suggests that parents' perceptions of their children's temperament and personality characteristics strongly predict the quality of parent-infant interactions and later child development related to adjustment and emotional resiliency (Egeland and Brunnequell, 1979; Goldberg, 1977; Werner and Smith, 1982; Wise and Grossman, 1980). Despite this promising evidence, there is virtually no existing body of assessment instrument literature which deals directly with the measurement of a child's stress exposure as a function of that child's temperamental characteristics. However, it should be noted that the Parenting Stress Index (Abidin, 1983) addresses this area within the context of primarily assessing parent stress levels. The Coping Inventory (Zeitlin, 1978) and the Stress Response Scale for Children (Chandler, 1986) are concerned with the measurement of children's personality characteristics but seem to be essentially measuring coping styles rather than stress

exposure potential, since they consider these characteristics as responses to stress rather than as stress producing internal characteristics.

Present and Future Assessment Opportunities

The assessment of internal risk and protective factors add an important dimension to the empirical study of developmental psychopathology. In reviewing the broad scope of the present investigation, it seems likely that cognitive appraisals and temperamental variables are largely responsible for the individual differences seen in response to stress exposure. Yet, the basis for providing a uniquely dynamic source of diagnostic information is circumscribed within this elusive variance, thereby converting measurement threat to measurement opportunity.

The presently offered model of stress and its relationship to Adaptive Emotional Resiliency suggests that a nomothetically oriented measure of stress cannot directly reflect developmental outcomes. Instead, a more reasonable expectation for such a scale is to predict the likelihood of adaptation or psychopathology by objectively measuring potential vulnerability to stress exposure. The primary reason for this apparent limitation involves the aforementioned issue of individualized reactivity to stressors. Personalized predictions are further complicated in that attempts to directly measure adaptation or psychopathology via life events, for

example, seem unrealistic since developmental outcomes result from complex ongoing transactional processes. These processes are composed of seemingly limitless sequences of obvious and subtle exchanges between individuals and their environments. As a group, these transactions would be difficult to measure without the benefit of extensive direct observation, longitudinal interviews, and other costly and impractical idiographic techniques. Even if such efforts were contemplated, objective quantification and analysis would still be extremely complex. Thus, rather than attempting to measure the endless miles in an individual's complex journey through life, a practical nomothetic device could utilize key predictors (e.g., major life events, daily hassles, child temperament, characteristics of the caregiving environment) as signposts along the route which identify and predict crucial momentum events and directional trends. Subsequently, such signposts would reflect developmental tendencies and therefore be symptomatic of the entire journey. Since a stress scale would only reflect the actuarial probability for adaptive or maladaptive emotional outcomes, the earlier noted measurement variance related to individualized responsivity could actually serve as a dynamically interpreted embodiment of Adaptive Emotional Resiliency, the relative relationship of emotional mastery to stress exposure.

For most children, the issue of unexpected variance is likely to be inconsequential, since a well-constructed nomothetic instrument measuring potential vulnerability to stress exposure should function as a fairly good predictor of critical developmental outcomes. These outcomes would include such personal competence areas as: the self-concept, school functioning, and interpersonal relatedness. However, when expected outcome parameters that are predicted by a stress scale do not coincide with actual outcomes, the level and direction of the incongruence may largely represent the child's self-righting tendencies as delineated by the concept of Adaptive Emotional Resiliency. The expanded development of a stress assessment instrument into the dynamic multidimensional realm of emotional mastery accomplishments may indeed be welcomed by the field of developmental psychopathology.

Chapter Summary

Chapter II addressed the first goal of the study, the development of a viable theory of emotional resilience. It accomplished this objective by providing a coherent theoretical framework for studying the concept of Adaptive Emotional Resiliency, the capacity of the individual to maintain mastery and competence in the face of exposure to stress. The theoretical framework featured three sections.

The first section provided a holistic overview of the self-concept and its theoretical antecedent processes of attachment and adaptive control. The focal mediational role played by the construct of Adaptive Emotional Resiliency in self-concept formation was presumed to have genetic origins interacting with environmental factors.

The second section of Chapter II closely scrutinized the respective contributions made by environmental and genetic risk factors as they related to the construct of Adaptive Emotional Resiliency. Section two concluded by reintegrating these factors into a transactional model of development. This transactional synthesis was illustrated by a "loosely bound" hypothetical account of a maladaptive parent-infant attachment process.

The third section of Chapter II completed the conceptual overview of Adaptive Emotional Resiliency by providing the necessary transitional link between the proposed theory and goal two of the study which represented an initial step in operationalizing the resilience construct. By articulating a theoretical organizing structure for the study of stress assessment, this last section of Chapter II offered a background for examining the methodology issues of Chapter III which involved stress scale development and validation efforts. Consequently, the theoretical underpinnings of emotional development as presented in Chapter II

supported the need for empirically detailing links of generalized stress to psychological disorders in children.

CHAPTER III

SCALE DEVELOPMENT AND VALIDATION

Hypothesis

As stated in Chapter I, the dual purpose of the study was to develop a viable theoretical perspective for investigating the concept of Adaptive Emotional Resiliency in children and to begin to operationalize this theoretical construct via the development and validation of an objectively scored parent interview instrument, the Stressor Risk Scale (SRS). Chapter II addressed the first goal of the study by providing an integrated conceptual foundation within which to embed the development of the SRS. The overall research hypothesis of the study is derived from this foundation. The second goal of the study was directed at an examination and testing of this hypothesis.

Conceptually, goal two of the study represents an initial step in operationalizing the concept of Adaptive Emotional Resiliency. However, before it is possible to assess an individual's level of emotional mastery in the face of stress, it is necessary to accurately gauge that individual's actual

exposure to stress. Thus, goal two involves a concurrent validity study of the SRS. The SRS is designed to assess potential emotional vulnerability in the child as a function of stress exposure in three areas: perceived child personality-temperament characteristics, history of stress related life events of the child and family, and parental personality characteristics and attitudes. It is hypothesized that SRS scores will predict and differentiate among three groups of children of the same age; these children, by virtue of actual adaptive functioning in their respective school settings, are presumed to possess a low, moderate, or high-risk emotional and/or behavioral status.

In order to examine this assumption, the first diagnostic study group contains children who by special education standards are considered to be non-handicapped. These children are presumed to be functioning well or at least adequately in their respective settings and are thus expected to possess a low risk emotional and/or behavioral status. The second group contains children who are presumed to possess a moderate risk emotional and/or behavioral posture. Children in this group experience difficulty in school. Such difficulties are reflected by formal action taken by school officials which may result in: the processing of formal special education referrals, grade retentions, implementation of counseling or tutoring support services, case study evaluations, and/or the provision of special

education services for developmentally delayed, learning disabled, or mildly retarded diagnostic conditions. Children who show evidence of moderate to severe retardation levels or of sensory impairments or those diagnosed as primarily behavior disorder/emotionally disturbed were excluded from this group. The third group contains children who are presumed to possess a high-risk emotional and/or behavioral status. These children experience difficulties in school which lead to case study evaluation and the subsequent provision of special education services following diagnosis of behavior disorder/emotional disturbance as a primary handicapping condition.

In addition to contributing to the stress assessment field and its related potential in empirically studying Adaptive Emotional Resiliency, the validation of the SRS could be viewed as a much needed means of detailing links of generalized stress exposure to psychological disorders in children. The discussion presented below regarding the scale's development, design features, applications and initial pilot study serves as a useful frame of reference for discussing the validation efforts related to goal two.

Development and Description of the SRS Pilot Scale

As a function of reviewing the research and theory literature related to the fields of attachment, self-esteem, stress-risk, social support,

adaptive behavior-control, child-developmental psychopathology, and emotional resilience, an idea pool of possible items for the SRS was created. A portion of this item pool stemmed directly from the clinical experiences of the investigator. The idea pool for possible items was therefore formed primarily on a rational-theoretical basis. Thus, the selected test stimuli utilized face validity-common sense considerations in conjunction with reflecting on key aspects of the aforementioned research and theory literature reviews. The investigator envisioned that this instrument would be an objectively scored unobtrusive measure which relied upon data provided by informed observers. To a large extent, this initial vision and the eventual shape and form of the instrument were dictated by the nature of the information to be gathered. The initial group of approximately 500 item-ideas for possible inclusion in the scale, seemed logically to fall into four categories. The four categories involved items related to the child's personality-temperamental characteristics, child and family stress related life events, child and family goodness-of-fit issues, and parental personality characteristics and attitudes. The goodness-of-fit section was eventually discarded, although some of the items from this category were retained in other sections. Items were also devised that were intended to alert an examiner to the possibility of response distortion patterns (e.g., most often associated with respondents who manifest poor

reality contact, defensive or socially desirable responding tendencies). Five such items were developed and embedded in the parental personality characteristics section.

Overall, items from the original idea pool were included in the pilot version of the scale based upon their apparent ability to be portrayed and measured clearly, simply, and accurately. Ideas involving highly complex phenomena (e.g., a parent's level of sensitivity to a child's needs) and items that seemed particularly prone to response set distortions were discarded regardless of their import. In many instances, clusters of items that measured multifaceted aspects of a given research area were significantly reduced to what appeared to be those few items that seemed most essential to and representative of that subject matter. This process also insured that specific topics were not inadvertently given improperly weighted importance. Another significant concern throughout the item reduction process was that the eventual scale should not be unwieldy and therefore impractical. A target goal of 30 minutes was envisioned as the ideal administration time. Subsequently, the final version of the pilot scale included 242 items and required an average administration time of about 35 to 40 minutes per subject. This relatively efficient time range was achieved in part as a function of the pilot scale's design which featured item presentation in a "flip-style" easel format. The easel format allowed the

examiner to control the pace of items administered and the number and combination of items exposed to the subject at any given time. The easel also displayed items in a clear position to both the subject and the examiner while providing the examiner with a set of naturally shielded administration and scoring directions. It also served as a natural shield while the examiner scored responses on the record form. In addition, the scale's design required minimal demands on subject response skills; all items were read aloud and subject responses were recorded by the examiner.

SRS Section I - Personality

The first portion of the SRS pilot scale, which attempted to assess stress exposure as a function of the child's personality-temperamental characteristics, featured 62 items that utilized a modified semantic differential technique. In this section, items were presented as sets of contrasting words or short phrases which described behavior or personality dimensions. Each item offered seven possible rating points which were anchored on opposite sides by the aforementioned pairs of contrasting words or phrases. After the examiner read each pair, the respondent was first asked to decide which word or phrase in each pair was more descriptive of his or her child's typical everyday behaviors. The respondent was then required to rate verbally the degree to which that

word or phrase was descriptive according to the following scheme: a rating of 3 suggested that the concept was highly descriptive, a rating of 2 suggested that the concept was moderately descriptive, and a rating of 1 suggested that the concept was mildly descriptive of the child's typical behavior. A rating of 0 suggested an even balance between the two concepts. A reference card which listed these ratings was also displayed to the respondent throughout the administration of all the items. From a visual standpoint, the seven points featured the 0 in the middle position and the numbers 1, 2, and 3 emanating in an ascending fashion toward each of the oppositely anchored concepts. Since the numbers 1, 2, and 3 were duplicated in each direction, a simple identification technique was taught to the respondent utilizing the letters L and R which signified to the examiner whether the numbered rating that was selected for each item occupied the position to the left or the right of the 0. This "rating duplication" technique greatly minimized the absolute magnitude of differences seen in the number ratings of the extreme options. As a result, respondents were more inclined to rate accurately the salient aspects of their child's personality and behavioral tendencies. Adjectives used with many of the concepts were "softened" for the same purpose. The number rating duplication technique was also advantageous since it helped to disguise the socially desirable response direction of each item.

It may have seemed to respondents that each item in the first section was assigned symmetrically similar rating points at either end of the continuum. In fact, however, these contrasting concept pairs were included in the scale because of their presumed ability to distinguish personality characteristics or behavioral tendencies that were adaptive and protective from those that were presumed to be maladaptive. Thus, each item featured a continuum of stress exposure risk. At one end, the personality characteristic was viewed as adaptive and protective, since it was assumed that possessing such a characteristic tended to elicit positive responses from caretakers and others in the child's environment. The concept at the other end of the item continuum was assumed to be maladaptive and subsequently exposed the child to high-risk levels of stress, since it was thought that such a characteristic tended to elicit negative responses from caretakers and others. In order to numerically represent this contrast, each item received a score rating from 1 to 7 which was directly translated on the record form from the subject's response. According to this rating scheme, the higher the number, the more stressful the rated characteristic was presumed to be. To control for acquiescence-response sets, odd items presented the positively scored options on the left side of the continuum, while the even items presented the positively scored options on the right side. In the first section, three items utilized a two step branching technique because of the

investigator's difficulty in establishing a clear single item adaptive-maladaptive continuum for each of the three areas. Overall, the 62 items in Section I were divided into four subsections based primarily upon rational and theoretical considerations. The first 18 items formed Part A, entitled Inhibitory Control. Part B consisted of the next 13 items, entitled Mood State. Part C included the next 15 items and was named Social Orientation. Part D, which featured the last 16 items, was labeled Coping Tendencies. Five scale scores generated from Section I included a score for each of the four subsections and a total score based upon the sum of the four subsections. Tables 2, 3, and 4 illustrate Section I items.

SRS Section II - Life Events

The second portion of the SRS pilot scale was designed to assess stress exposure as a function of examining the stress related life events history of the child and family. This portion featured 124 items that were measured by a weighted checklist type format. Event items thought to require a level of adaptive change and adjustment for the child, as well as for members of the child's family, were read to the subject. Events that were discretely acute or chronic in nature were represented. Events chosen for this section were presumed to have had a direct effect on the child or a more subtle indirect effect in cases where they involved members of the child's family. Reported events were scored only if they

TABLE 2

Sample of Administration Items from Section I - Part A, Respondent Side View

	L3	L2	L1	0	R1	R2	R3	CR

GOOD PHYSICAL COORDINATION	3	2	1	0	1	2	3	POOR PHYSICAL COORDINATION
OFTEN MANIFESTS TANTRUMS	3	2	1	0	1	2	3	RARELY MANIFESTS TANTRUMS
LIKELY TO PERSIST - RARELY GIVES UP	3	2	1	0	1	2	3	UNLIKELY TO PERSIST - OFTEN GIVES UP
OFTEN DESTRUCTIVE WITH TOYS	3	2	1	0	1	2	3	RARELY DESTRUCTIVE WITH TOYS
APPROPRIATE ATTENTION SEEKING	3	2	1	0	1	2	3	EXCESSIVE ATTENTION SEEKING

TABLE 3

Sample of Administration Items from Section I - Part A, Examiner Side View

STRENGTH OF RATING	L3	L2	L1	0	R1	R2	R3	CR
3 - HIGHLY DESCRIPTIVE								
2 - MODERATELY DESCRIPTIVE								
1 - MILDLY DESCRIPTIVE								
0 - NEUTRAL BALANCE	3	2	1	0	1	2	3	

- | | | |
|-----|--|---|
| 7. | GOOD PHYSICAL COORDINATION | POOR PHYSICAL COORDINATION |
| 8. | OFTEN MANIFESTS TANTRUMS | RARELY MANIFESTS TANTRUMS |
| 9. | LIKELY TO PERSIST -
RARELY GIVES UP | UNLIKELY TO PERSIST -
OFTEN GIVES UP |
| 10. | OFTEN DESTRUCTIVE
WITH TOYS | RARELY DESTRUCTIVE
WITH TOYS |
| 11. | APPROPRIATE ATTENTION
SEEKING | EXCESSIVE ATTENTION
SEEKING |

TABLE 4

Sample from Section I - Part A, Examiner Record Form

SECTION I - PERSONALITY

Part A: Motoric Activity-Inhibitory Control

1.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Patient)
2.	L3 7	L2 6	L1 5	0 4	R1 3	R2 2	R3 1	CR (Careless)
3.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Cooperative)
4.	L3 7	L2 6	L1 5	0 4	R1 3	R2 2	R3 1	CR (Accident)
5.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Control)
6.	L3 7	L2 6	L1 5	0 4	R1 3	R2 2	R3 1	CR (Active)
7.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Coordination)
8.	L3 7	L2 6	L1 5	0 4	R1 3	R2 2	R3 1	CR (Tantrums)
9.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Persist)
10.	L3 7	L2 6	L1 5	0 4	R1 3	R2 2	R3 1	CR (Destructive)
11.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Attention)
12.	L3 7	L2 6	L1 5	0 4	R1 3	R2 2	R3 1	CR (Obedient)
13.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Span)
14.	L3 7	L2 6	L1 5	0 4	R1 3	R2 2	R3 1	CR (Eating)
15.	L3 1	L2 2	L1 3	0 4	R1 5	R2 6	R3 7	CR (Activities)

Column
Totals + + + + + + + = Total-Part A

had occurred since the child's birth or, in some cases, during the period of the child's fetal development. However, there were three types of departures from this objective event listing format. Each of these departures attempted to build a greater range and degree of item scoring flexibility into the scale.

The first type of departure involved perception oriented items. In contrast to fact oriented events (e.g., family acquires a pet) which were typically easier to verify objectively, perception oriented events relied heavily on cognitive appraisals and thus allowed for more personalized responses. For example, responding affirmatively to the item "Greatly unequal sharing of child care responsibilities between parents" suggests that this perception does indeed belong to the respondent even though such a perception may be totally unrelated to the actual proportion of time committed to child care activities. Approximately one-third of the life event items dealt with chronic daily hassle oriented perceptions. Many of the items were also worded in such a way as to afford the subject a level of privacy while simultaneously revealing important information. Consequently, for items such as "Child experiences one traumatic event" the subject was not required to reveal the specific nature of the perceived experience. Instead, the subject was asked only to report that a traumatic experience had occurred. If comfort and trust levels were high between

the interviewer and respondent, the specifics regarding an event could be discussed in greater detail. The selective use of intentionally inexact item wording in Section II also allowed subjects to assess and in effect determine the magnitude rating of specific events. In general, building a subjective responding component into the life events section was seen as a way of enhancing the overall concurrent validity of this portion of the scale, since it permitted each subject to attach his or her own personalized meanings and reactions to selected items.

A second type of departure involved the so-called Add (additional) items. Upon completing the administration of the life events in Section II, subjects were asked whether there were other events not covered in the list that should be noted. This procedure allowed subjects flexibility in the reporting of unlisted events that were personally experienced as having been stressful to their children or to others in their family. In the case of these Add items, the examiner was required to determine a magnitude rating for each event.

The last departure in Section II involved the so-called Ant (anticipated) items. The Ant item cluster asked subjects to determine which, if any, of the previously listed life events might occur or re-occur in the near future. The logic behind Ant items suggested that if an individual is anticipating the occurrence of some significantly stressful

event such as a divorce or the death of a loved one, then it seemed reasonable to assume that the series of events leading up to the anticipated event might be equally if not more stressful as the anticipated event itself. Ant events were scored as if they had already occurred. The main purpose in developing the three item departure formats was to minimize the possibility of omitting potentially salient stressful life events information from the profile of a child or family. The record form also provided for a full range of possible point scoring options for both the Add and Ant items.

In Section II, each event item was read to the respondents. Subjects then indicated to the examiner whether the event had occurred since the birth of their child. If a subject's response for a given item was affirmative, then the examiner circled the corresponding point score associated with the numbered item on the record form. Circled point scores were added in each of four columns. The four column sums were then added across the bottom row of the record form, which generated a total scale score for Section II. As a function of integrating relevant research, theory and the investigator's clinical field experiences, the magnitude of potential impact upon the child of each stressful event was estimated and represented numerically through a weighted point system. Each item was assigned a score of 1, 2, 3, 4, 5, 6, or 9 points. Similarly to Section I, the greater the point score, the more stressful the event was

presumed to be in potential negative impact for the child and secondarily for the child's family. Events that were rated in the 3, 4, or 5 point range were deemed to be very serious stressors. Events that were assigned 6 or 9 point weights were considered to be "mega-stressors." In addition, specific high impact processes involving such issues as child care, divorce and family finances were represented by clusters of items which measured multifaceted aspects of the complex phenomena involved. The incremental weighting that resulted from responses to the item combinations in each cluster had the effect of more precisely representing the full potential impact of such intricate phenomena. In effect, personalized transactional chains were being assessed. As had been previously mentioned, the sum of all scored items was represented by one total scale score for Section II. Since multiple stressors tend to have a cumulative impact, this score represented the totality of potential stressfulness (relative to Section II) of a particular child's life. In a broader sense, an item analysis of Section II provided a detailed profile of the stress exposure levels of the child's entire family from the time of the child's fetal development. Tables 5, 6, and 7 illustrate Section II items.

SRS Section III - Parental Characteristics

The third portion of the SRS pilot scale, which attempted to assess the child's stress exposure as a function of examining the personal

TABLE 5

Sample of Administration Items from Section II, Respondent Side View

Parents have different religious backgrounds.

Parents have different ethnic backgrounds (e.g., one parent is Hispanic and the other is Oriental, etc.).

Child currently watches television:

- a) 0 to 6 hours per week
- b) 7 to 12 hours per week
- c) 13 to 18 hours per week
- d) 19 to 24 hours per week
- e) 25 or more hours per week

What other event(s) not covered in the above list have required a significant level of change or adjustment on the part of your child or for other members of your family?

Of all the events previously listed, which, if any, of these events may possibly occur in the near future (either as a first time occurrence or as a re-occurrence)?

TABLE 6

Sample of Administration Items from Section II, Examiner Side View

111. Parents have different religious backgrounds. (Score 2)
112. Parents have different ethnic backgrounds (e.g., one parent is Hispanic and the other is Oriental, etc.). (Score 3)
113. Child currently watches television:
- a) 0 to 6 hours per week
 - b) 7 to 12 hours per week
 - c) 13 to 18 hours per week
 - d) 19 to 24 hours per week
 - e) 25 or more hours per week
- Note: Score 2 for a c or d response.
Score Item 114 for an e response.
114. (Score 3)
115. What other event(s) not covered in the above list have required a significant level of change or adjustment on the part of your child or for other members of your family?
- (Record additional events on record form and score accordingly using Items 115 to 121. For example, if an additional event receives a score of 3, then score the additional event as Item 117, etc.)
122. Of all the events previously listed, which, if any, of these events may possibly occur in the near future (either as a first time occurrence or as a re-occurrence)?
- (Record anticipated events on record form and score accordingly using Items 122 to 128. For example, if an anticipated event receives a score of 6, then score the anticipated event as Item 127, etc.)

TABLE 7

Sample from Section II, Examiner Record Form

SECTION II - LIFE EVENTS

(circle scored items)

<u>Column A</u>	<u>Column B</u>	<u>Column C</u>	<u>Column D</u>
1. 1	33. 3	65. 3	97. 4
2. 2	34. 2	66. 6	98. 3
3. 3	35. 3	67. 5	99. 3
4. 2	36. 2	68. 9	100. 2
5. 2	37. 2	69. 4	101. 2
6. 4	38. 2	70. 5	102. 2
7. 5	39. 2	71. 3	103. 1
8. 3	40. 2	72. 3	104. 3
9. 3	41. 2	73. 3	105. 6
10. 4	42. 4	74. 3	106. 5
11. 3	43. 2	75. 2	107. 4
12. 2	44. 2	76. 5	108. 4
13. 5	45. 3	77. 4	109. 4
14. 3	46. 4	78. 5	110. 1
15. 4	47. 3	79. 4	111. 2
16. 2	48. 4	80. 2	112. 3
17. 5	49. 2	81. 4	113. 2 ()
18. 1	50. 5	82. 6	114. 3
19. 2	51. 3	83. 3	115. 1 add
20. 2	52. 1	84. 4	116. 2 add
21. 2	53. 2	85. 4	117. 3 add
22. 2	54. 4	86. 3	118. 4 add
23. 4	55. 2	87. 4	119. 5 add
24. 3	56. 4	88. 9	120. 6 add
25. 5	57. 3	89. 2	121. 9 add
26. 3	58. 4	90. 2	122. 1 ant
27. 4	59. 3	91. 4	123. 2 ant
28. 3	60. 4	92. 4	124. 3 ant
29. 5	61. 3	93. 5	125. 4 ant Col. A _____
30. 3	62. 3	94. 3	126. 5 ant Col. B _____
31. 3	63. 4	95. 5	127. 6 ant Col. C _____
32. 3	64. 3	96. 4	128. 9 ant Col. D _____

Total

characteristics of the caregiving environment, featured 56 items in three separate divisions. These divisions measured the parent's self-reported personality characteristics and attitudes. Section III primarily utilized two variations of a 3-point Likert scale format. In Section III-A, 44 statements were read to subjects. Subjects were then asked to indicate whether they agreed, disagreed or were neutral in their opinion of each statement. In Section III-B, 11 questions were read to subjects. Subjects were asked to choose one of three responses which in their opinion best answered each question. A twelfth question in this section was an unscored open-ended inquiry regarding the numerical size of the subject's confidant network. The five previously discussed Distortion Index items were randomly embedded in Section III-A but were scored separately as Section III-C. With the exception of the five Distortion Index items, each item in Section III was chosen because of its apparent ability to discern parental personality characteristics, attitudes or behavioral tendencies that were associated with positive and protective parenting or negative maladaptive parenting. Consequently, as seen in Section I, each item featured a similar but abbreviated continuum of stress exposure risk. In order to numerically represent this relationship, items received score ratings of 0, 1, or 2 which were converted on the record form directly from the subject's response. Again, the higher the number rating, the more stressful the rated

characteristic was assumed to be. In the case of the Distortion Index items, however, it was presumed that the higher the number, the more likely it was that a subject was engaged in response distortion practices. Acquiescence-response sets were controlled in this section through randomly mixed item and response stem placements.

Section III-A items were chosen to reflect a variety of adult personality characteristics and attitudes which seemed highly relevant in terms of predicting parenting tendencies as well as in projecting a sense of the caregiver's own emotional well-being. As a result, items in Section III-A dealt primarily with variables related to the assessment of the adult respondent's self-esteem, locus of control, anxiety, conflict, depression, satisfaction, environmental goodness-of-fit, and social support levels. The underlying theoretical notion that guided the development of Section III-A was that emotionally vulnerable caretakers may expose their children to high-risk levels of stress as a function of their own stress exposure, discomfort or pathology. In contrast to Section I, the empirically based items that were crafted to measure these relevant areas were presented in a randomly scattered fashion throughout Section III-A.

Section III-A presented a more generalized picture of the adult caretaker's emotional status. Section III-B focused on the adult caretaker's level of frustration in raising a particular child in conjunction with

assessing the level of available social support for that adult. Therefore, the items contained in Section III-B were viewed as critically vital in directly reflecting reactive stress experienced by caretakers as a function of their parental role demands. In isolation, the social support component of this section attempted to shed light on a caretaker's ability to weather stressors.

The task of detecting response distortion patterns, as seen in Section III-C, related to the ubiquitous personality assessment problem of monitoring the truthfulness of a subject's responses (Crowne and Marlowe, 1964; Lanyon and Goodstein, 1971, 1982). In addition to not being willing to tell the "truth," some respondents may not consciously know the truth about themselves and/or their children. Therefore, Distortion Index items were constructed with the assumption in mind that a reasonably aware and truthful individual would respond to each of these items in a self-effacing manner.

Section III generated three scale scores: a total score for Section III-A, a total score for Section III-B, and a Distortion Index score (Section III-C) based upon the total score derived from the five response distortion items embedded in Section III-A. As was the case for Sections I and II, the structure of Section III allowed it to be administered to either parent or other knowledgeable caretakers when a parent was not available. The wording of several items in Section III was also similar to parts of Section

II in that it afforded subjects a level of privacy while simultaneously providing them with the opportunity to share vital information with the interviewer. For example, a subject could indicate that he or she disagreed with the statement, "Financially, my family would be about average compared to most other families in our community." However, the subject was not required to reveal how his or her family differed from other families in this respect. A clinically oriented interview following the administration of the scale could afford a subject the opportunity to provide the interviewer with a more in-depth view of any problematic areas that the subject is comfortable discussing. Tables 8, 9, 10, and 11 illustrate Section III items.

SRS Uses and Applications

The multidimensional features of the SRS enhance the versatility of the scale. The scale provides a comprehensive profile of stress exposure risk to the child while simultaneously serving as a highly informative profile of stress exposure risk to the child's parents and family. A criterion referenced item analysis of each section is of particular benefit in this regard. A record form was developed as a straightforward means of recording the numerous item responses, directly translating these responses into scores, and organizing the scored items into constellations that are easily summed and totalled into their respective sections. The record form

TABLE 8

Sample of Administration Items from Section III - Part A, Examiner Side View

	<u>AGREE</u>	<u>NEUTRAL</u>	<u>DISAGREE</u>
<u>STATEMENTS</u>			
13.	I'm satisfied with my current role as a parent.		
14.	I usually feel rushed.		
15.	Life seems to be going quite well for my family.		
16.	My spouse (or partner) is satisfied with his (her) current job. (If he (she) is currently unemployed, respond to the following statement: He (she) has no desire to be formally employed.) (Note: If no spouse or partner-Score 0)		
17.	It seems that luck usually plays an important role in determining how successful one can be.		
18.	I'm satisfied with the community that I live in.		
19.	At times, I get frustrated with my child.		
20.	It's usually easy for me to make new friends.		
21.	Financially, my family would be about average compared to most other families in our community.		
22.	I'm satisfied with the way my family treats me.		

TABLE 9

Sample of Administration Items from Section III - Part B, Examiner Side View

QUESTIONS

46. What was the mother's initial reaction at learning that she was pregnant with this child?

Felt
Happy

Felt
Neutral

Felt
Upset

47. During the pregnancy with this child, how much support (e.g., affection, understanding, advice, help, etc.) did the mother receive from her spouse (or partner)?

Maximum
Support

Moderate
Support

Minimal
Support

48. During the pregnancy with this child, how much support (e.g., affection, understanding, advice, help, etc.) did the mother receive from her extended family?

Maximum
Support

Moderate
Support

Minimal
Support

49. With regard to this child's medical health history, how difficult has he (she) been to raise?

Difficult

Average

Easy

50. With regard to this child's typical physical activity levels, how difficult has he (she) been to raise?

Difficult

Average

Easy

TABLE 10

Sample from Section III - Part A, Examiner Record Form

SECTION III - PARENTAL CHARACTERISTICS

Part A: Attitudes

Statements

23.	A 0	N 1	D 2	CR (Happy)	35.	A 2	N 1	D 0	CR (Count)
24.	A 2	N 1	D 0	CR (Worst)	36.	A 0	N 1	D 2	CR (Schedule)
25.	A 2	N 1	D 0	CR (Ethnic)	37.	A 0	N 1	D 2	CR (Financial)
26.	A 2	N 1	D 0	CR (Doubts)	38.	A 2	N 1	D 0	CR (Quality)
27.	A 0	N 1	D 2	CR (Close)	39.	A 2	N 1	D 0	CR (Spankings)
28.	A 2	N 1	D 0	CR (Quality)	40.	A 2	N 1	D 0	CR (Tension)
29.	A 0	N 1	D 2	CR (Happy)	41.	A 0	N 1	D 2	CR (Job)
30.	A 2	N 1	D 0	CR (Right)	42.	A 2	N 1	D 0	CR (Sex)
31.	A 0	N 1	D 2	CR (Treat)	43.	A 0	N 1	D 2	CR (Family)
32.	A 2	N 1	D 0	CR (Tension)	44.	A 2	N 1	D 0	CR (Relaxing)
33.	A 0	N 1	D 2	CR (Quality)	45.	A 2	N 1	D 0	CR (Upset)
34.	A 2	N 1	D 0	CR (Decisions)					

TABLE 11

Sample from Section III - Part B, Examiner Record Form

SECTION III - PARENTAL CHARACTERISTICS

Part B: Support-Frustration

Questions

46.	Hap 0	Neu 1	Ups 2	CR (Pregnant)	51.	Dif 2	Ave 1	Eas 0	CR (Manage)
47.	Max 0	Mod 1	Min .2	CR (Spouse)	52.	Dif 2	Ave 1	Eas 0	CR (Cues)
48.	Max 0	Mod 1	Min 2	CR (Family)	53.	Well 0	Adeo 1	Poor 2	CR (Fit)
49.	Dif 2	Ave 1	Eas 0	CR (Medical)	54.	Once 0	Few 1	Rare 2	CR (Clubs)
50.	Dif 2	Ave 1	Eas 0	CR (Activity)	*55a.	___	*55b.	___	*55c.

*Note: This item does not contribute to Part B scoring.

Column
Totals ___ + ___ + ___ =

Column
Totals ___ + ___ + ___ =

Total-Items 46-54 = Part B

was also designed to visually facilitate the aforementioned item analysis. A major benefit seen in utilizing the SRS prior to a clinical interview involves the notion that administering such a device could legitimize the gathering of a broad range of sensitive information. Within the course of most clinical interviews, the interviewer may not possess a logical reason to inquire into certain personal areas since, on the surface, these areas may appear to be irrelevant to the concerns at hand. Such apparently unconnected inquiries could be viewed by the respondent as voyeuristic and offensive. The SRS was therefore structured to legitimize the elicitation of a broad range of information which may not be offered spontaneously and may also be more difficult to elicit under less structured interviewing approaches. Consequently, the scale promotes a mix of nomothetic and idiographic features in the service of establishing a valid profile of diagnostically useful information. SRS sections are also ordered to promote a general progression from less sensitive to more sensitive items, thereby allowing subjects to ease into what is presumed to be more personal areas of inquiry.

A distinctive application of the SRS lies in the interpretation of Section I as an independent measure of adaptive functioning. Although this section was conceived primarily to reflect stress exposure as a function of a child's personality-temperament characteristics, it was previously

determined that environmental factors do impact on the development of such internal traits. The more benign Sections II and III appear in a given profile, the more likely it is that Section I truly reflects internal behavioral predispositions. As Sections II and/or III increase in risk, the likelihood increases that environmental factors have played a larger role in the development of Section I characteristics for a given child. In any event, Section I behavioral traits reflect the end result of a genetic-environmental process. Each item in Section I also possesses a ratable adaptive-maladaptive continuum. These features provide support for the use of Section I for the purpose of assessing adaptive outcome behaviors.

Even though no unified theoretical or assessment related notion of adaptive behavior has been clearly established, the field of adaptive behavior assessment continues to receive increased attention because of special education legislative directives (Witt and Martens, 1984). As noted in an earlier discussion, many traditional adaptive behavior scales define adaptive behavior by the expectations or standards established by the scales' authors (Sparrow, Balla and Cicchetti, 1984). These standards are independently judged outside the context of a given individual's past life experiences, family value system and present living environment. A more useful approach to assessing adaptive behaviors in children involves a consideration of personal competence as initially proposed by Greenspan

(1981) and elaborated upon by McGrew and Bruininks (1990). Section I of the SRS provides a representative view of personal competence through its assessment of motoric and physical skills, social skills, cognitive skills, and emotional skills as reflected in the earlier reviewed spectrum of personality-temperament characteristics. The uniqueness of utilizing Section I as an adaptive behavior measure lies in its ability to be interpreted dynamically within the context of various environmental variables, thereby setting the stage for the objective assessment of Adaptive Emotional Resiliency. In addition to facilitating this dynamic assessment approach, Section I items (as well as Section III items) are also designed to measure "protective" adaptive behaviors. Few parent rating scales focus on the prosocial aspects of behavior. Instead, most adaptive behavior rating instruments emphasize pathological factors while downplaying or ignoring a child's strengths and assets. In the spirit of the developmental psychopathology movement, the integrated use of a multidimensional system anchored by the SRS could lead to a more favorably balanced diagnosis and prognosis for many children who are reportedly engaged in a variety of maladaptive behaviors.

Pilot SRS Study

In 1988 the initial version of the SRS was piloted on 131 children who ranged in age from 3-0 to 10-6. The families included in the pilot

study were primarily Caucasian (92%) from middle to upper middle class backgrounds and resided in five north and northwest Chicago suburban communities. Although most of the adult subjects had volunteered to take part in the study along with their non-handicapped children, more than one-third of the children in the sample were undergoing case study evaluations for the purposes of establishing eligibility for a variety of special education programs. Eventually, 42 children were formally diagnosed as being behaviorally disordered/emotionally disturbed, learning disabled, developmentally delayed, hearing impaired, or mildly retarded. The pilot interviews were conducted by 11 trained evaluators who were social workers, psychologists, social worker interns, or psychologist interns. All were employed in the public school sector.

The major focus of the pilot study was to analyze SRS pilot data with the intent of improving the psychometric characteristics of the scale. Although items selected for the pilot SRS were initially conceived on a rational-theoretical basis, their eventual maintenance and acceptance were dependent primarily upon empirically related criteria. However, because of the relatively narrow demographic nature of the families who took part in the piloting, a conservative approach was taken toward modifying or deleting items.

The general approach to item analysis required an evaluation of a combination of guiding principles. The backbone of this item analysis process involved a statistical analysis of the pilot data. Of key importance was the extent to which items contributed to the scale's reliability. To this end, a Cronbach Alpha analysis of items was generated, treating each section as a separate scale. Two crucial factors involved a careful scrutiny of each item's ability to predict and thereby significantly contribute to its respective section score (e.g., item-total correlations), and each item's ability to enhance the overall alpha estimate of the section (e.g., alpha if item deleted statistics). Inter-item correlational patterns were also carefully screened. These internal consistency reliability indices were deemed to be of particular importance in reviewing items from Sections I and III. Since variables were additionally analyzed as a function of membership in the diagnostic group, another key factor in the item analysis process was related to each item's ability to differentiate the behavior disordered/emotionally disturbed group from other populations. This type of analysis was viewed as being of utmost importance in eventually establishing concurrent validity indices for the scale.

Statistically evaluated factors related to reliability and validity issues were ultimately combined with practical judgments. Consequently, items were also evaluated in terms of their ability to provide valuable

diagnostic information within the context of their administrative time cost. It was therefore possible for an item to measure up poorly in one respect but nevertheless be maintained in the scale revision because of its inherent strengths in other areas. In addition, items were modified, re-ordered, or deleted as a function of examining common patterns of administrative and/or scoring difficulties. This was accomplished through a careful review of each child protocol and by an analysis of the solicited and unsolicited observations of the examiners and respondents.

Although Section I data were analyzed via the aforementioned guidelines, an additional consideration was introduced into this section's evaluation. The concern addressed whether each item had been placed in the appropriate subsection. Subsequently, a Cronbach Alpha analysis was implemented treating each subsection as a separate scale. A Cronbach Alpha analysis was also implemented on the entire scale of 62 items which resulted in an Alpha coefficient of .94. Appropriate subsection membership for an item was questioned when the item-total correlation statistic for the subsection analysis was less than the item-total statistic for the entire scale. In such cases, three Pearson Product Moment Correlation coefficients were generated between the item and each of the other three subsections to determine the rightful placement of the item in the scale. As a function of this type of analysis, seven items were relocated, six items

were modified, and two items were deleted. Nevertheless, the original item order and respective option stem placements of Section I were maintained where possible. One additional modification in Section I involved the wording and print features of the examiner instructions that appeared on pages I-A and I-AE. The revision featured improved wording as well as a more readable display.

The demographic characteristics of the pilot subjects may have played some role in determining responses seen in Sections I and III. However, in Section II, these characteristics played a key role in determining response patterns for many of the items. Therefore, because of the limited range of demographic diversity seen in the pilot sample, the statistical analysis of data for Section II had less impact on the outcome of the item analysis process. As a result, only two items were deleted from the pilot version of Section II. The main emphasis in revising Section II involved the aforementioned practical considerations which resulted in the following substantive changes; improved examiner scoring guidelines for eight items, the re-ordering of twenty-one items, the revision and streamlining of nine items, the inclusion of three new items and the provision of three additional scoring options.

An innovative feature created for the Section II revision involved the use of total raw scores from Sections III-A and III-B. These scores

essentially represented the caretaker's level of emotional well being (Section III-A) and the level of stress experienced by the caretaker as a function of parental role demands and available social support (Section III-B). A problematic or high-risk III-A or III-B score, resulted in an Add 6 or Add 9 score in Section II. In effect, these Add scores represented the child's stress exposure risk as a result of being raised by an emotionally high-risk and/or highly stressed caretaker.

An analysis of Section III-A data resulted in the following modifications; a combining of two items, the addition of three new items and the deletion of one item. Section III-B modifications involved the deletion of two items. The last item in Section III-B remained as a qualitatively evaluated option. With regard to modifications seen in Section III-C (the embedded five item Distortion Index), one item was reworded, one item was deleted and a new item was added.

The record form developed for the revised scale was also reduced from 13 to 9 pages in length. In addition, the revised record form was reorganized to facilitate administration and totalling of subsection and section scores. The restructured score summary on page one of the record form also facilitated a more clear cut interpretation of Section III as a whole and of Section III-C in particular. Although the total number of items in the revision increased from 242 to 243 scoreable options, the 35

minute administration time for the pilot scale was reduced by approximately 5 minutes in the revision because of: the streamlined wording and formatting of items, a more effective item clustering and ordering, a more efficient record form, and the provision of clearer scoring guidelines.

In attempting to assess the scale's ability to predict emotionally vulnerable child and family populations, a concurrent validity study of the revised SRS became the next order of business.

Revised SRS Concurrent Validity Study

Subjects

The initial sample involved 336 primary caretakers who were interviewed regarding 364 of their children. Twelve of the interview protocols were judged invalid, which left 352 valid child protocols that were obtained from the remaining 324 respondents. This was possible since 28 caretakers were interviewed regarding two of their children. An analysis of the 324 caretakers suggested the following relational characteristics: 292 were biological mothers, 19 were biological fathers, 9 were adoptive mothers, 3 were grandmothers, and 1 was an uncle. It should be noted that fifty of these caretakers were also single parents. From the sample of 292 biological mothers, 26 spouses took part in the interviews. However, in all cases, the protocols that reflected the mothers'

responses were utilized since it was determined that the mother was the primary caregiver for each of their respective children.

A review of Table 12 which outlines various demographic characteristics as a function of membership in the diagnostic study group suggests a more diverse population of subjects relative to the sample that participated in the pilot study. With the exception of one subject from Seattle, Washington, the families represented in the current validity study resided in 43 rural, urban and suburban communities spread over the northern half of Illinois. These communities included: (in alphabetical order) Alsip, Blue Island, Calumet Park, Chicago, Chicago Ridge, Crestwood, Crystal Lake, Dakota, Deerfield, Dixmoor, Elizabeth, Frankfort, Freeport, Glenview, Grayslake, Harvard, Highland Park, LaGrange Park, Lansing, Libertyville, Lincolnshire, Lincolnwood, Lynwood, Morton Grove, Niles, Normal, North Chicago, Northbrook, Oak Lawn, Orland Park, Park Ridge, Pearl City, Posen, Rock City, Rolling Meadows, Skokie, South Chicago Heights, South Holland, Stockton, Tinley Park, Vernon Hills, and Wauconda.

The 352 children described in the study ranged in age from 3-0 to 12-11. With the exception of 7 three-year-olds who were still at home full time, all of the children were enrolled in nursery school, day care programs, and public or private elementary school classes ranging from

TABLE 12

A Comparative Summary of Sample Demographic Characteristics
Across Diagnostic Groups

<u>Variable</u>	<u>Group One</u> <u>N=133</u>	<u>Group Two</u> <u>N=113</u>	<u>Group Three</u> <u>N=106</u>
Age (Months)			
Mean	91.9	91.7	92.5
Gender			
Male	66	67	78
Female	67	46	28
Ethnicity			
White	88%	83%	88%
Black	3%	5%	5%
Hispanic	3%	8%	5%
Asian-Others	6%	4%	2%
Occupation (H-H)			
Professional	37%	33%	24%
Exec-Mgmt	13%	6%	9%
Self-Proprietor	11%	14%	7%
Tech-Sls-AdSup	24%	13%	28%
Service	4%	7%	9%
Craft-Repair	2%	10%	8%
Operators Labor	6%	10%	5%
Studet-Unempld	2%	5%	7%
Unknown	1%	2%	3%

Table 12--continued

<u>Variable</u>	<u>Group One</u> <u>N=133</u>	<u>Group Two</u> <u>N=113</u>	<u>Group Three</u> <u>N=106</u>
Education (H-H)			
Some HS/less	1%	8%	10%
Completed HS	17%	24%	25%
Post HS-			
Some College	20%	18%	20%
College Degree	24%	22%	23%
Some Grad Schl	4%	1%	6%
Grad Schl Degr	33%	26%	14%
Unknown	1%	1%	2%
Age Group (Yrs)			
(3-4)	25	13	11
(5-6)	29	32	34
(7-8)	35	31	28
(9-12)	44	37	33

Demographic VariablesStatistical Significance

Age (Months) by Diagnostic Group	p = .9708 (F prob., One-way Anova)
Gender by Diagnostic Group	p = .0010 (Chi-Square)
Ethnicity by Diagnostic Group	p = .2399 (Chi-Square)
Occupation by Diagnostic Group	p = .0038 (Chi-Square)
Education by Diagnostic Group	p = .0018 (Chi-Square)

kindergarten through seventh grade. Nearly half of the entire study sample (N=159) had been formally diagnosed as handicapped. They were receiving special education services as a function of being labeled behavior disordered/emotionally disturbed (N=106), learning disabled/developmentally delayed (N=49), or mildly retarded (N=4).

The 133 children from Group One, the diagnostic study group defined as low risk for developing or possessing emotional/behavioral disorders, ranged in age from 3-0 to 12-2 with a mean chronological age of 7-8 (91.9 months). Group Two, the moderate risk sample, consisted of 113 children ranging in age from 3-0 to 12-11, with a mean chronological age of 7-8 (91.7 months). The 106 children in Group Three, the high-risk population, ranged in age from 3-7 to 12-10, with a mean chronological age of 7-9 (92.5 months). As can be seen from Table 12, Group One, the low risk group, had a fairly equal balance of boys and girls. In contrast, Groups Two and Three manifested a gender imbalance which unsurprisingly favored boys by a margin of 58 and 74 percent respectively.

For the purposes of examining developmental trends, four normative age groups were established with the intent of creating an approximately equal number of subjects for each age group. The youngest age group was composed of 3 and 4-year-olds, followed by a 5 and 6-year-old group, a 7 and 8-year-old group and the oldest group of children

consisting of 9, 10, 11 and 12-year-olds. Table 12 also illustrates the size of the four normative age groups as a function of their diagnostic study group affiliation.

Procedure

The parents and guardians of the 352 child subjects were administered the SRS within the offices of their children's respective school buildings. The investigator conducted 33 of the interviews. The remaining 319 interviews were conducted by other professional staff members from the school district and special education cooperative programs that were involved. They included 21 social workers, 5 social worker interns, 5 psychologists, 5 psychologist interns and 1 special education administrator. Each of these individuals was carefully trained by the investigator to properly administer and score the SRS.

As can be seen from an examination of the total sample, two types of subjects took part in the study. The first category involved children who were scheduled to undergo case study evaluations or re-evaluations in order to establish or re-establish eligibility for special education programming. The SRS was included in either the social history or psychological component of each case study since the type of information elicited by the SRS is normally gathered in such evaluations. In the process of obtaining standard written consent to conduct these evaluations, parents

were informed of the procedures that would be utilized including a description of the SRS instrument. Evaluators routinely included the SRS in evaluations that were scheduled in their respective settings between December 1988 and June 1990. However, because of the lack of comprehensive normative information that was available for the revised form of the SRS, evaluators were restricted to the use of a criterion-related item analysis of each profile for their own diagnostic purposes. It is important to point out that this process insured that the SRS scale profile would not be a factor in the eventual diagnostic outcome of each case. Slightly fewer than half of the subjects in the study ($N=173$) were administered the SRS under these realistic "field" conditions.

The second category of subjects involved 179 presumably non-handicapped children. With the exception of 7 three-year-olds, these subjects were attending regular day care programs or nursery school through seventh grade classes. Since such children typically would not be involved in any special education evaluation efforts, their parents needed to volunteer their support by signing a consent form. The consent form emphasized the following three points; their participation was entirely voluntary, they could withdraw from the study at any time, and the study results for their child and family would remain entirely confidential. Between December 1988 and March 1990, a brief letter, which described

the study and these accompanying points, was sent home with children in regular education classes at cooperating public schools. Interested parents were asked to sign the consent form on the back of each letter and return it to their child's school in order to arrange for an SRS interview. A copy of this letter is included in the Appendix. When the same parent was interviewed regarding two children, the following procedure was utilized: Section I was administered for child 1, Section II was administered with a simultaneous focus on both children, Section III-A was administered, Section III-B was administered with a simultaneous focus on both children, then Section I with focus on child 2.

Statistical Analyses

The obtained data was analyzed primarily through a multiple discriminant analysis technique. Since three a priori defined diagnostic groups were established, the analysis focused on the ability of a set of metric independent predictor variables of the SRS to discriminate across the diagnostic groups. Each of the following sections of the SRS were utilized as an independent variable: Parts A through D of Section I, Section II, and Parts A and B of Section III.

First of all, a Chi Square technique was used to assess whether statistically significant differences exist across group centroids. The following question was addressed: Is there a significant difference between

weighted group means of the seven SRS variables when comparing individuals who belong to each of the three a priori diagnostic groups? If significant differences were found, then the analysis proceeded to the next step. Discriminant functions were computed using the direct entry format. Then a classification matrix was created to assess the predictive accuracy of these functions. This involved the establishment of SRS cutting scores to serve as criterion points in determining to which diagnostic group an individual would be most likely to belong as a function of his or her SRS profile. The proportional chance criterion model assessed the accuracy of the classification's "hit ratio." An analysis of discriminant weights and loadings also aided in determining the relative importance of each SRS variable in accurately discriminating across the three diagnostic groups.

Since the SRS revision is still in a developmental phase, a secondary objective in statistically analyzing the obtained data was to further refine and revise the scale. To this end, an in-depth item analysis was conducted. This item analysis process involved an examination of the extent to which SRS items contribute to the scale's reliability and criterion-related validity. Consequently, a Cronbach Alpha analysis of items was implemented. Other item analysis procedures as outlined in the pilot study section were utilized as part of the overall scale refinement process.

Chapter Summary

Chapter III addressed the second goal of the study, the development and validation of an objectively scored, theory based parent interview instrument, the Stressor Risk Scale (SRS). The SRS was designed to assess potential emotional vulnerability in children as a function of stress exposure in three areas: perceived child personality-temperament characteristics, stress related life events history of the child and family, and parental personality characteristics and attitudes.

The first part of Chapter III reviewed the scale's development, design features, applications, and an initial pilot study. The second part of Chapter III described a concurrent validity study of the revised SRS. It was hypothesized that SRS scores would accurately predict and differentiate among three groups of children presumed to possess a low, moderate or high-risk emotional and/or behavioral status by virtue of actual adaptive functioning in their school settings. The concurrent validity study's research design, sample characteristics, group selection guidelines, and procedures for data collection and statistical analyses were also detailed in this chapter.

CHAPTER IV

SCALE VALIDATION RESULTS

Goal two of the study was crafted in an attempt to operationalize the concept of Adaptive Emotional Resiliency via the development and validation of the Stressor Risk Scale. In this chapter, the presentation and statistical analysis of data related to this goal is articulated.

The central hypothesis of the SRS concurrent validity study was that the SRS scores would accurately differentiate among three preselected groups of children. These groups of children, by virtue of actual adaptive functioning in their respective school settings, were presumed to possess a low, moderate, or high-risk emotional and/or behavioral status.

As a starting point with respect to testing the overall hypothesis, mean score comparisons of the seven SRS predictor variables across diagnostic groups are presented in Table 13. These data also are cross-

TABLE 13

Summary of SRS Predictor Variable Mean Scores
by Gender and Diagnostic Group Membership

Group One

<u>SRS Variables</u>	<u>N=66 Male</u>	<u>N=67 Female</u>	<u>N=133 Total</u>
PARTIC*	35.7	35.7	35.7
PARTMD*	37.3	39.8	38.5
PARTSO*†	29.1	31.9	30.5
PARTCT*	34.3	36.8	35.5
TOTLIFE*	37.2	40.7	39.0
TOTATT*	13.9	15.7	14.8
SUPFRUS*	3.2	3.4	3.3
TOTPER*	136.3	144.2	140.3

Group Two

<u>SRS Variables</u>	<u>N=67 Male</u>	<u>N=46 Female</u>	<u>N=113 Total</u>
PARTIC*	50.0	48.7	49.5
PARTMD*	48.1	50.3	49.0
PARTSO*	35.6	37.2	36.2
PARTCT*	49.1	45.6	47.7
TOTLIFE*	67.6	71.8	69.3
TOTATT*†	21.1	25.1	22.7
SUPFRUS*	5.7	5.4	5.5
TOTPER*	182.7	181.8	182.3

Table 13--continued

<u>Group Three</u>			
<u>SRS</u> <u>Variables</u>	<u>N=78</u> <u>Male</u>	<u>N=28</u> <u>Female</u>	<u>N=106</u> <u>Total</u>
PARTIC*	64.8	62.1	64.1
PARTMD*	61.9	62.7	62.1
PARTSO*	48.0	48.7	48.2
PARTCT*	59.6	61.1	60.0
TOTLIFE*†	90.6	105.8	94.6
TOTATT*	26.8	29.8	27.6
SUPFRUS*	8.2	8.3	8.2
TOTPER*	234.3	234.6	234.4

PARTIC: Section IA.....Inhibitory Control
 PARTMD: Section IB.....Mood State
 PARTSO: Section IC.....Social Orientation
 PARTCT: Section ID.....Coping Tendencies
 TOTLIFE: Section II.....Stressful Life Events
 TOTATT: Section IIIA.....Parental Personality Characteristics
 SUPFRUS: Section IIIB.....Parental Role Frustration
 TOTPER: Section I.....Total Score

Group One: low risk, Group Two: moderate risk, Group Three: high risk

*Equality of total group means between diagnostic groups rejected at $p=.0000$ (F prob., One-way Anova).

†Equality of gender group means within diagnostic groups rejected at $p<.05$ (t-test, independent samples, 2-tail prob.).

Note: TOTPER was not utilized as a predictor variable for this study.

broken across genders within each diagnostic group. Substantial separation exists between diagnostic groups in the mean scores of each predictor variable. The lowest mean scores for each variable are found in Group One (the low risk group). An appreciative increase in mean scores is noted for Group Two (the moderate risk group). By far the highest mean scores are in evidence for Group Three (the high-risk group). These scoring pattern increments seem relatively uniform across the seven variables. Comparisons of gender score differences within each diagnostic group suggest that the sex of the subjects had no significant bearing on SRS scores for four of the seven predictor variables. However, in the case of the other three variables, PARTSO (social orientation), TOTLIFE (stressful life events), and TOTATT (parental personality characteristics), a slightly higher risk profile emerged for females in each of the three diagnostic groups.

Table 14 also provides comparisons of predictor variable mean scores as a function of diagnostic group membership. However, in contrast to Table 13, which separates this information by gender, Table 14 contains an analysis of the predictor scores by chronological age groupings in an attempt to detect possible developmental trends. Comparisons of age differences within each diagnostic group suggest that maturational factors do not play a role in determining SRS scores for six of the predictor

TABLE 14

Summary of SRS Predictor Variable Mean Scores
by Age Group and Diagnostic Group Membership

<u>Group One</u>				
<u>SRS</u> <u>Variables</u>	<u>N=25</u> <u>AGEGRP 1</u>	<u>N=29</u> <u>AGEGRP 2</u>	<u>N=35</u> <u>AGEGRP 3</u>	<u>N=44</u> <u>AGEGRP 4</u>
PARTIC	35.6	37.7	35.7	34.4
PARTMD	39.6	38.2	39.1	37.7
PARTSO	31.2	29.2	32.1	29.7
PARTCT	35.4	33.4	37.2	35.7
TOTLIFE	31.8	40.7	40.1	41.0
TOTATT	14.1	15.8	15.6	14.0
SUPFRUS	3.2	3.4	3.6	3.0

<u>Group Two</u>				
<u>SRS</u> <u>Variables</u>	<u>N=13</u> <u>AGEGRP 1</u>	<u>N=32</u> <u>AGEGRP 2</u>	<u>N=31</u> <u>AGEGRP 3</u>	<u>N=37</u> <u>AGEGRP 4</u>
PARTIC	51.8	51.3	51.2	45.6
PARTMD	44.0	46.9	54.5	48.0
PARTSO	35.8	34.8	37.9	36.3
PARTCT	46.2	47.8	46.3	49.2
TOTLIFE*	49.0	67.2	67.8	79.7
TOTATT	21.8	20.0	23.8	24.4
SUPFRUS	5.0	6.2	5.5	5.3

Table 14--continued

<u>SRS</u> <u>Variables</u>	<u>Group Three</u>			
	<u>N=11</u> <u>AGEGRP 1</u>	<u>N=34</u> <u>AGEGRP 2</u>	<u>N=28</u> <u>AGEGRP 3</u>	<u>N=33</u> <u>AGEGRP 4</u>
PARTIC	67.1	62.2	67.9	61.8
PARTMD	63.5	57.6	66.4	62.7
PARTSO	53.5	46.9	48.7	47.3
PARTCT	60.5	60.0	57.6	61.8
TOTLIFE*	82.4	90.6	87.3	108.9
TOTATT	27.7	27.6	24.8	29.9
SUPFRUS	8.9	7.8	8.8	7.9

AGEGRP 1: 3 and 4-year-olds

AGEGRP 2: 5 and 6-year-olds

AGEGRP 3: 7 and 8-year-olds

AGEGRP 4: 9, 10, 11, and 12-year-olds

*Equality of AGEGRP means within diagnostic groups rejected at $p < .05$ (F prob., One-way Anova).

variables. As expected, chronological age does seem to be related to the TOTLIFE variable. A very modest increase in TOTLIFE scores was seen in the older children belonging to Group One, whereas substantial increases in TOTLIFE scores were noted in the older subjects belonging to Groups Two and Three. Nevertheless, it would appear, as suggested in Tables 13 and 14, that SRS predictor variable scores are in general more closely related to a given subject's membership in a diagnostic study group than to his or her gender or age.

Given the large amount of data collected on the 352 subjects, the technique of discriminant analysis (Tatsuoka, 1971) was used to contrast the three diagnostic groups. Since the analysis focused on the ability of all seven metric independent predictor variables of the SRS to discriminate among diagnostic groups, a direct entry format for computing the discriminant function was chosen. The direct entry format permitted simultaneous evaluation of the discriminating power of all the variables.

Two discriminant analyses using a direct entry format were eventually carried out. The first, a multiple discriminant analysis, was performed using all three groups: Group One, the low risk non-handicapped group, Group Two, the moderate risk group, and Group Three, the high-risk behavior disordered/emotionally disturbed group. For the second analysis, the moderate risk group was eliminated and the

analysis was performed only on Groups One and Three. This was done to provide a clearer contrast between non-handicapped and behavior disordered/emotionally disturbed populations.

The results of the multiple discriminant analysis involving the three group sample are presented in Table 15 and are discussed first. This analysis produced two discriminant functions. Each proved to be significant in separating the three diagnostic study groups, although the first function was substantially more discriminating. When plotting the location of the group centroids, a substantial separation of the three study groups was noted on the first discriminant function. A Chi-Square statistic suggested that Function 1 was highly significant ($p=.0000$). Also listed in Table 15 are the group centroid locations for the second function. Although separation was far less marked on Function 2, the Chi-Square generated for this function also reached statistical significance ($p=.0240$). Ultimately, this discriminant analysis was able to classify with accuracy 78.98 percent of the subjects into their preselected groups. A Huberty z statistic (Stevens, 1986) determined this classification accuracy result as being statistically significant ($z=17.913$, $p=.0000$). An analysis of the standardized discriminant weights and loadings (structure correlations) suggested that of the seven predictor variables, PARTIC (inhibitory control), PARTCT (coping tendencies) and TOTLIFE (stressful life

TABLE 15

Summary of Direct Entry Multiple Discriminant Analysis, Three Groups

Group Centroid Locations .

<u>Group</u>	<u>Function 1</u>	<u>Function 2</u>
One	-1.58647	-0.13255
Two	0.08612	0.29997
Three	1.89877	-0.15346

Standardized Canonical Discriminant Function Coefficients

<u>SRS Variables</u>	<u>Function 1</u>	<u>Function 2</u>
PARTIC	0.37974	0.21115
PARTMD	0.18759	-0.01103
PARTSO	0.17215	-1.01860
PARTCT	0.32080	0.48526
TOTLIFE	0.48968	0.19833
TOTATT	-0.00960	0.37566
SUPFRUS	0.10611	-0.16590

Table 15--continued

Classification Results

<u>Actual Group</u>	<u>N</u>	<u>Predicted Group Membership</u>		
		<u>One</u>	<u>Two</u>	<u>Three</u>
Group One (low risk)	133	114 85.7%	17 12.8%	2 1.5%
Group Two (mod. risk)	113	20 17.7%	78 69.0%	15 13.3%
Group Three (high risk)	106	0 0.0%	20 18.9%	86 81.1%

Percent of "Grouped" cases correctly classified: 78.98%

events) were of the greatest importance in discriminating among the three study groups. In contrast, TOTATT (parental personality characteristics) and SUPFRUS (parental role frustration) were of least relative importance as predictors, although collinearity issues may have disguised their predictive contributions.

The results of the second discriminant analysis, involving Groups One and Three, are presented in Table 16. Since only the low and high-risk groups were involved in this analysis, one discriminant function was generated. In an examination of group centroid locations, this function proved to be highly significant in separating subjects in Group One from those belonging to Group Three. A Chi-Square estimate suggested statistical significance ($p=.0000$). In eliminating the more heterogeneously defined moderate risk subjects of Group Two, the classification accuracy results obtained with this function were better than the results achieved for the three groups. In this case, the overall rate of 96.23 percent reflects a high degree of precision in classifying both non-handicapped and behavior disordered/emotionally disturbed subjects. This classification accuracy result was also determined to be statistically significant ($z=14.103$, $p=.0000$). Although the relative importance of the seven predictor variables in discriminating between the two groups seemed to mirror the pattern that was noted in the three group analysis, the SUPFRUS variable

reflected a greater level of importance in this latter analysis.

In an attempt to further evaluate the relative discriminating power of the independent variables, two additional multiple discriminant analyses were carried out using a stepwise format (Wilks). Table 17 provides a summary of the first stepwise analysis; the absolute sizes of the significant F -values associated with each predictor variable were rank ordered. PARTIC, PARTCT and TOTLIFE surfaced again as being able to provide a relatively high level of discriminative power in differentiating the three study groups. As in the earlier analysis, SUPFRUS and TOTATT were of least importance. In this case, the F level for TOTATT was insufficient for it to be included in the analysis. Concerns had arisen during the item analysis process regarding the effectiveness of TOTATT as a predictor variable. Through item analysis, it seemed that of the seven predictor variables, TOTATT was most adversely affected when respondents obtained a moderate or high Distortion Index score. When respondents were engaged in socially desirable and/or defensive responding, such tendencies seemed to distort their TOTATT scores more than other variables. For these respondents, the TOTATT scores seemed to have limited predictive value. Therefore, the second multiple discriminant analysis, as seen in Table 18, evaluated only those subjects from each group who had obtained a low Distortion Index rating. Subsequently,

TABLE 16

Summary of Direct Entry Discriminant Analysis, Two Groups

Group Centroid Locations

<u>Group</u>	<u>Function 1</u>
One	-1.46076
Three	1.83284

Standardized Canonical Discriminant Function Coefficients

<u>SRS Variables</u>	<u>Function 1</u>
PARTIC	0.35965
PARTMD	0.10856
PARTSO	0.22744
PARTCT	0.29737
TOTLIFE	0.41923
TOTATT	-0.04294
SUPFRUS	0.16410

Table 16--continued

Classification Results

		Predicted Group Membership	
<u>Actual Group</u>	<u>N</u>	<u>One</u>	<u>Three</u>
Group One (low risk)	133	128 96.2%	5 3.8%
Group Three (high risk)	106	4 3.8%	102 96.2%

Percent of "Grouped" cases correctly classified: 96.23%

TABLE 17

Summary of Stepwise Multiple Discriminant Analysis, Three Groups

<u>Variable Entered</u>	<u>Equivalent F</u>	<u>Significance</u>
1. PARTIC	171.8520	.0000
2. TOTLIFE	105.7850	.0000
3. PARTSO	81.5080	.0000
4. PARTCT	65.8590	.0000
5. PARTMD	53.5612	.0000
6. SUPFRUS	44.8060	.0000

TABLE 18

Summary of Stepwise Multiple Discriminant Analysis,
Three Groups - Low Distortion Index Subjects

<u>Variable Entered</u>	<u>Equivalent F</u>	<u>Significance</u>
1. PARTIC	113.1610	.0000
2. TOTLIFE	75.5080	.0000
3. PARTCT	56.3030	.0000
4. PARTMD	44.3470	.0000
5. PARTSO	36.3390	.0000
6. SUPFRUS	30.6960	.0000
7. TOTATT	26.5030	.0000

100 subjects were eliminated from this analysis, which left 252 subjects fairly equally divided among the three groups. In evaluating these more "truthful" respondents, the TOTATT variable was included in the stepwise analysis as the last of the seven variables. Consequently, TOTATT's predictive powers were more evident with this sample.

The last goal of the study was aimed at revising the SRS with the intent of further improving its psychometric characteristics. An in-depth item analysis was conducted which examined the extent to which SRS items contributed to the scale's reliability and criterion-related validity. The general approach utilized in this scale refinement process was discussed at length in the Pilot SRS Study section.

The Cronbach Alpha analysis implemented on the 60 items of Section I, TOTPER (child personality characteristics), resulted in an Alpha coefficient of .95. A Cronbach Alpha analysis was also conducted on each of the four subsections belonging to TOTPER. PARTIC (inhibitory control) obtained an Alpha coefficient of .86, PARTMD (mood state) obtained a coefficient of .89, PARTSO (social orientation) had an Alpha coefficient of .80, and PARTCT (coping tendencies) resulted in an Alpha of .83. A further analysis of this section resulted in deleting one item from PARTMD, two items from PARTSO, and the combining of two items into one in PARTCT.

The Cronbach Alpha analysis implemented on the 128 items of Section II, TOTLIFE (stressful life events), resulted in an Alpha coefficient of .90. Items in this section involving child care, school difficulties, family finances, and marital issues manifested the highest item-total correlations. Such thematic items were particularly predictive of the overall section score when factors related to instability were involved. Although only one-third of the items in this section were perception oriented as opposed to fact oriented, of the 34 best items in Section II (as determined by item-total correlations), 18 were perception oriented. A further analysis of Section II resulted in the deletion of three items, the rescoring of three items, and the reformatting and combining of two items into a single item.

The Cronbach Alpha analysis implemented on the 40 items of Section IIIA, TOTATT (parental personality characteristics), resulted in an Alpha coefficient of .86. Items in this section involving self-esteem, satisfaction, social support, and anxiety-conflict issues manifested the highest item-total correlations. A further analysis of Section IIIA resulted in the reformatting of one item such that it was transferred to Section IIIB. An examination of the five Distortion Index items of Section IIIC, DISTORT, which were randomly embedded in Section IIIA, suggested that no change was required in this subsection. The Alpha coefficient for

Section IIIC was .54.

The Cronbach Alpha analysis implemented on the 9 parental role frustration items of Section IIIB, SUPFRUS, resulted in an Alpha coefficient of .62. Because of the addition of the reformatted item that was transferred from Section IIIA, SUPFRUS becomes a 10 item section.

Chapter Summary

In Chapter IV, data from the concurrent validity study was presented and analyzed. The seven SRS predictor variables were evaluated as a function of gender, age, and diagnostic group membership. The statistical procedures that were utilized in the data analyses included; direct entry and stepwise multiple discriminant analyses, t-tests, analysis of variance, and Chi-Square statistics. In order to further refine the scale, a Cronbach Alpha analysis of SRS items was also implemented. The results of the item analysis process suggested that the SRS was a highly reliable instrument relative to its internal consistency in Sections I, II, and IIIA. Although the internal consistency indices for Sections IIIB and IIIC were lower than desired, both of these sections made an important contribution in terms of their ability to provide valuable diagnostic information.

The statistical analyses of SRS predictor variable data in Chapter IV served as the basis for generating summative conclusions regarding the concurrent validity study. Consequently, Chapter V details concurrent

validity study conclusions related to; scale and subscale discriminant accuracy, interrelationships of SRS predictor variables, gender and demographic variable effects, administrative considerations, empirical support for selected aspects of emotional resilience theory, and links of generalized stress to psychological disorders in children.

CHAPTER V

DISCUSSION

As noted in Chapter I, there has been a paucity of evidence regarding links of generalized stress and stressful life events to psychological disorders in children (Colton, 1985; Yamamoto, et al., 1987). The development and validation of a stress assessment device was viewed as a means of detailing such links. Of particular interest was the possibility that certain children were more vulnerable than others to the effects of stress.

Because of the complexity of the intended investigative journey, it was necessary to develop a theoretical perspective before undertaking the construction of the proposed instrument. Therefore, the first goal of this study was concerned with the development of a viable theory of emotional resilience. This goal was addressed in Chapter II. A coherent theoretical framework emerged which led to the concept of Adaptive Emotional Resiliency. Simply stated, Adaptive Emotional Resiliency represented the capacity of the individual to maintain mastery and competence in the face of exposure to stress.

The newly conceived theory served as the structural foundation upon which the stress assessment device was developed and validated. Although the objective measurement of emotional resilience was beyond the scope of the present inquiry, the second goal of this study represented an initial step in operationalizing the construct of Adaptive Emotional Resiliency. In pursuing this goal, it was pointed out that before one can validly assess an individual's level of emotional mastery in the face of stress, it is necessary to gauge accurately that individual's exposure to stress. Therefore, goal two of the study was concerned with the development of the Stressor Risk Scale (SRS), an objectively scored parent interview instrument. The SRS was designed to assess potential emotional vulnerability in the child as a function of stress exposure in three areas: perceived child personality-temperament characteristics, the stress related life events history of the child and family, and parental personality characteristics and attitudes. The development and characteristics of this instrument were detailed in Chapter III.

In addition to enhancing the general psychometric properties of the SRS, goal two involved a concurrent validity study of the SRS. In the concurrent validity study, which represented the major empirical focus of the research endeavor, it was hypothesized that SRS scores would predict and differentiate across three groups of children. Although no pure

underlying continuum of emotional risk was assumed, these groups were presumed to possess a low, moderate, or high-risk emotional and/or behavioral status by virtue of actual adaptive functioning in their school settings. Sample characteristics and group selection procedures were also detailed in Chapter III.

The data reported in the multiple discriminant analyses indicated that the SRS was able to discriminate with a high degree of accuracy those children who were adaptively functioning in their respective school settings from those who were functioning poorly. A fair degree of discriminative accuracy was even evident in identifying moderate risk subjects, despite the fact that this group had a diagnostically diverse composition. Particularly noteworthy in the three group analyses was the fact that few children were grossly misclassified. Significant false positives (e.g., Group One children predicted to be in Group Three) were rare, and significant false negatives (e.g., Group Three children predicted to be in Group One) did not occur.

The concurrent validity investigation also identified the respective contributions of specific factors of the SRS in predicting emotionally adaptive and maladaptive outcome behaviors. Results related to this analysis indicated that all seven SRS predictor variables were able to classify low, moderate, and high-risk children at statistically significant levels. The relative weakness noted in the SUPFRUS and TOTATT

variables as predictors should be interpreted cautiously, since it seemed likely that their discriminant weights had been partialled out because of a high degree of multicollinearity that they shared with other variables (e.g., SUPFRUS was correlated significantly with PARTIC and other Section I variables, and TOTATT was correlated significantly with TOTLIFE). Issues related to responding distortion practices also negatively impacted on the TOTATT variable. Consequently, the importance of these two variables in predicting child outcome behaviors may be greater than the current data suggest.

In contrast, the variables that consistently manifested the highest discriminative power were PARTIC, PARTCT, and TOTLIFE. In view of the Adaptive Control process as it related to the theory of Adaptive Emotional Resiliency, it was not surprising that PARTCT, the prototypical way an individual is able to respond to a variety of survival and growth demands in order to manage the environment, was such a powerful predictor of stress exposure and related behavioral outcomes. The theory underpinning Adaptive Emotional Resiliency also would have predicted TOTLIFE, the stressful life events history of the child and family, to be an important contributor. Furthermore, it would seem from an item analysis of TOTLIFE that many of the superior items in this section were related to issues of instability. Such evidence clearly supports one of the cornerstone

assumptions of the resilience theory related to Fraiberg's (1977) prerequisite attachment conditions of continuity and stability. An analysis of TOTLIFE diagnostic group scores as a function of chronological age groupings provides additional support for one of the central tenets of the proposed theory, that emotional development unfolds along transactional lines (Sameroff and Chandler, 1975). In the low risk group, although the mean TOTLIFE score was minimal for the youngest children, it did not increase appreciably in the older groups. In the moderate and high-risk groups, mean TOTLIFE scores were substantially higher in the youngest children, yet substantial increases in the scores of their older counterparts were reflected in both of these diagnostic groups. A transactional interpretation of these data would suggest that the situational life event stresses to which a child and his or her family are exposed in the first 3 to 4 years of the child's life may set into motion a chain of events which in effect creates and maintains its own momentum. If a child's life begins in a relatively stress-free environment, his or her future stress exposure will be likely to be minimal. On the other hand, a high degree of stress exposure in a child's early years is likely to result in an ever expanding web of misfortune over time. The mean TOTLIFE score for the 9 to 12-year-olds of the low risk group was less than half of the mean score obtained by the 3 and 4-year-olds group of the high-risk sample. In addition, for the oldest

children in the high-risk group, the mean score was nearly triple the size of the mean score reported in the same aged children of the low risk group. The high quality of the chronic perception oriented items in Section II also provided empirical support for the mediating role of cognitive appraisals in psychological stress. This support accented the value of including such items in a stressful life events measure.

The single best SRS variable that predicted stress exposure and related adaptional behaviors was PARTIC, the individual's self-regulating system which controls attention span, motoric activity, reaction intensity, and impulse inhibition. Given the critical theoretical role this temperamental dimension was assigned in the shaping of the Adaptive Control process, it stands to reason that possession of a defective "braking" system would serve as the best single predictor on the SRS of maladaptive emotional and/or behavioral outcomes in both school and home settings. It was noted in Chapter II that at the extreme maladaptive end of this dimension were children who had been described as hyperactive. Many of these children were diagnosed as possessing an Attention Deficit Disorder (Cantwell, 1982) or by the more recent term Attention-deficit Hyperactivity Disorder (ADHD) (Parker, 1990). Of the 352 children who took part in the validity study, 23 had been formally identified as possessing an Attention-deficit Hyperactivity Disorder. Examination of the

characteristics of these 23 children validates the contention that such children are predisposed to highly maladaptive functioning. In this sample, 19 were male and 4 were female, a gender imbalance not atypical of ADHD populations (Parker, 1990). The average age of the ADHD group was 87 months as compared to 92 months for all study subjects combined. With regard to diagnostic study group membership, 6 of the ADHD children were from the moderate risk group while 17 belonged to the high-risk group. Five of the 23 ADHD children had been identified as learning disabled, 17 were labeled behavior disordered/emotionally disturbed, and one child had no formal special education diagnosis. Within their respective school settings, 13 of the children required a self-contained special education program (5 of these were in segregated day schools), 9 were receiving special education resource services, and one ADHD child was not receiving any special education support. The SRS variable PARTIC distinguished this group as higher risk than even Group Three.

On the surface, the relationship between Sections I, II, and III may seem straightforward. Section I represents stress exposure risk to the child primarily as a function of his or her own personality characteristics, Section II represents stress exposure risk as a function of the stress related life events history of the child and his or her family, and Section III represents stress exposure risk to the child as a function of parental

personality characteristics and attitudes. Although each section makes a unique contribution to a child's stress exposure profile, it also seems clear that these sections in some instances may be significantly interrelated. For example, a high-risk score in Section I typically results in a high-risk score for Section IIIB, since children with difficult temperamental characteristics often frustrate their parents. Section II results also seem modestly linked to Section IIIA responding patterns. High-risk scores on Sections II and/or III can result in elevating Section I risk, since environmental factors do impact on the development of a child's personality traits. Conversely, the more benign that Sections II and III appear in a given profile, the more likely that Section I scores reflect a less "contaminated" vision of a child's internal behavioral predispositions. Therefore, when analyzing a specific SRS profile, it is suggested that careful consideration be given to the possible interrelated effects of SRS variables while at the same time examining their unique contributions.

Prior to evaluating the discriminant analyses data, a concern arose regarding possible confounding because of the effects of a gender imbalance in Groups Two and Three. Research literature suggested that the first decade in the lives of males was generally more stressful than the first decade in the lives of females (Werner and Smith, 1982). If this was an accurate assessment, the ability of the SRS to distinguish high-risk from

low risk subjects would be overestimated for any a priori defined at-risk groups where there were more males than females in comparison to non-handicapped populations which were more evenly balanced. It was apparent in the analysis of SRS variables that no consistent differences appeared within diagnostic groups as a function of gender for four of the seven variables. In the case of PARTSO, TOTLIFE and TOTATT, consistent differences were noted. However, within each diagnostic group, the higher scores for these three variables which reached or approached statistical significance were reported for females. This unexpected and unexplained result dismissed the concern that the hit ratio (percentage of correctly classified subjects) of the SRS in the validity study was inflated as a result of a gender imbalance which favored males in Groups Two and Three. Instead, it could be surmised that the hit ratio and resultant discriminative efficiency of the SRS were mildly underestimated by the study, given the gender imbalance.

This and other studies (Hallahan and Kauffman, 1988) indicate that in elementary age children who are experiencing a variety of difficulties in their school settings, males significantly outnumber females. However, the results of the current study do not suggest that such differences in school functioning are due to greater stress exposure levels in males as defined by SRS variables. As an aside, such a conclusion lends support to Humphrey's

(1984) detailed examination of various public education discriminatory practices directed toward males in their early school years. Perhaps the elementary school environment warrants separate treatment in future studies as a major environmental stressor.

In addition to the gender imbalance noted in Groups Two and Three, a mild to moderate imbalance in socio-economic variables was noted across the diagnostic groups. Although income levels were not systematically evaluated, it would seem that the head of household occupation of Group One subjects represented the professional and managerial ranks in greater numbers than was seen with the head of household occupations of subjects in Groups Two or Three. Head of household subjects of Group One also were somewhat better educated than Group Two or Three subjects. Although it is believed by the investigator that each diagnostic group manifested relatively diverse demographic characteristics, it is possible that socio-economic differences among the groups could have played a modest role in predisposing Groups Two and Three to greater stress exposure. Research evidence has suggested that children of families from lower socio-economic backgrounds are exposed to higher levels of stress than their more advantaged counterparts (Dohrenwend, 1973; Eaton, 1978; Garmezy, 1981; Leiderman, 1983; Sameroff, 1975). Studies have also noted that socio-economically

disadvantaged children may have greater difficulty in adapting to the academic, social, and behavioral expectations of their school environments (Escalona, 1974). Therefore, it would not be surprising to find a socio-economic imbalance when comparing groups of poorly functioning students with those who are functioning adaptively in school. In any event, the observed socio-economic differences among diagnostic groups do not diminish the import of the present study. To the contrary, such differences further support the SRS's ability to accurately differentiate among groups of children of varied emotional and/or behavioral risk status.

In Chapter III, it was reported that of the 352 interviews in the study, 26 had spouses present. Since it was determined that the mother was the primary caregiver in each of the 26 dyads, the protocols that reflected the mothers' responses were utilized. The prospect of a dual respondent SRS interview presents opportunity as well as challenge. On the one hand, the presence of two caretakers, usually the father and mother, offers the unique diagnostic opportunity to observe interaction between the couple. It also affords caretakers a chance to openly examine their respective views regarding child characteristics, family strengths and stresses, and opinions related to their relationships and values. In the controlled environment of the SRS interview, this process may bring such family issues into clearer focus and result in a clarification of future goals and necessary actions.

Consequently, the dual interview can be enlightening for both the interviewer and the respondents involved. On the other hand, in a joint caretaker interview the presence of one's spouse or partner may tend to inhibit the open expression of sensitive concerns, particularly if such concerns are related to one another. Therefore, simultaneously interviewing both caretakers may promote distorted responding tendencies. Such distortions seem to impact most heavily on Section III items. An obvious but time consuming way to minimize these behaviors would involve separate interviews of each caretaker.

In retrospect, it would appear that the investigation described here was an ambitious undertaking. Three major assumptions needed to be substantiated in order for the concurrent validity study to be successfully carried out. The first assumption involved the underlying theory associated with the scale. The SRS needed to possess high quality psychometric characteristics in order to function as an accurate predictive tool. To the extent that initial item development was largely theory based, the theory underpinning the item selection process needed to be on target. Thus, the development of an appropriate theory was a necessary but not sufficient condition to guarantee the validation of the SRS. The second major assumption involved the study's overall hypothesis. The proper assignment of children to one of three diagnostic groups assumed that

specific school manifested behaviors and related school actions were associated with and in fact represented underlying low, moderate, or high-risk emotional postures. The soundness of this hypothesis also hinged on the investigator's ability to make the appropriate linkage between school actions and diagnostic study group membership. Even if the first two assumptions were verified, the study results could still be confounded by a lack of accurate and consistent school district classification practices. Since the subjects of the validity study were derived from 44 demographically diverse communities, this third assumption of classification consistency was potentially the most problematic. It represented an aspect of the study where the investigator had little control. In fact, there is evidence which suggests that some inconsistency exists between school districts in the identification and placement of high incidence special education children (Achenbach and Edelbrock, 1983). On the other hand, some researchers have concluded that children with high incidence school difficulties are accurately diagnosed and serviced rather consistently across school districts (Wynne and Brown, 1984). Evidence from the present study supports the view of these latter researchers and generally confirms all three assumptions.

Overall, the results of the study have established a measure of concurrent validity for the SRS. Thus, the study has provided empirical

evidence regarding links of generalized stress exposure to psychological disorders in children. Since the test results confirmed the study's hypothesis, a claim to SRS construct validation can also be made. Consequently, the SRS may possess considerable promise as a theory based instrument that is able to provide an objective assessment and profile of the stress exposure vulnerability of the child-family system. The study results also support the use of Section I of the SRS as a measure of adaptive functioning which is sensitive in reflecting healthful, positive traits. When assessing children, this unique focus provides a needed balance in identifying both adaptive behaviors and maladaptive pathological characteristics.

Future research directions involving the SRS point to a need for: additional concurrent validity studies, predictive validity studies, a standardization sample which accurately reflects current demographic patterns of the United States, a standard score reporting format which can be translated into qualitative categories, an abbreviated screening version of the scale, and a systematic item analysis procedure designed to provide a child-family profile. Ultimately, the development of the SRS represents a major step toward establishing a non-biased multi-dimensional assessment system aimed at empirically measuring a child's level of Adaptive Emotional Resiliency on a vulnerable-invulnerable continuum.

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APPENDIX

JANE STENSON SCHOOL

May, 1989

Dear Parents:

Skokie School District 68 is currently participating in a validation study of a parent interview scale which measures child and family stresses. As part of this project, parents who volunteer will be interviewed in order to gain insight into their parenting attitudes and opinions regarding their children, other family members, friends and community related issues. This interview measure will also ask each parent to describe their child's personality characteristics and will survey the past stressful experiences of their child and family. The interview will be arranged at a mutually convenient time and location and will take approximately 30 minutes. Naturally, interview results will remain entirely confidential. In addition, since parent participation is entirely voluntary, parents may withdraw from the study at any time.

If you are interested in taking part in this study, please contact Mr. Jack Joseph (District 68 psychologist) on Mondays or Thursdays at Stenson School (967-9380) or on Tuesdays, Wednesdays, or Fridays at Old Orchard Junior High School (676-9010). We appreciate your consideration and look forward to hearing from you.

Sincerely,

Roger Skerritt
Principal

VITA

The author, Jack Joseph, received a Bachelor of Science degree in mathematics from Northern Illinois University in 1971 and a Master of Science degree in school psychology from Western Illinois University in 1976.

For 20 years, Dr. Joseph has functioned in a variety of educational roles. He began his professional career in 1971 as a special education teacher in Miami, Florida. Since then, he has been actively engaged as a psychologist, administrator, and consultant for various educational institutions and organizations. He has also taught undergraduate and graduate school courses in the past 15 years for three community colleges and two universities.

His research activities have included; the publication of numerous articles, the direction of a study funded by the U. S. Department of Health, Education and Welfare, and the authoring of a personality test that was published in 1979 entitled The Joseph Preschool and Primary Self Concept Screening Test. Dr. Joseph has also presented a number of papers at professional meetings and has delivered over 30 invited presentations including a keynote address for the Sun Foundation Convention in 1984.

Since 1980, Dr. Joseph has been a psychologist and coordinator of special education programs for Skokie, Illinois District 68 Public Schools

APPROVAL SHEET

The dissertation submitted by Jack Joseph has been read and approved by the following committee:

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Professor, School Psychology Program, National-Louis University

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

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

April 17, 1991
Date

Anne M. Juhasz
Director's Signature