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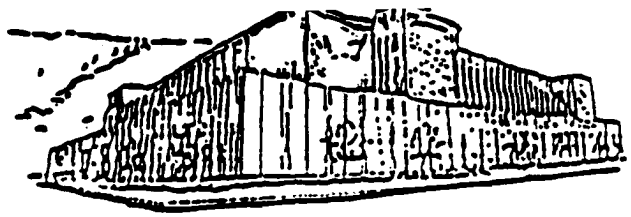
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**A Longitudinal Examination of  
Factors That Ameliorate Risk  
Among Middle School Children**

**By**

**Nicole Pray**

**M.A., University of Montana, 1998**

**B.A., California State University, Chico, 1993**

**Presented in partial fulfillment of the requirements**

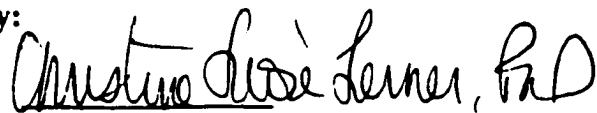
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A Longitudinal Examination of Factors That Ameliorate Risk Among Middle School Students (128 pp.)

Director: Christine Fiore-Lerner, Ph.D. *CF*

Current discussions of risk and resiliency among adolescents reveal disagreement about definitions of risk and protection from risk. Protective mechanisms have been offered to explain the variability in individual outcomes. However, little is known about the way in which these protective factors combine and interact to promote resilience. Research is needed to explain the stability of protective processes over time, particularly during the stressful transition from childhood to adolescence. This study utilized cross-sectional and longitudinal designs to explore a combination of psychosocial and environmental factors that protect adolescents from academic and behavioral problems during the transition to adolescence. A criterion cutoff method of risk classification resulted in a final distribution of 127 High risk (73%) and 48 Low risk (27%) students at the beginning of 6<sup>th</sup> grade. Findings revealed important information about factors that predict more stability versus change in adjustment over time. Changes in academic and behavioral adjustment between 6<sup>th</sup> and 7<sup>th</sup> grade were predicted by a combination of individual and environmental factors, including factors that act as moderators of risk effects in predicting changes over time. These findings highlight the relative importance of individual variables over environmental factors in predicting the degree of change; however, both individual and environmental factors were related to immediate and longitudinal outcomes. Social skills, self-concept, and locus of control predicted better adjustment at the beginning of 6<sup>th</sup> grade. Sixth grade outcomes were also predicted by the interaction between risk and classroom environment, perceived support, and family cohesion. However, the effects of these latter variables appeared to be less important relative to social skills and self-concept. Finally, several mediating relationships were discovered between resource and protective factors. The presence of mediating effects were discussed in light of potential pathways for youth adjustment, where mediator variables were found to more directly influence behavioral and academic adjustment. Findings with protective factors indicate the need for time-sensitive interventions targeting well-defined outcomes among high and low risk youth. Alternatively, findings with resource factors emphasize the need for activities targeting individual characteristics related to positive adjustment for all children during the transition to adolescence.



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## Chapter 1: Introduction

Early attempts to conceptualize the psychology of adolescence involved universal descriptions of this period as a time of stress and turmoil for most all adolescents (Hall, 1904). These approaches attempted to understand the significant characteristics of adolescent development as a direct function of either intrapsychic, biological, or environmental factors. Recent attempts to conceptualize psychological development during adolescence suggest a shift to more integrative and transactional models (Jessor, Donovan, & Costa, 1991; Eccles, Midgley, Wigfield, Buchanan, & Reuman, 1993). The search for universal descriptions of adolescence has been replaced by growing recognition of the wide variability that characterizes development during this time.

This investigation used current findings from risk and resiliency research to investigate a range of variables for their ability to ameliorate the effects of risk among adolescents. First, a discussion of the nature and definitions of risk provides guidelines for the study. Protective mechanisms are then offered to explain the variable outcomes of individuals with high levels of risk. Hypotheses emerged from the review of current findings to guide the investigation. A combined cross-sectional and longitudinal design was utilized to allow for investigation of immediate and long-term effects of protective factors.

### **Understanding Individual Outcomes: Risk Factors**

Awareness of individual differences lead to a burgeoning field of research and social programs targeting factors that place individuals at risk for negative trajectories (Anthony & Cohler, 1987; Garmezy, 1983; 1985). However, a review of the research on risk factors in development reveals considerable disagreement about what exactly constitutes risk. Risk factors were defined by Masten and Garmezy (1985) as variables that increase the likelihood of maladaptive outcomes, including psychopathology. However, research into the effects of risk suggest a lack of consensus on the nature and types of risk (Gore and Eckenrode, 1994). Risk factors have been tied to specific outcomes, as demonstrated in findings that link parental depression and emotional unavailability to insecurity and dependence in their offspring (Toomey and Christie, 1990). However, individuals certainly exhibit variability in development. While there is some specificity in the nature of risk, the majority of the negative outcomes are not directly related to particular risk factors (Seifer, Sameroff, Baldwin, & Baldwin, 1992). This lack of specificity in risk effects is compounded by the presence of multiple risk factors with cumulative effects on development. The term “at-risk” has certainly become a catch-all phrase in the field of prevention; yet, research continues to reflect a need for clarification of what exactly defines risk and how it can be tied to specific outcomes.

Three major conceptualizations of risk currently dominate the literature on risk and require further explanation, including global factors, individual characteristics, and environmental characteristics like acute or chronic stressors. Early research involved identification of static risk factors that were associated with negative outcomes. Global

factors like Socioeconomic Status (Garmezy, 1993; Gore & Eckenrode, 1994; Toomey & Christie, 1990; Egeland, Carlson, & Sroufe, 1993) and parental psychopathology (Werner, 1992; Garmezy, 1993; Grizenko and Pawliuk, 1994) began to receive increasing attention in the prediction of poorer developmental outcomes during later adolescence and adulthood. Similarly, researchers increasingly explored more specific correlates of risk. These included individual characteristics, such as genetic predispositions toward particular disorders or a difficult temperament. Recent attention has been given to environmental or context factors like exposure to violence and/or chronic family stressors.

Other researchers focused their efforts on acute versus chronic adverse events and their association with maladaptive outcomes (Gore & Eckenrode, 1994; Compas, Hinden, and Gerhardt, 1995). Using longitudinal data, Garmezy (1993) identified six risk factors that, when cumulated, were significantly associated with risk of later development of psychiatric disorder in offspring: severe marital discord, low socioeconomic status, overcrowding (several siblings closely spaced)/ family size, paternal criminality, maternal psychiatric disorder, and foster home placement of children. Current findings in the literature on adolescent development continue to reflect the importance of these six variables in distinguishing between individuals with lower and higher probabilities of developing behavioral disorders and psychopathology (Grizenko and Pawliuk, 1994; Compas et al., 1995). However, researchers continue to disagree about the value of searching for more global risk indicators like SES and adverse life events versus the need to study more specific characteristics like parent-child relationship quality that could potentially mediate the effects of stress or global risk (Gore and Eckenrode, 1994; Seifer

et al., 1992; Rutter, 1990).

Studies of cumulative risk have demonstrated that the presence of more risk factors in an individual's life is related to a higher certainty of negative outcome (Seifer et al., 1992; Lehman, Hawkins, and Catalano, 1994). Analyses of various types of risks indicated that specific risk factors were far less important than the total number of risk factors present. Such findings have prompted the use of multiple risk indicators to distinguish between those with high and low levels of risk.

Although the importance of risk factors is evidenced in the early identification of individuals with higher probability of later dysfunction, risk factors offer little explanation for why or how problems develop. For example, risk factors fail to address the large proportion of individuals who, despite having many disadvantages or stressors, do not experience negative outcomes. Take, for example, the individual who, despite growing up in a family plagued by poverty and alcoholism, manages to graduate from high school, maintain a stable marriage, and escape the alcoholic patterns of his family. What occurred in the developmental trajectory of this individual that allowed him or her to successfully negotiate life's challenges and remain free of serious dysfunction? Are there individual or environmental characteristics that could explain the differential outcomes of this individual from the large group of individuals who may not develop successfully under similar circumstances?

### **The Search For Competence: Identification of Protective Factors**

Garnezy (1985) has emphasized the study of factors that might *protect* individuals

at risk from having a negative outcome. The investigation of protective factors involves two main components. First is the identification of individuals at risk. Garmezy subdivided risk into external risk factors (such as poverty) and internal *vulnerabilities* (such as genetic disorders and psychological or personality attributes). The second component involves the identification of potential moderators that might lessen the impact of risk factors. Qualities are assumed to be protective if their presence is associated with better than expected outcome. These qualities have since been conceptualized as including both external *protective* factors and more constitutional stress-resistance or *resiliency* (Masten and Garmezy, 1985). Efforts to explore for the presence and effects of protective factors and individual resiliency reflect an attempt by researchers to answer the how and why questions stated earlier. In other words, how is it that some children experience adversity and still manage to successfully negotiate the risks of their development while others fail to do so? (Masten, 1989).

Answers to these questions were investigated in a comprehensive study of a 1955 birth cohort on the island of Kauai, Hawaii (Werner & Smith, 1982; Werner, 1989; 1992). In one of the largest interdisciplinary investigations of vulnerable children, this prospective study followed a multiracial cohort of 698 infants born in 1955, monitoring the impact on development of multiple biological and psychosocial risk factors, stressful life events, and protective factors. While initial goals of the study were to examine the impact of birth complications and early rearing conditions on later development, researchers discovered the importance of specific individual and environmental variables associated with more adaptive functioning throughout the life courses of certain individuals. One-third of the



infants were considered “at-risk” due to the presence of severe perinatal stress, being born into poverty, and being reared in family environments characterized by conflict, divorce, disruptions due to unemployment or several moves, and alcoholism or mental illness (Werner, 1989). Two out of three of those considered “at-risk” were found to develop serious learning or behavior problems by the age of ten, or had developed delinquency records, mental health problems, or teenage pregnancies before reaching 18 years. These findings provided convincing argument for the detrimental impact of such risk factors identified early in the developmental trajectory. More importantly, perhaps, was the discovery that one out of every three of this “at-risk” group managed to escape these maladaptive trajectories and “develop instead into competent, confident, and caring young adults” (Werner, 1989).

Researchers cited a number of characteristics, both within the individuals and their family environments, as well as in their surrounding contexts. Among these protective factors were high ratings of individual characteristics, such as being “good-natured” and “easy to deal with.” As school children, these individuals interacted well with peers and engaged in activities that provided them with a sense of personal pride. Upon graduation from high school, these resilient youth demonstrated a positive self-concept and an internal locus of control. As adults, these individuals avoided criminal records, developed stable jobs, and successful relationships. The overwhelming majority of resilient individuals at age 30 report a sense of personal competence and determination as their most effective resources for coping with life stresses. Due to their apparently long lasting effects, protective factors became increasingly studied for their role in distinguishing groups of

high risk children who escaped adversity to become competent, successful adults.

Findings from longitudinal investigations like the Kauai birth cohort have provided valuable information about the effects of individual and contextual characteristics that predispose an individual to healthier outcomes. Research trends have reflected an expansion of recent efforts to identify the set of protective factors that bolster successful development for individuals. These include various examples, from cross-sectional investigations of characteristics common among youth who demonstrate successful adaptation (Wills and Cleary, 1996) to retrospective studies of factors that contribute to resiliency in a group of high-risk children (Brooks, 1994).

### **Risk and Protection: A Dynamic Perspective**

Despite the impressive gains in our knowledge of risk and resiliency, a review of the literature suggests that the field is in its infancy given the limited knowledge of the exact nature of what constitutes *protection* and how its effects are mediated by other variables. For example, Rutter (1990) warns that resilience is not a fixed attribute; rather, an individual's life trajectories can change in response to significant contextual changes. He suggests that the conceptualization of risk "variables" or protective "factors" may serve practical importance, but it ignores the dynamic and transactional nature of development. Research should attend to the "mechanisms" or "processes" that mediate between risk and resiliency. Rutter uses the example that what constitutes a "risk" factor in one setting (having a sickle cell phenomena that causes a disease) may constitute a "protective" factor in another setting (this phenomena protects the individual against

malaria).

A recent investigation of potential risk and protective factors among a cross-sample of delinquent boys provided evidence for this double edge of protection and risk (Strouthamer-Loeber, Loeber, Farrington, Zhang, Van Kammen, & Maguin, 1993). Findings demonstrated that variables like school motivation, peer delinquency, and relationship with parents showed both protective *and* risk effects for delinquent behaviors, rather than one or the other. Rather than viewing these variables as longstanding attributes that unconditionally exert either protective or risk effects, it has become important to examine their relation to specific outcomes within discrete periods of development.

Rutter emphasizes that particular attention must be paid to the mechanisms operating at key transition points in people's lives, when a risk trajectory may be redirected onto a more adaptive path. Key transition periods, such as the transition to adolescence during the middle school years, represent periods of heightened stress where risk and protective factors carry particular salience (Stouthamer-Loeber et al., 1993). Examination of the ways in which variables combine to offer both protection and risk during such a transitional period represented an important aspect of this investigation.

### **Protective Factor or Resource?**

Gore and Eckenrode (1994) reflect the need to demonstrate the buffering effect that protective mechanisms have through their ability to reduce the impact of various stressors *while also* having less impact among individuals with lower risk. Protective factors, therefore, are those whose effects are most salient when risk is highest, but have

less influence when an individual's risk is lower. Masten (1989) distinguishes these from *resources* (these have also been termed *assets* or *compensatory factors* in the literature) that exert beneficial effects for all individuals, regardless of risk.

An illustration of the difference between protective and resource factors is provided in a recent investigation of variables that mediate between adverse life events and later development of psychiatric disorder (Tiet, Bird, Davies, Hoven, Cohen, Jensen, & Goodman, 1998). Of the eleven predictors studied, only one variable (IQ) demonstrated buffering effects for high risk children alone. This variable was distinguished from several other resource factors, including family functioning and educational aspirations, that exerted buffering effects for children with both high and low levels of risk.

The importance of distinguishing between the effects of resource and protective factors cannot be understated. Federal funding for school and community based prevention depends largely on research findings to guide the development of programs effective at reducing behavioral and academic problems, including substance use and academic failure. Essential to the function of preventative programs, is that they target those individuals who are at risk for such maladaptive outcomes. Still, it is too often the case that large, sweeping programs use funding loosely, to provide what appear to be effective programs to *all* students, regardless of risk. In light of limited availability of funding, research will need to target those factors that protect high-risk children from maladaptive outcomes. By distinguishing between resources that benefit all children and protective factors that buffer high-risk children, research can inform and improve the efficiency with which prevention funding is spent.

This investigation examined the risk and protective mechanisms at work during the transition to adolescence while also exploring the differential levels of protection (or *stress buffering effects*) offered to individuals in high versus low risk groups. This study attempted to differentiate the unconditionally beneficial effects of *resource* factors from the risk buffering effects of *protective* factors. Garmezy (1985; 1993) emphasized three major categories of protective factors: dispositional personality variables or individual characteristics, the presence of a positive family atmosphere, and the availability and utilization of a variety of social supports in the external environment. For the purposes of this study, protective factors were construed in a similar manner.

### **Interaction Effects With Risk and Resiliency**

In their summary of current methodological issues with risk and resilience research, Gore and Eckenrode (1994) suggest that it is no longer useful to examine the acute effects of stressors upon the development of illness or maladaptive outcomes; instead, research must attend to the interactive effects of risk and protection over brief periods of development (Rutter, 1990). The authors also argue that research should identify the effects of risk during particular life trajectories, and that longitudinal research can best address this. Examination of the interactive effects of risk and protective mechanisms that operate during the period of transition to adolescence, as discussed earlier, can enhance our understanding of the particular processes that are most salient at this turning point.

Furthermore, very little research has been conducted with large numbers of

protective factors in the same study (Tiet, Bird, Davies, Hoven, Cohen, Jensen, & Goodman, 1998). The inclusion of several possible sources of protection would allow for exploration of the interactive effects between several risk and protective factors. Analyses of the interactive effects could also highlight the potential overlap between many interrelated variables. For example, self-esteem is expected to enable an individual to form better interpersonal relationships and hence derive stronger social support from those relationships. Truly distinct sources of protection would require differential effects from social support and from self-esteem. Another possibility is that one protective factor is more important than another in buffering the effects of stress. By examining several variables in the same study, the possible relationships and contributions of each can be examined more thoroughly (Gore and Eckenrode, 1994).

In an attempt to address these important methodological and conceptual issues, the current study represented a brief longitudinal exploration of the effects of risk during early adolescence by examining the concurrent influence of a wide range of individual, family, and environmental factors that potentially buffer individuals from adversity.

### **Protective Factors:**

#### **Individual Protective Factors**

##### **Social Skills**

The predictive relationship between early problems with forming social relationships and later maladjustment has been replicated in a variety of studies (see Dodge, Pettit, McClaskey, & Brown, 1986 for a review). However, recent attention has

turned its focus to the protective influence that social competence can have for children (Rutter, 1983; 1985). Wills, Vaccaro, and McNamara (1992) demonstrated the protective effects of social competence in buffering middle school students with high levels of adverse life events from risk of continued substance use. The interaction between higher levels of perceived supportive family relationships and higher perceived social competence provided the greatest protection for middle school students with higher levels of adverse life events.

Luthar (1991) investigated protective factors among 144 inner city ninth graders exposed to high levels of negative life events. Social skills, and particularly social expressiveness, demonstrated significance in protecting against stress when competence was defined in terms of the child's popularity with peers. However, the definition of social competence in this study illustrates the potential variation in findings and meaning of outcomes. Luthar used definitions of social competence based on peer and teacher ratings as well as school grades; however social skills were protective when the outcome dimension was defined by rather narrow criteria (i.e., popularity among peers). Because of the wide ranging definitions of social competence, including the definition of social competence as social skills, other related dimensions are important to review.

Common definitions of social competence include qualities of responsiveness, flexibility (Werner and Smith, 1982), empathy and caring, communication skills, a sense of humor, and an ability to assert oneself appropriately (Benard, 1991). Not surprisingly, children who possess higher levels of social skills also tend to establish more positive relationships with others, including friendships with their peers. The ability to foster

supportive friendships itself is a feature of good adjustment and resilience (Smith and Carlson, 1997).

Findings from Werner's (1989) longitudinal study pointed to a social disposition as an important characteristic of teenage mothers who later improved their financial lot and established stable relationships with a spouse or mate by the time they reached their late twenties. Possessing the skills to interact effectively with others and to avoid socially unacceptable responses helps to pave the way for developing positive and supportive relationships throughout life. Furthermore, deficits in social skills are relatively persistent and are related to poor academic performance and possibly later social adjustment problems (Cowen, Pederson, Babigian, Izzo, & Trost, 1972).

Teacher ratings of social skills in children have demonstrated significant value. Investigators have argued that teachers provide a better assessment of child social skills because of their unique opportunity to observe large numbers of children interacting together (Webster-Stratton & Lindsay, 1999). In a study exploring the antecedents and correlates of resilience, previously identified competent children were rated by teachers as possessing higher social skills. These children were seen as "more friendly, well-liked by peers and adults, interpersonally sensitive, socially responsive, more cooperative, and emotionally stable" (Garmezy, 1981). A recent study utilized a multi-informant approach to assess social skills, including self, peer, and parent ratings as well as teacher ratings and peer observations (Webster-Stratton & Lindsay, 1999). Findings from this study provided evidence for the validity of teacher reports of child aggressive behaviors and poor problem solving, two key components of social skills for children.



Teacher ratings of child social skills are useful, in particular due to their suggested ability to more accurately survey the domain of social skills intended. Due to the presence of a wide range of social competence definitions discussed earlier, it is important for researchers to attend specifically to the domain of social skills intended and operationalized. Definitions of social skills may quickly change, depending upon who is asked. For example, in asking a child to rate their own level of competence across several social skills domains, one may likely find that the child will provide an index of their perceived popularity among their peers (i.e., how much they are liked or disliked among peers). Definitions of social competence may easily become clouded by confusing this construct with perceived popularity. Furthermore, aggressive children have been found to rate their social competence with peers higher than do nonaggressive children (Hughes, Cavell, & Grossman, 1997, cited in Webster-Stratton & Lindsay, 1999; Webster-Stratton & Lindsay, 1999).

While self-reported social competence may prove useful, specific assessment of the domain of interest may require the observational component provided by teachers. Teacher ratings are still subject to potential biases by factors like the parents' level of life stress, or a teacher's knowledge of students' prior reputation in school and academic performance. Webster-Stratton & Lindsay (1999) found evidence that teachers may be better at detecting child aggressive behaviors and poor problem-solving than they are at detecting prosocial skills. Teacher ratings may actually underestimate child social skills. Thus, it will be important to evaluate results in light of these potential biases.

**Perceived Quality of Peer Relationships**

A highly related construct of interest is the perceived quality of relationships with peers. Distinguished from the actual skills associated with social interaction, peer relationships can be evaluated by the individual as either satisfying (“I get along very well with my peers”) or as less positive (“I really feel “left out” of my peer group”). An individual’s sense of acceptance among peers and popularity have been associated with better academic achievement and higher IQ (Masten and Coatsworth, 1998). Positive peer reputation predicts future social competence with peers, job competence, extracurricular activities, self worth, and better mental health (Masten and Coatsworth, 1998). At the same time, peer rejection has been associated with aggressive and disruptive behavior, including externalizing disorders such as ADHD and conduct disorder (Masten and Coatsworth, 1998). Feeling accepted and connected to an established network of peers appears to carry particular importance in relation to behavioral, social, and academic outcomes. This study attempted to pinpoint the specific contribution of an individual’s perceived quality of peer relations, along with several other potentially protective factors, to the explanation of resilience in adolescence.

**Positive Self-Concept (Self Esteem)**

Positive self-concept and self-esteem have been overwhelmingly supported as both indicators of and prerequisites for successful adaptation (Werner and Smith, 1982; Finn and Rock, 1997; Rutter, 1985; Brooks, 1994). A component of enhanced self-esteem is self understanding, or a knowledge and awareness of self boundaries in the face of life and

family adversity. Rak and Patterson (1996) emphasized self-esteem as related to adaptive skills and the ability to reflect a sense of self. Research has generally found that self-esteem is related to achievement test scores and grades (Byrne, 1984, cited in Finn and Rock, 1997). In a comprehensive investigation of maltreated and nonmaltreated children at-risk for school failure, Cicchetti, Rogosch, Lynch, and Holt (1993) explored multiple areas of adaptation from the perspectives of the individual as well as his or her peers and camp counselors. Along with other personality dimensions and personal resources, self-esteem was found to predict individual differences in competent functioning.

On the other hand, there is mixed evidence for the suggestion that having low self-esteem is actually a risk factor. In fact, researchers have found no difference in the self-esteem of high school dropouts and those who remain in school until graduation (Finn and Rock, 1997). Thus, the data regarding self-esteem and what it actually protects against are somewhat less clear than is suggested by the confidence with which it is referred to in the literature.

One reason for the lack of clear findings may be the wide range of definitions applied to the concept of self-esteem. The California Task Force to Promote Self-Esteem and Personal and Social Responsibility (1990) developed a definition that illustrates the broad concepts implied by self-esteem: "appreciating my own worth and importance and having the character to be accountable for myself and to act responsibly toward others." (p.1) This definition, while broad, proposes that self-esteem includes feelings and thoughts individuals have about their competence and worth, and about their abilities to confront situations with a sense of personal responsibility. This emphasis on the importance of

accountability and self-worth seems to parallel some of the principles of attribution theory, which Brooks's (1994) proposes as a helpful framework for understanding the components of self-esteem. Brooks argues that self-esteem is a major component in the attributions individuals make about successes and failures. He suggests that having high self-esteem leads to a belief that failures provide learning experiences, while having low self-esteem leads to a sense of helplessness, where mistakes are not modifiable and are beyond one's control. Rutter (1985, p. 603) described the significance of self-esteem in relation to resilience, suggesting that "...a sense of self-esteem and self-efficacy makes successful coping more likely while a sense of helplessness increases the likelihood that one adversity will lead to another." When examined more closely, these components of self-esteem begin to resemble factors involved in locus of control, a construct that will be addressed later. The association and potential overlap between self-esteem and locus of control deserve attention. Further investigation of the interaction between self-esteem and other potentially protective factors was expected to shed light on this relationship.

### **Secure Attachment Style**

A wealth of findings from research on the developmental implications of attachment styles point to the detrimental effects of developing insecure attachments to others (Egeland, Carlson, & Sroufe, 1993; Kerns and Stevens, 1996; Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990; Quinton, Pickles, Maughan, & Rutter, 1993). Evidence from these studies suggest a relationship between insecure attachments and the development of conduct disorder, depression, anxiety, and other deleterious outcomes.

Recent investigations into the protective effects of secure attachments suggest a strong relationship between secure attachment to parents and higher levels of personal and interpersonal competence (Waters, Wippman, and Sroufe, 1979), self-perceived confidence, as well as lower levels of depression and anxiety (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990). Findings demonstrate that the protective effects of attachment relations carry particular salience for adolescents facing the challenges associated with the transition to junior high. (Papini and Roggman, 1992). “Secure” adolescents have been characterized by peers as being more ego resilient, less anxious, less hostile, and they report less distress and higher levels of social support (Koback and Sceery, 1988). Individuals who develop secure attachments to care givers, and thereby have available a secure base when needed, are expected to be more self-reliant and to be able to meet challenges and demands in a flexible manner (Bowlby, 1979). These qualities may form the basic foundation for the development of supportive social relationships and affectional ties. Evidence for the contribution of secure attachment styles to the development of personal and interpersonal competence suggests the need to further examine the importance of a secure attachment style in combination with other factors that impact development. In an exploratory study of the effects of attachment styles among middle school students, Pray (1998) found evidence for the overlapping contributions of low levels of secure attachment and perceived social support to the explanation of problem behaviors. The potential interaction between secure attachment style and the perceived availability of supportive relationships deserves attention. A concurrent investigation of secure attachment with other potentially protective mechanisms was

conducted in order to discern the unique contributions of each component in the amelioration of risk.

### **Internal Locus of Control**

The issue of locus of control has traditionally been conceptualized in terms of internal versus external attributions that individuals make to explain the events in their lives. According to Trad and Greenblatt (1990), childrens' ability to control their environment, and their faith in that ability represents one of the most important protective factors. There is emerging evidence from research suggesting that high levels of an internal locus of control are associated with resilience in childhood and adolescence (Werner, 1989; Garmezy, 1985; Benard, 1991; Brooks, 1994; Rutter, 1985).

More recently, this conceptualization has been expanded to include a third, or unknown locus, where the child cannot attribute the cause of the events in his or her life to either internal or external sources. In a longitudinal investigation of the protective processes that ameliorate risk for children, Siefer and colleagues (1992) found that low levels of unknown locus of control were predictive of greater gains in social-emotional and cognitive realms between four and thirteen years of age. Similar findings for a negative relationship between unknown locus of control and various measures of mental health (Baldwin, Baldwin, Kasser, Zax, Sameroff, & Seifer, 1993) suggest the need to clarify the processes at work in attributions of control over one's environment.

Given the differential emphasis on internality or lower levels of external factors in the results of these studies, it remains unclear which matters in the protection of young

adolescents. Locus of control appears important to the discussion of resilience; however, what remains unclear is the exact nature of its contribution as well as its interaction with other risk and protective factors. This study attempted to further explore the potential interaction between an individual's sense of personal control and other potentially protective factors.

### **Perceived Competence**

The belief in one's competence in one or more areas of life has been shown to have considerable value in protecting high-risk individuals from maladaptive outcomes. In the Kauai birth cohort discussed earlier, Werner (1989; 1992) found that, at age 30, an overwhelming majority of the resilient men and women considered personal competence to be one of their two most effective resources in coping with stressful life events. Investigations of competence have focused mostly on either academic or social competence (discussed earlier). For example, Seifer and colleagues found that high-risk children with more perceived competence in school and social arenas had the greatest gains in cognitive competence during childhood, while low-risk children (those with three or fewer of the 10 individual risk factors assessed) had no relationship between perceived competence and cognitive change. Attribution theory was discussed earlier as it applied to self-esteem and resilience. The tendency to attribute one's successes to internal factors seems related to the ability to approach the world with a sense of mastery and personal efficacy. The belief in one's ability to successfully negotiate one or more areas of challenge may provide high risk individuals with the confidence and determination to explore new

territories and attempt novel tasks required for successful development. This study addressed the potentially protective influence of having an overall sense of personal competence, including academic, social, and other areas of mastery for high-risk middle school students. As with other variables of study, the possible overlap between competence and other individual protective factors like self-esteem was addressed through a concurrent analysis of multiple protective factors.

### **Gender**

Findings from research in risk and protective processes suggest considerable disagreement about the differential effects of gender on successful development. Some studies have found that being a girl was either a resource or a protective factor (Rutter, 1990). Trad and Greenblatt (1990) suggest evidence that boys are, on the whole, more vulnerable to stress than girls and that they are more likely to exhibit withdrawal or aggression, regardless of the presence of higher levels of risk. Others found that being a girl was a resource factor until ten years of age but then that trend reversed during adolescence, when problems in boys decreased and behavior problems in girls increased (Werner and Smith, 1992). Still, findings from other investigations of risk and resilience indicate that the resource effect of being female is detected only among youth exposed to both higher levels of adverse life events (risk) and maternal psychopathology (Tiet et al., 1998). Findings from research involving the effects of gender seem less than clear about the potential protection derived from being a boy or a girl.

**Further complicating the picture are findings demonstrating the interactive effects**



of gender with specific variables indicated in the risk and resilience of youth (Tiet et al., 1998; Grizenko and Pawliuk, 1994). For example, the possibility that girls might be more protected than boys by higher levels of positive self-concept represents only one such interactive effect that deserves consideration. Pray (1998) found support for gender differences in the prediction of problem behaviors among middle school students. Results from this study suggest that low levels of secure attachment and perceived social support were influential in the prediction of externalizing problems for boys but not for girls. Instead, higher levels of self-reported anxiety were associated with insecure attachment and lack of family cohesion for girls. Evidence from other research suggests that girls may be more susceptible than boys to peer pressure surrounding drug use (Farrell and White, 1998). The socialization and cultural practices that help to shape and stereotype gender differences will need to be considered in any exploration of gender effects. This study therefore included examination of gender's contribution to risk and resiliency in middle school adolescents.

### **Family Environment**

#### **Family Cohesion and Conflict**

Children from families with higher levels of conflict have demonstrated increased risk for developing problem behaviors, including abuse of alcohol and other drugs (Brook, Brook, Gordon, Whiteman, & Cohen, 1990). In a recent examination of peer influences and drug use among urban adolescents, Farrell and White (1998) found that the relationship between peer pressure and drug use increased as a function of mother-

adolescent distress. This relationship was particularly strong for adolescent boys and girls who were not living with a father or stepfather. Poor parent-adolescent relationships, such as those characterized by high levels of conflict, have been found to increase the likelihood that adolescents will affiliate with deviant peers. Conversely, strong parent-adolescent relationships might serve as a protective factor by reducing the impact of peer drug influences. As outlined earlier, the relationship between negative life events and substance use lessened for adolescents who reported higher levels of support from parents (Wills & Cleary, 1996). The possibility exists that children who perceive less conflict with their parents also perceive more supportiveness. Perhaps the relationship between conflict and perceived support is important in the protection of high-risk youth.

Research into the role of family environment also provides consistent support for the importance of caregiving that is characterized by warmth, cohesion, and close affectional bonds. The resilient youth from Werner's (1989) longitudinal study (see description provided earlier) managed to graduate high school with positive psychological traits such as a positive self-concept and internal locus of control. All of these resilient youth had the opportunity to establish a close bond with at least one caregiver, and few had experienced prolonged separations from their primary caregiver.

Egeland, Carlson, and Sroufe (1993) explored a range of factors related to resilience in the development of youth from environments characterized by poverty and abuse. Findings revealed that emotionally responsive caregiving helped to mediate the effects of these high risk environments by promoting positive change and halting the intergenerational pattern of abusive caregiving situations.

In a longitudinal investigation of protective mechanisms, Seifer and colleagues (1992) found significant evidence that family cohesion is related to positive social-emotional changes in children from the ages of four to thirteen. A more significant relationship was found for individuals in the high risk group (those who reported the cumulative effects of multiple risks including parental psychopathology, low socioeconomic status, minority status, and large family size). The implication is that family cohesion acts as a resource factor to enhance outcomes for all children, and that it also protects children by buffering the effects of stressful environments for high-risk youth.

In light of the research supporting various aspects of the family environment as important to youth development, examination of the impact of family environment and interactions with various risk factors in determining outcomes for youths is important. Furthermore, the research summarized above is certainly not exhaustive of the potential pathways through which families exert their influence on a child's development. Rather, by examining the effects of conflict and cohesion among families at risk, this study attempted to begin the work of dissecting the multitude of impacts that families can have on development.

### **Environmental Characteristics**

#### **Social Support**

The availability of support from family members as well as from peers and other adults in the school and community has been deemed protective in a number of studies (Brooks, 1994; Seifer et al., 1992; Garnezy, 1985, 1993). Rutter (1985) emphasized that

the availability of social support modifies the impact of stressors, and thus leads to less damaging results for at-risk children. Werner and Smith (1982) noted in the longitudinal study of Hawaiian children described earlier that friends from stable families were helpful in assisting children in distancing themselves from their own family disruptions and gaining a new perspective. These findings suggest that social support can have a buffering effect for children living in stressful family environments. Rak and Patterson (1996) suggested that identified role models outside the family, including teachers, counselors, supervisors of after-school programs, coaches, and mental health workers, can provide potential buffers that reduce the effects of risk. Others argue for the salience of one caring adult, such as a teacher, that carry particularly strong buffering effects (Benard, 1991; Werner, 1992).

Smith and Carlson (1997) assert that peer relations are useful in providing protection if the support is stable and will actually be used by the child. Furthermore, the actual size of the social network is less important than the youth's subjective perception of the supportiveness of the network. Given these findings exploration of the potentially different levels of protection offered by supportive relationships with parents, teachers, and peers was useful to the current study.

A vast majority of the literature concerning social support has suggested a positive impact for adolescents who perceive high levels of support in their environment. Recent findings from an investigation of the role of social support from parents supported its role as a mediator between negative life events and substance use (Wills and Cleary, 1996). This evidence illuminates an important interaction between risk and the protective

mechanism of social support.

Another important finding from Wills and Cleary's (1996) investigation illustrates a confusing aspect of current research where peer affiliations have received mixed reviews for their ability to protect versus endanger adolescents. In their study, peer affiliations were found to be an important factor for adolescents' involvement in substance use. The effects of peer affiliations were lessened for those with higher levels of parental support. On the other hand, The role of peer relationships has certainly received negative attention for its connection with delinquent and antisocial behavior among adolescents (Quinton, Pickles, Maughan, & Rutter, 1993). How can protective peer affiliations be differentiated from harmful ones? This study attempted to clarify of the nature of protection that peer relationships have to offer.

Furthermore, the effects of peer relationships may only become discernable when viewed within the context of related variables such as social skills and social support. The explanation offered by Quinton and colleagues (1993) might lend clarity to this issue as well as to the discussion of social support. They distinguish between supportive and unsupportive relationships in relation to adaptive functioning, suggesting that the choice of supportive affiliations may protect individuals with histories of conduct disorder from poor adult social functioning. Thus, the distinction was made between the unsupportive context of a deviant peer group and the potentially supportive relationships associated with adaptive functioning. Perhaps higher levels of support from family, peers, and others will serve the protective role that buffers individuals from later problems with social functioning. What factors or processes then are related to developing supportive

relationships with others? Examination of the effects of social support within the larger context of risk and protective variables was an important component of the proposed study.

### **The Classroom Environment: Involvement and Affiliation**

Considerable evidence indicates that schools can serve as a “protective shield” in helping children cope with the multiple challenges of a stressful world (Garmezy, 1991). Not surprisingly, the factors associated with protective school environments closely parallel factors important to family contexts. The importance of a supportive teacher and caring friends is reemphasized within the school context (Benard, 1991). The more positive school experiences a youth has, the more likely he or she is to become engaged in and participate in school activities. Engagement, as determined by a combination of participation, preparation, attendance, and behavioral indices, has been found to successfully differentiate between high-risk children who complete school and those who do not complete school (Finn and Rock, 1997). These findings continued to demonstrate consistency even when individual characteristics like self-esteem and locus of control were accounted for. The presence of a supportive classroom environment, including supportive teachers and peers, along with a positive attitude toward one’s school are suggested to be important factors involved in the enjoyment of school (Trickett and Moos, 1995). These authors examined the impact of learning environment on students’ sense of satisfaction and morale in a sample of 241 classes. Students in less structured classes that emphasized affiliation and teacher support tended to be more satisfied with their classes.

In a study identifying connections between learning environment and academic motivation, Fry and Coe (1980) examined students in 60 classrooms and found that classes with high teacher support and involvement had students who enjoyed learning and reported a motivation for self-improvement. Classroom environment may have a positive influence on academic motivation and grades. Whether or not classroom environment variables exert a protective effect for children with risk for poor academic performance or dropout is unclear. Further consideration of these classroom characteristics within the context of other potentially protective factors was addressed.

### **Hypotheses**

In light of the wide range of variables of interest, this study represented an exploratory investigation of the effects of and interaction between several potential protective factors in relation to outcomes for middle school children with high and low levels of risk. Risk status was identified at the beginning of sixth grade. Academic and behavioral indices, including GPA and teacher ratings of problem behaviors, were taken at each time point. Protective factors were defined as those that were related to positive change in academic and/or behavioral functioning between 6th and 7th grades.

Seven risk factors were assessed: Low socioeconomic status (SES), fewer than two permanent parents in the home, crowding (as evidenced by four or more siblings), high number of absences, high number of suspensions, high number of detentions, and Ethnicity.

Several methods were considered to classify participants as either high or low risk.

First, a generous cutoff criterion method involved classification of subjects as High risk if three or more risk factors were present and Low risk if two or fewer risk factors were present. The second method involved assignment of weights to each risk factor according to their theoretical importance in determining risk status. The traditional cutoff criterion method and the theoretical weighting method were compared to a third approach, where the proposed risk factors were regressed on Time 1 CBCL scores to determine their relative importance in predicting behavioral outcomes. Weighting was determined according to the established predictive power of each risk factor. By comparing the relative effectiveness of these three methods of risk classification, this study attempted to improve the specificity with which risk is identified. A comparison of these risk classification methods can be found in the Data Analyses section, presented later. Some overarching hypotheses naturally followed from trends in the literature:

1) Are protective factors protective? Several characteristics were expected to predict positive change in academic and behavioral status between 6th and 7th grades. Variables were considered to be protective if they predicted more positive change for high-risk individuals than for low risk: Individual characteristics included high levels of teacher-rated social skills, positive perceived relations with peers, positive self-concept, high levels of perceived competence, low levels of external locus of control, and higher levels of secure attachment. Also expected to exert protective effects were high levels of family cohesion and low levels of family conflict. Protective effects were expected to be evidenced by high levels of perceived support from parents, peers, and teachers, and high



levels of classroom involvement. A summary of hypothesized protective and risk factors can be found in the appendix.

2) Gender was expected to demonstrate some protective effect in relation to risk. Gender was expected to moderate the relationship between risk and GPA or CBCL scores. It was also hypothesized that protective factors would offer different levels of protection for girls and boys. Specifically, findings discussed earlier suggested that self-concept, secure attachment, and family cohesion would offer higher levels of protection for girls in predicting academic and behavioral change. For boys, higher levels of secure attachment and social support were expected to offer greater protection.

3) Are protective factors stable over time? Werner (1989) noted that protection is not a static phenomenon, but one that may change over time. It was hypothesized that some protective factors would demonstrate more stability whereas others would show change.

4) This study also attempted to differentiate the effects of resource factors, which would be associated with positive outcomes for all individuals, from the protective factors which would exert a buffering effect for individuals with higher levels of risk.

5) Potential mediating influences between protective factors and outcome variables were explored. Findings from previous research suggested several possible mediational influences that might help clarify the nature of the observed overlap between related

variables in predicting individual outcomes. The influence of variables that mediated the relationship between protective factors and outcomes were highlighted. Some protective factors were expected to mediate the relationship between other protective factors and GPA or CBCL scores. For example, high levels of social skills were expected to mediate the relationship between high peer relationship quality and academic and behavioral functioning. Higher levels of social support were expected to mediate the effects of several variables, including higher levels of social skills, secure attachment, and family cohesion, and lower levels of family conflict in the prediction of academic and behavioral functioning. Positive self-concept was expected to be a mediator of both high levels of competence and peer relationship quality and low levels of unknown locus of control in the prediction of academic and behavioral functioning.

## Chapter 2: Methods

### Subjects

One-hundred-ninety 11- and 12-year-olds were recruited from a larger pool of sixth grade students attending one of two middle schools. About half (95) of the children were participating in a larger, more extensive study of a school-based intervention targeting the psychosocial development of middle school children and their families. Due to the presence of this intervention at one of the schools, subjects from this school were expected to exhibit an increase in some of the variables of interest. Post hoc analyses therefore explored whether children at either school exhibited different levels of change in protective factors. However, due to the nature of this study, it was not necessary to distinguish the effects of the prevention efforts because subjects' outcomes were examined relative to their individual changes in protective factors.

For the first middle school, a letter asking for their child's participation in the study was distributed to parents and students during the sixth-grade registration assembly prior to the first day of school. Approximately 80 percent of parents were present at the assembly. Due to timing constraints, there were no letters distributed at the second middle school's assembly. However, permission slips were sent home with students of both schools after the study was introduced in homeroom classes during the first month of school. Students were told that homerooms that returned the most permission slips, regardless of parental consent, would receive an "ice cream party." Homerooms that

returned all of their permission slips all received ice cream cones. Students with obtained parental consent were contacted during the third month of school, during their homeroom class, to participate in the study. Teacher participation was solicited via a brief informational meeting during the first two weeks of school. Teachers were asked to complete a rating of each participants' social skills and a brief behavioral checklist. During the first wave of testing, measures were administered, along with several other measures, as part of the larger longitudinal study. Parents (mother or father) were asked in the permission slip for their willingness to complete measures during the following month. Parents who agreed to participate were sent the measures by mail, along with a return envelope provided.

The neighborhood surrounding one of the middle schools targeted for this study represented the most ethnically diverse neighborhood in the community (Seele, 1996). Of the residents, 37 were black, 261 were Native American, 204 were Asian, and 137 were Hispanic. Twenty-four percent of all children in the neighborhood who were between the ages of 6-17 years of age were living with a family whose income was below the poverty level. Additionally, students at the middle school witnessed a 65% turnover rate for the 1995-1996 school year. The demographics surrounding the second middle school provided the basis for its selection as a characteristically similar population.

### Procedure

Prior to the collection of data, a comprehensive written proposal for research was submitted to the University of Montana Institutional Review Board for final approval to

conduct research. First-wave data was collected during the beginning of participants' 6th grade school year. Eleven self-report measures were administered in the students' homeroom class during the third month of school. These measures were completed by students as part of the larger study. Questionnaires were administered by the author, with the help of undergraduate and graduate research assistants. The measures took about three hours to complete and were administered in two or three separate testing sessions, about one week apart. Additional time was provided to teachers during the next three weeks to complete student rating forms. Completion of each measure took between five and ten minutes per student. The second wave of data collection took place during the last two months of the childrens' seventh grade year. The procedure replicated the first wave of testing, including data collection from students, parents, and teachers.

## Measures

### Child Measures:

The **Piers-Harris Self-Concept Scale (CSCS)** (Piers, 1984) is a self-report questionnaire designed to assess how children and adolescents feel about themselves. It is composed of 80 first person statements, such as "I can be trusted" or "I am shy" and the subject is asked to say "yes that is true for me" or "no that's not true for me." This measure is composed of six scales that address self-concept: Behavior, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and Satisfaction (Chiou, 1988). This measure takes about ten minutes to complete.

Test-retest reliabilities have been obtained with The Piers-Harris and have varied

from .42 (interval of eight months) to .96 (interval of three to four weeks). Test-retest reliabilities with American Indian students, ages 7 to 14 years, were found to be .73 (interval of ten weeks) (Lefley, 1974, cited in Piers, 1984). Internal consistency was established with a sample of 297 sixth and tenth graders and yielded reliability estimates for the total score from .88 to .93 (Piers, 1973, cited in Piers, 1984). Evidence for acceptable estimates of content, criterion-related, and construct validity of the Piers-Harris have been obtained from a number of empirical studies (see Piers, 1984 for a review).

The **Self-Perception Profile for Children (SPPC)**(Harter, 1982) is a self-report measure designed to assess children's perceived competence across three domains: cognitive, social, and physical. This 28-item scale takes about fifteen minutes to complete. Questions ask children to read a sentence like "Some kids often forget what they learn but other kids can remember things easily" or "Some kids find it *hard* to make friends but other kids find it pretty *easy* to make friends." Subjects are asked to decide which statement is true for them and then decide if it is "sort of" true or "really" true for them.

Internal consistency for each of the four subscales of interest (scholastic competence, social acceptance, physical appearance, and global self worth) were estimated using Chronbach's alpha and ranged from .75 to .85. Subjects used to determine these estimates were drawn from samples including lower to upper middle class and were 90 percent Caucasian. Therefore, caution should be taken with regard to interpretation of findings with children from other ethnic backgrounds.

The **Index of Peer Relations (IPR)** is a short, easy to administer instrument that is designed to assess severity or magnitude of an individual's perceived problems with their

peer relations. The IPR asks subjects to use a Likert scale to rate how they feel about their peer group. Items are asked, such as “My peers are a bunch of snobs” or “My peers are very nice to me.” Reliability estimates as high as .90 have been obtained as well as evidence for acceptable estimates of construct, discriminant, and factorial validity (Klein, Beltran, & Sowers-Hoag, 1990; Nurius, Hudson, Daley, & Newsome, 1990). Due to the cognitive and affective maturity required by some of the questions, the IPR is not typically recommended for children under 12 years of age. The first wave of testing for this study was conducted when many of the participants were 11 years of age, and results should therefore be interpreted with caution. Test-retest reliabilities will be conducted for participants and are expected to reflect a low to moderate level of consistency.

**The Nowicki-Strickland Locus of Control Scale (N-SLCS)** (Nowicki and Strickland, 1973) assesses an adolescents’ perception of the degree of control that they have over their lives. This 40-item questionnaire asks subjects to circle “yes” or “no” as to whether the question applies to him or her. Higher scores on the N-SLCS indicate more external locus of control, while lower scores indicate more internal locus of control. The N-SLCS takes about five to ten minutes to complete.

Internal consistency of the N-SLCS was investigated using the split-half method, corrected by the Spearman-Brown formula and yielded an estimate of  $r = .68$  for grades 6, 7, and 8. Though these estimates are satisfactory, the test is additive and the items are not comparable. Therefore, these items are believed to underestimate the true internal consistency of the scale. Test-retest reliabilities were conducted with a six-week interval and yielded an estimate of .66 for the seventh grade. Studies of construct validation were

conducted with diverse groups of children and yielded support for the construct validity of the N-SLCS with nine to eleven year-olds.

Developed by Dubow and Ullman (1989), **The Children's Appraisal of Social Support (CASS)** was originally developed as a self-report survey assessing three potential aspects of social support in elementary school children: the frequency of supportive behaviors available from the child's support network (Scale of Available Behaviors, or SAB); the child's subjective appraisals of family, teacher, and peer support (APP); and the size of the child's social support network (NET). For the purposes of this study, the 31-item Appraisals scale (APP) was used to examine how the child views support from his or her peers, family, and teachers. The recent edition of the APP scale has been revised from its original version (Dubow and Ullman, 1998). This scale has been tested on samples of children in grades three through seven. For sixth graders, the APP scale achieved a one-week test-retest reliability of .88 for the total scale, .79 for the peer subscale, .87 for the family subscale, and .84 for the teacher subscale. Validity was reported to be similar to that established in the original scale (Dubow and Ullman, 1989). In this original study, Cronbach's alpha for the 31-item APP was .88. The APP was subject to a principal components analysis with a varimax rotation. A three-factor solution emerged, with eigenvalues ranging from 6.90 to 2.34, accounting for 22%, 8%, and 8% of the variance, respectively. When comparisons were made between the APP scale and several measures used to assess validity, results provided evidence for the convergent and discriminant validity of the APP. Strong correlations were found between the APP Peer Support subscale and established measures of loneliness. The APP subscale was also found to



correlate highly with an established social support index. For the purposes of this study, the APP scale was used to assess children's perceived support from peers, teachers, and family.

The **Classroom Environment Scale (CES)** was developed by Trickett and Moos (1974) and contains nine scales to assess school satisfaction and perception of the classroom environment. It consists of a 90-item self-report questionnaire that takes about 15 to 20 minutes to complete and asks questions like "This teacher spends very little time talking with students" or "Students daydream a lot in this class." For the purposes of this study, the Involvement subscale was used. Internal consistencies for this scale has been calculated and yielded an estimates of .85. Test-retest reliability with a six-week interval was .87. Evidence for the construct validity of the CES was provided by significant correlations between classroom involvement and affiliation and students' satisfaction with teachers and school as measured by the Quality of School Life Scale (Chiou, 1985).

The **Attachment Style Questionnaire (ASQ)** was developed by Feeney, Noller, and Hanrahan (1994). The ASQ is a broad-based measure of five dimensions central to adolescent and adult attachment. The measure assesses an individual's perceived attachment to parents, peers, or others. Sixty-five original items were developed from current models of attachment (see Bartholomew, 1991) and are based on internal representations of self and others.

After being administered to 470 young adult university students, Feeney et. al's (1994) analysis revealed five dominant factors which accounted for 43.3% of the total variance: **Confidence (in self and others), Discomfort with Closeness, Need for Approval,**

Preoccupation with Relationships, and Relationships as Secondary (to achievement). The 40 items remaining after the analysis comprise the total scale and include 8 items on the Confidence scale, 10 items on the Discomfort with Closeness scale, 7 items on the Need for Approval scale, 8 items on the Preoccupation with Relationships scale, and 7 on the Relationships as Secondary scale.

Internal consistency was calculated and yielded alphas of .83, .83, and .85 for the three factors (Security, Avoidance, and Anxiety), respectively. For the scales of Confidence (in self and others), Discomfort with Closeness, Need for Approval, Preoccupation with Relationships, and Relationships as Secondary (to achievement), coefficient alphas were .80, .84, .79, .76, and .76, respectively. These coefficient alphas represent moderate levels of internal consistency.

In order to check the internal consistency of the five attachment scales with a younger sample, the Attachment Style Questionnaire was administered to 248 eighth-grade students (equal males and females) and yielded alpha coefficients of .73 (Confidence), .73 (Discomfort with Closeness), .67 (Need for Approval), .73 (Preoccupation with Relationships), and .70 (Relationships as Secondary). The lower reliability estimates, while acceptable, suggest the need for caution with regard to the applicability and interpretation of findings with a younger sample. An assessment of the validity of the Attachment Style Questionnaire was performed to assess its usefulness with a sample of high school students. Analyses showed that a linear combination of all of the attachment scales was related to a combination of all of the family functioning scales. High family intimacy, democratic parenting, and low levels of family conflict (.89, -.86, and .76)

were associated with high scores on Confidence (.88) and with low scores on all scales measuring aspects of insecure attachment (Preoccupation with Relationships = -.67, Discomfort with Closeness = -.64, Need for Approval = -.60, Relationships as Secondary = -.54).

For the purposes of this study, the author used a slightly modified version of the ASQ. In order to ensure the readability of the measure by a younger population, the author simplified the wording of a few statements. This modified version and the original version of the ASQ can be found in the Appendix.

**Family Environment Scale (FES)** Developed by Moos and Moos (1994), the FES is a 90-item questionnaire that assesses three dimensions: Relationship, Personal Growth and System Maintenance. The scale that was most valuable to this study was the Relationship dimensions scale. This scale assesses the level of cohesion, expressiveness and conflict. Cronbach's Alpha for internal consistency for these scales is: .78 (cohesion), .69 (expressiveness), and .75 (conflict). Test-retest reliability was also in the acceptable range (varying from .68 to .86) (Moos & Moos, 1994).

#### **Teacher Measures:**

The **Social Skills Rating Scale (SSRS)** was developed by Gresham and Elliot (1990). This scale was constructed to screen and classify children thought to have social behavioral problems. There are three scales and a number of subscales within each. The first scale is the Social Skills scale, which is composed of five subscales: Cooperation, Assertion, Responsibility, Empathy, and Self-Control. The Problem Behaviors scale

consists of three subscales: Externalizing, Internalizing, and Hyperactivity. The third scale measures academic competence. Only the first scale, the Social Skills Scale was used in this study. The teacher version was the index of social relations used in the main analyses. This measure took about ten minutes to complete.

Internal consistency, as estimated by Coefficient alpha, was found to be .94 for teacher ratings and .83 for student ratings for the Social Skills Scale. Test-retest reliability coefficients were .85 for teachers and .68 for students. Evidence of both content and criterion-related validity, as well as for construct validity for both teacher and student forms of the SSRS was found (see Gresham and Elliot, 1990 for review).

**The Child Behavior Checklist (CBCL)** Content validity on the CBCL was established by Achenbach and Edelbrock (1983; 1991) to tap a broad range of problems and competencies of clinical concern to parents and mental health workers. Clinically referred children received significantly higher scores ( $p < .005$ ) than demographically similar nonreferred children. These findings establish the CBCL's usefulness for indicating problems related to significant mental health concerns. Evidence of construct validity is provided by correlations of total behavior problem scores of the CBCL with total scores of other instruments whose content appeared most similar to the profiles on the CBCL, ranging from .71 to .92.

Reliability of the CBCL is evidenced by high test-retest correlations and by inter-rater agreement. Teacher and parent ratings of problem behaviors were collected for this study; however, teacher CBCLs (Teacher Report Form, or TRF) were used as the index of problem behaviors for purposes of the statistical analyses. Due to the low return

rate of parent measures at Time 1, it was necessary to use the teacher ratings to test the major hypotheses. Teacher ratings are reported to have high 15-day test-retest reliabilities, with correlations of .92 for boys and .99 for girls. Between teachers, inter-rater reliability for Problem Behaviors was adequate, with .53 for boys and .66 for girls.

### **Data Analyses:**

#### **Risk Classification**

Because determination of risk is difficult, several methods for classification of subjects into High versus Low risk groups were considered. Each of the classification methods utilized the seven risk factors identified earlier, including: low socioeconomic status (SES), fewer than two permanent parents in the home, crowding (as evidenced by four or more siblings), high number of absences, high number of suspensions, high number of detentions, and Ethnicity.

First, a generous cutoff criterion method involved classification of subjects as High risk if three or more risk factors were present and Low risk if two or fewer risk factors were present. The second method involved assignment of weights to each risk factor according to their theoretical importance in determining risk status. For example, low SES (Toomey & Christie, 1990; Werner, 1989; Egeland et al., 1993) and having fewer than two permanent parents in the home (Hawkins, Herrenkohl, Farrington, Brewer, Catalano, & Harachi, 1998; Werner, 1990) have been consistently linked with maladaptive outcomes and were therefore assigned relatively higher weightings (3 and 2, respectively). Crowding and Ethnicity were expected to contribute moderately to the classification of risk and were

given an intermediate weighting (1.5). High number of absences, detentions, and suspensions were given equal and relatively lower weightings (1). Subjects were assigned Low risk status if their combined risk index was less than 2. Moderate risk status was assigned to subjects with a combined risk index between 2.5 and 5, and High risk status was given to individuals with a combined risk index of 6 or higher.

A third method for risk classification involved weighting determined by statistical regression. Risk factors were regressed on Time 1 CBCL scores and relative weighting was assigned according to the proportion of statistical variance accounted for by each factor. Using Time 1 CBCL scores for purposes of classification and as an outcome variable would result in overdetermination. Therefore, only the longitudinal analyses of *change* in CBCL scores would be possible using this method of risk classification. Use of change scores would provide a more quantitatively distinct measure of outcome than was used for classification.

A comparison of the three risk classification methods revealed slightly different distribution of participants into respective risk groups with each method. The criterion cutoff and statistical weighting methods yielded the most similar patterns, with fairly consistent distribution of subjects into high and low risk groups, respectively. However, the criterion cutoff method was determined to be the most appropriate method for determining risk group membership for a number of reasons. First, the impact of individual risk factors will differ depending on the individual and his or her context. This lack of specific effects associated with individual risk factors indicates the need to examine cumulative risk effects, rather than assigning relative importance to one risk factor over

another. It would be less useful to weight the factors according to their relative impact when the individual will experience unique effects associated with each risk factor. Gore and Eckenrode (1994) highlight this as one of the inherent challenges associated with defining risk. By assigning relative weights to different risk factors, one might ignore other potentially present risk factors that will affect outcomes. Given the limited number of risk factors assessed, it is likely that several other risk factors are present which have not been assessed. For example, assigning a relatively lower weighting to a particular risk factor might not account for the fact that certain individuals with that risk factor might also have several other negative life events present which compound the effects of their risk status. There appears to be a consensus that definitions of risk depend upon the cumulative effects of multiple risk factors (Tiet et al., 1998; Seifer et al., 1992; Gore & Eckenrode, 1994)). Thus, the cutoff criterion method of classification best fits this conceptualization. Furthermore, these researchers indicate that risk has multiplicative effects, with higher numbers of total risk factors being responsible for even greater levels of risk. This supports the use of a relatively low cutoff point for criterion cutoff classification.

Risk status was determined using the cutoff criterion approach because it is the method most widely used in the literature and because it accounts for the cumulative impact of risk factors. Using the criterion approach, subjects were classified as either High or Low risk according to the number of risk factors reported. Determination for high- or low-risk status depended upon an established cutoff criteria within each category. Subjects with three or more risk factors were included in the High risk (H) group, while those with two or fewer risk factors were among the Low risk (L) group.

Despite its widespread use in research and its superiority to the weighting approaches, the criterion cutoff method poses some limitations for interpretation of later results. The use of a dichotomous variable to represent risk may unnecessarily restrict findings because it forces a classification upon individuals with intermediate risk levels. The use of a more continuous method of risk classification would allow for more expanded understanding of individuals at various levels of risk. However, as indicated earlier, this continuous method of classification would need to account for the multiplicative effects of risk by including some sort of multiplicative factor for the compounded effects of greater risk factors. Future research will need to address these challenges with specific definitions of risk.

### **Longitudinal Analyses**

Analyses examined whether hypothesized protective factors were related to *change* in academic and behavioral outcome status from the beginning of 6th grade to the end of 7th grade. Hierarchical Regression Analyses were used to test the extent to which several independent variables were able to predict students' change in academic (GPA) and behavioral status (CBCL Total Problem Behavior Score) over time (Cohen and Cohen, 1975). This approach, recommended for designs that contain multiple independent variables, indicates the unique contribution of each predictor to the criterion, having taken into account the interrelations between the predictors. The independent variables in these equations included both dichotomous and continuous variables. The dichotomous variables were Gender and Risk Status (high or low, according to the presence of multiple



risk indicators described earlier). The continuous variables included scores from the ten scales measuring potential protective factors.

Due to the large number of predictor variables in each of these equations, some overdetermination was likely (Loehlin, 1992). It was necessary to reduce the number of predictors in each regression equation by conducting separate analyses with individual and environmental predictors. Individual predictors included Gender, teacher ratings of Social Skills, Perceived Quality of Peer Relationships, Self-Concept, Locus of Control, and Perceived Competence. Environmental predictors included Classroom Involvement, Family Cohesion, Family Conflict, and Perceived Social Support from parents, peers, and teachers. A better predictor-to-subject ratio was obtained by analyzing these individual and environmental domains of protective factors individually. Additional omnibus Stepwise regression equations included predictors which previously demonstrated significance in order to determine the combined significance of individual and environmental factors in the prediction of academic and behavioral change.

The order of entry was determined according to considerations discussed by Cohen and Cohen (1975). Gender (step 1) was the first independent variable entered into the regression equations because it is a “fixed” factor that cannot be affected by other independent variables. This was followed by five psychological variables (steps 2-6), including Social Skills, Quality of Peer Relationships, Self-Concept, Locus of Control, and Secure Attachment with their order of entry being allowed to vary in order of decreasing tolerance (Tabachnick and Fidell, 1989). Risk Status (step 7) followed these psychological variables. Finally, steps 8-12 included five interaction terms between Risk and each of the

five moderator variables. Because the protective factors were continuous, interaction terms were computed as defined by the product of predictors with the direct effects covaried (Cohen and Cohen, 1983). Again, order of entry was determined by decreasing tolerance. The interaction effects were entered last in order to determine their unique contribution to the variance accounted for after the main effects had already been entered.

Order of entry for the environmental predictors followed the same format as in the first regression equations; however, environmental variables, including Social Support and the family and classroom environment variables (steps 2-5), were substituted for the psychological characteristics in these subsequent analyses. Interaction effects were similarly explored between Risk and the four environmental characteristics.

### **Cross-sectional Analyses**

Due to the limited range of the dependent measure GPA and the brief duration between assessment, it was anticipated that change scores might be too small to elucidate meaningful relationships with the independent variables explored. If so, individuals would not show significant change over the time period assessed. It was therefore useful to utilize a cross-sectional approach in addition to the proposed longitudinal analyses. The cross-sectional approach explored the same relationship between the predictor and criterion variables as outlined above; however, the predictor and criterion variables were taken from one assessment period.

### **Stability of Protection and Risk**

The stability of protective and risk factors over time was analyzed. Pearson correlations were used to assess the strength of the relationship between different assessments of the same risk or protective factor at the beginning of 6th grade and at the end of 7th grade. These analyses were expected to be particularly important if the correlation between protective factors at the two assessments were demonstrably weak or insignificant. The presence of such low correlations would support a dynamic view of protective processes suggesting the need for additional analyses to discriminate the immediate effects of predictor-criterion relationships via the cross-sectional approach described above.

### **Mediation Models**

The final stage of analyses explored potential mediating effects of certain protective factors in relation to academic and behavioral outcomes over time. In order to assess for the impact of mediating relationships over time, protective factors were assessed at the beginning of 6<sup>th</sup> grade and outcome measures were taken at the end of 7<sup>th</sup> grade. Social Support was examined as a potential mediator in the relationships between various predictors (Secure Attachment, Social Skills, and Family Cohesion and Conflict) and academic or behavioral functioning at the end of 7<sup>th</sup> grade. Positive Self-Concept was examined as a potential mediator of Locus of Control, Perceived Competence, and Peer Relationship Quality in their relationships with academic and behavioral functioning. Social Skills were tested as a potential mediator of the relationship between Peer

Relationship Quality and academic and behavioral functioning at the end of 7<sup>th</sup> grade.

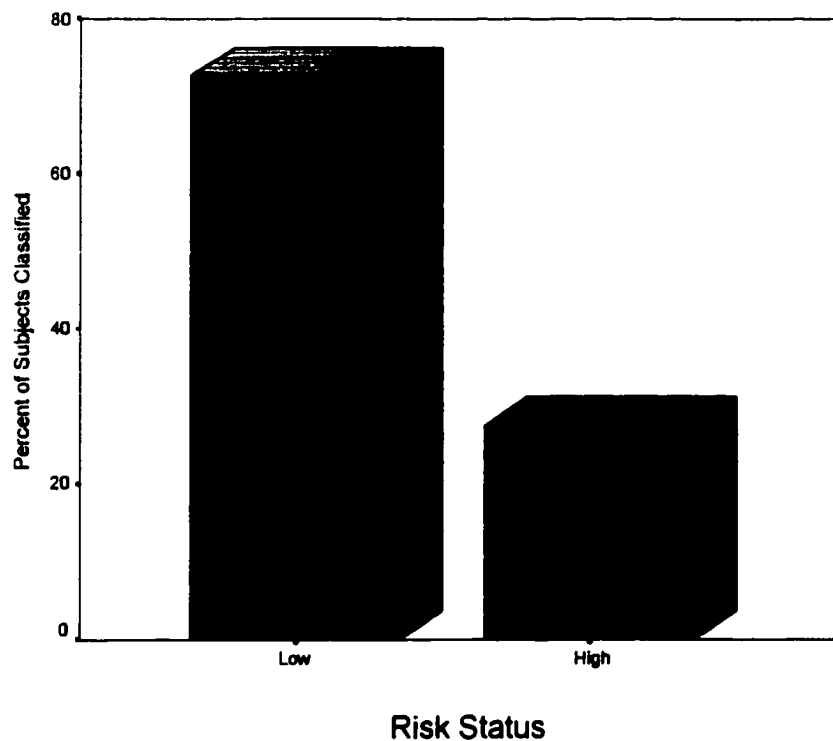
Independent regression analyses were used to test for these mediating effects as outlined by Baron and Kenny (1986). A variable was considered a mediator if it met the following conditions: a) variations in levels of the independent variable significantly accounted for variations in the presumed mediator, b) variations in the mediator significantly accounted for variations in the dependent variable, and c) when its presence dictated that a previously significant relationship between the independent and dependent variables was no longer significant.

### Chapter 3: Results

Due to attrition and incomplete data, the final group of participants represented a reduced number of students that completed both Time 1 and Time 2 measures. While a small number of participants opted not to participate in the Time 2 data collection, most of the attrition was explained by either incomplete data sets, families relocating, or student's changing schools. Participants were included in the final pool only if information was available on risk status, in addition to having a majority of their measures completed. Participants included 175 students at the end of their 7th grade year, with 141 Caucasian, 20 Native American, 1 Pacific Islander, and 3 "other." There were 91 males and 84 females. An important objective was to preserve power in analyses with several independent predictors. Therefore, a pairwise deletion method was used to maximize the potential number of participants used for each analysis, and results should be interpreted with this in mind.

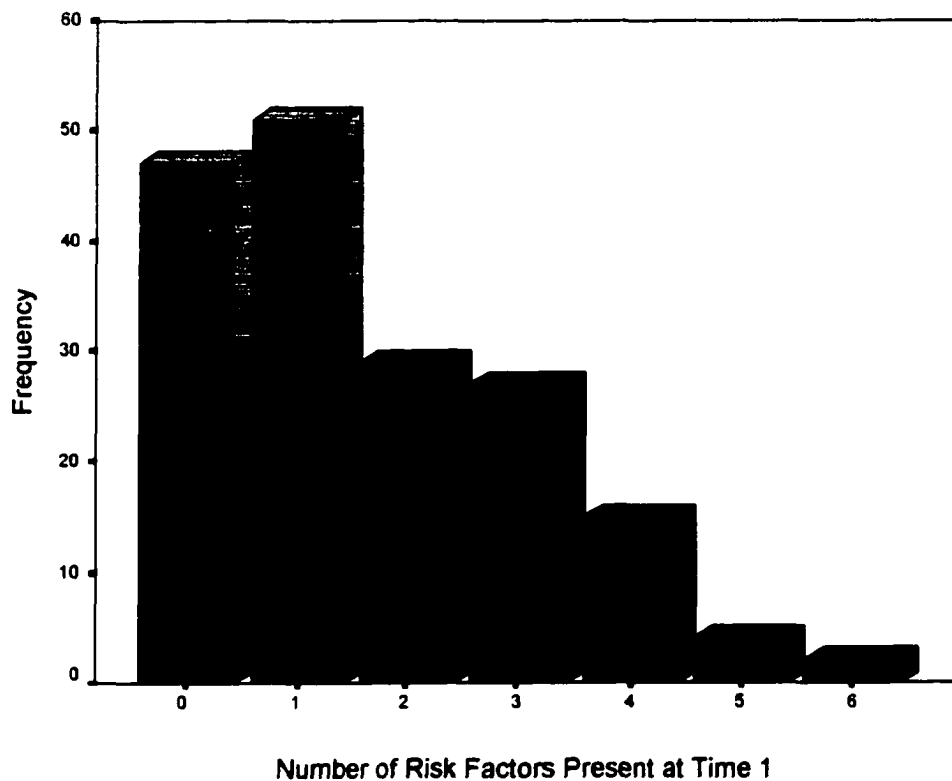
#### Risk Classification

Risk status was determined using a cutoff criterion method, where risk was assessed according to the seven criteria outline earlier. Participants were classified as Low risk if they met criteria for two or fewer risk factors and High risk if they met criteria for three or more risk factors. This method of classification resulted in a total of 127 Low risk (73%) and 48 High risk (27 %) subjects, as illustrated in Figure 1.



**Figure 1.** Percentage of subjects classified as low risk (73%; n=127) versus high risk (27%; n=48) using a criterion cutoff method of classification.

The number of risk factors present varied across individuals. However, a majority of subjects met criteria for none or only one of the risk factors assessed. As illustrated in Figure 2, the distribution of subjects with different numbers of risk factors present was positively skewed. Very few subjects had four or more risk factors present. Thus, results with high risk subjects should be interpreted in light of the more moderate risk levels reflected by this group.



**Figure 2.** Frequency of subjects meeting criteria for 0 through seven risk factors at Time 1.

### **Stability of Risk**

Any observed changes in risk status were important to identify because analyses explored changes in adjustment as a function of risk and protective factors. Any results that demonstrate a lack of significance in longitudinal analyses could have been due to potential variation in the variable Risk Status between Time 1 and Time 2. Therefore, it was also important to conduct a cross-tabulation of subjects' risk status between 6<sup>th</sup> and 7<sup>th</sup> grade assessment periods. Table 1 summarizes the findings of this cross-tabulation.

Table 1.

Cross-tabulation of Risk Classification at Time 1 and Time 2.

		Time 2 Risk Status		
		Low	High	Total
Time 1 Risk	Low	77	13	90
	High	7	22	29
	Total	84	35	119

Seventy-nine out of one-hundred and nineteen subjects maintained their original risk status, which indicated 83% agreement between Time 1 and Time 2 assessments of risk. Thirteen subjects changed from low to high risk, and only seven subjects changed from high to low risk. With this level of agreement, risk status demonstrated fairly good stability. Still, group membership changed for some participants. Results show slightly better agreement among the high risk group. Thus, changes observed longitudinally could partially reflect changes in risk status. The relationship between risk and protective factors in determining adjustment was important to examine cross-sectionally so the impact of risk could be seen at the time risk groups were defined. Results of cross-sectional analyses will be reported later.

Descriptives

Given the large number of variables and the exploratory nature of hypotheses, it was important to begin by analyzing subjects' general pattern of responses to independent and dependent measures. A repeated measures ANOVA was conducted to determine



whether means of hypothesized protective factors and criterion measures were different between Time 1 and Time 2. Mean differences were first analyzed across risk group membership at Time 1 and Time 2, separately (comparing high risk with low risk means at Time 1, and again at Time 2). Next, pairwise comparisons were made between 6<sup>th</sup> and 7<sup>th</sup> grade measurements within each risk group (comparing low risk means between Time 1 and Time 2; comparing high risk means between Time 1 and Time 2). Finally, time and risk group membership were analyzed together so that any interaction between the effects of time and risk status could be discerned. Results of the repeated measures ANOVA indicated significant differences in 6<sup>th</sup> grade and 7<sup>th</sup> grade levels of particular variables as a function of risk status. The means and standard deviations for high and low risk groups, assessed at Time 1 and Time 2, are summarized in Table 2.

Table 2.

Means and Standard Deviations for Low and High Risk Subjects at Time 1 and Time 2.

		Beginning of 6 <sup>th</sup> Grade				End of 7 <sup>th</sup> Grade			
		Low		High		Low		High	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Secure Attachment	L	37.42	5.8	33.98	6.5	37.15	5.4	34.61	6.5
Self-Concept	L	57.23	9.1	49.67	11.1	59.76	10.6	53.11	12.3
Perceived Competence	L	3.25	.57	2.81	.66	3.30	.60	2.98	.63
Teacher-rated Social Skills	L	107.56	17.9	89.93	14.9	102.09	13.71	97.65	17.6
External Locus of Control	T2 H	8.72	3.9	11.28	3.9	12.07	4.7	15.58	5.3
Perceived Support	L	2.16	.58	2.51	.65	2.05	.53	2.34	.65
Class Involvement	T2	46.53	11.1	44.57	8.1	51.71	12.4	52.50	13.6
Family Conflict	T1 H	53.85	12.2	57.11	14.3	46.80	11.1	52.66	14.0
Perceived Family Cohesion	L	47.25	13.6	39.84	17.2	50.63	14.3	45.37	18.4
Teacher-rated Prob Behavs	T1 H	46.02	9.21	56.78	11.7	40.84	8.4	48.06	12.0
GPA	L	3.17	.65	2.58	.80	3.21	.61	2.52	.75

**L** Main effect of risk (Low risk greater than high risk across both Time 1 and Time 2) ANOVA

**H** Main effect of risk (High risk greater than low risk across both Time 1 and Time 2) ANOVA

**T1** Main effect of time (Time 1 greater than Time 2 for all subjects) ANOVA

**T2** Main effect of time (Time 2 greater than Time 1 for all subjects) ANOVA

**RxT** Interaction between risk and Time (number indicates which is greater, Time 1 or Time 2) ANOVA

As illustrated in Table 2, putative resource and protective factors demonstrated considerable variability between Time 1 and Time 2. Furthermore, the stability of particular variables appears to be different for high versus low risk groups. Across both

Time 1 and Time 2 assessments, low risk youth showed higher mean scores for Secure Attachment, Self-Concept, Perceived Competence, Social Skills, Perceived Support, Family Cohesion, and GPA. Their higher scores on measures of positive attributes clearly distinguish these low risk youth from their high risk classmates. Alternatively, high risk youth showed greater External Locus of Control, Family Conflict, and Teacher-rated Problem Behaviors at both Time 1 and Time 2.

The ANOVA further revealed a main effect of time, where all subjects showed higher levels of External LOC and Classroom Involvement at the end of 7<sup>th</sup> grade, ( $F(1,116)=44.48, p<.001$ , and  $F(1,125)=6.88, p<.01$ , respectively). Main effects of time were also found for Perceived Family Conflict,  $F(1,130)=11.53, p<.01$ , and Teacher-rated Problem Behaviors,  $F(1,111)=10.73, p<.01$ , indicating children had higher levels of these two variables at the beginning of 6<sup>th</sup> grade. Thus, for all children, External LOC and Classroom Involvement increased while Teacher-rated Problem Behaviors and perception of Family Conflict decreased between 6<sup>th</sup> and 7<sup>th</sup> grade. Results showed that children became more external in their assignment of control while also demonstrating lower levels of problematic behaviors than when they were in 6<sup>th</sup> grade. Despite their improved adjustment, high risk youth continued to demonstrate higher ratings of External LOC and Problem Behaviors than their low risk peers at Time 2. Alternately, childrens' perceptions of Family Conflict were lower at the end of 7<sup>th</sup> grade, indicating they perceive their families as less conflicted than when they began 6<sup>th</sup> grade. Still, high risk children continued to report higher levels of family conflict than their low risk peers at the end of 7<sup>th</sup> grade.

These differential rates of change between high and low risk groups suggest further the need for analyses of what factors are associated with *change* over time. Specifically, it will be important to know which factors interact with risk status to predict positive and negative changes in behavioral and academic adjustment between 6<sup>th</sup> and 7<sup>th</sup> grade.

### **Moderator Analyses:**

Initial hypotheses asked whether a set of individual and environmental predictors would explain significant variance in two criterion measures, Problem Behavior change scores and GPA change scores. The original aim was to identify potential resource and protective factors through a series of regression analyses. Resource factors would be identified by variables predicting beneficial outcomes for all children, regardless of risk status, while protective factors would be associated with greater benefits for high risk children. Early findings from these analyses revealed that the use of change scores for the two criterion variables would not adequately address the original hypotheses regarding resource and protective effects. Using change scores as the dependent variable allowed for analyses of changes in adjustment; however, these changes did not lend themselves to interpretation as either strictly positive or negative adjustment (i.e., a Problem Behavior change score of "0" could either mean that the child remained at a stable, high rate of problem behaviors or that he/she remained at a stable, low rate of problem behaviors). Thus, findings from analyses using change scores as the dependent variable should not be interpreted in light of resource and protective factors, as originally intended. Instead, later

cross-sectional analyses were used to address questions about resources and protection, and results from those analyses are presented in the next section.

Analyses with Problem Behavior and GPA change scores revealed unexpected but valuable information about the nature of individual and environmental variables associated with change in adjustment status over time. Findings provide evidence that some variables are associated with more change in behavioral and academic adjustment over time, and that the malleability of a variable may depend on risk status.

#### Predictors of Change in Behavioral Adjustment:

A series of hierarchical regression analyses were conducted using individual and environmental factors to predict change in Problem Behavior (as reflected by change in TRF Total Problem Behavior Score) from the beginning of 6th grade to the end of 7th grade. Separate regression analyses were used to examine the unique contributions of five individual and four environmental variables, in addition to gender and risk status. As indicated in the Data Analyses section, interaction terms representing the product of risk and hypothesized protective factors were entered as the final step in each regression equation.

Due to the low number of measures completed for the independent variable, Competence, this variable was removed from all moderator analyses. Later analyses with potential mediators contain fewer independent variables and were therefore more suited for the inclusion of Competence, despite the limited subject pool. Post hoc analyses with the variable Competence indicate a significant amount of variance accounted for in the

dependent variable, Problem Behavior change scores. Thus, Competence may be an important factor in explaining behavioral adjustment with high and low risk individuals, and further examination of child ratings of Competence is warranted in future studies.

Results from the first hierarchical regression with Individual variables and their interaction with risk status are summarized in Table 3.

Table 3.

Results of Regression Analyses Examining Risk and Individual Predictors of Behavior

Change Scores (N = 96; R<sup>2</sup> = .467)

Variable	Standardized <u>B</u>	t	(t) Sig. Level
Teacher ratings of Social Skills	2.02	6.659	.000
External LOC	-.452	-1.667	.099
Risk status	2.530	4.801	.000
Risk x Social Skills	-2.646	-5.078	.000
Risk x Peer Relation Quality	-.350	-3.350	.001
Risk x External LOC	1.308	3.018	.003

Together, these variables explained 47% of the variance in Problem Behavior change scores between 6<sup>th</sup> and 7<sup>th</sup> grade. Of the Individual variables, neither Positive Self-Concept nor Secure Attachment were found to predict change in behavioral outcome status over time. Gender was also uncorrelated with behavior change scores, and failed to

explain significant variance in any subsequent analyses in the prediction of behavioral outcome status. However, higher teacher-rated Social Skills and External Locus of Control were related to less change, or more stability, in problem behaviors from Time 1 to Time 2 ( $R^2 = .168$ ,  $F(1,95) = 19.18$ ,  $p < .001$  and  $R^2 = .079$ ,  $F(2,94) = 15.42$ ,  $p < .001$ , respectively). Analyses also revealed significant interaction terms between risk status and several protective factors in predicting behavior change scores. Teacher-rated Social Skills interacted with risk to predict changes in Problem Behaviors,  $R^2 = .065$ ,  $F(4,92) = 12.64$ ,  $p < .001$ ; however, this interaction was in a different direction than expected. Contrary to hypotheses, higher levels of social skills were associated with less change in problem behaviors between 6<sup>th</sup> and 7<sup>th</sup> grade, and these effects were most evident among low risk individuals. As illustrated in Figure 3, high levels of social skills were associated with less behavioral change overall for all individuals, regardless of risk. The presence of a significant interaction also indicated that low risk individuals with lower teacher-rated Social Skills at the beginning of 6<sup>th</sup> grade demonstrated the most positive movement in problem behaviors between Time 1 and Time 2.

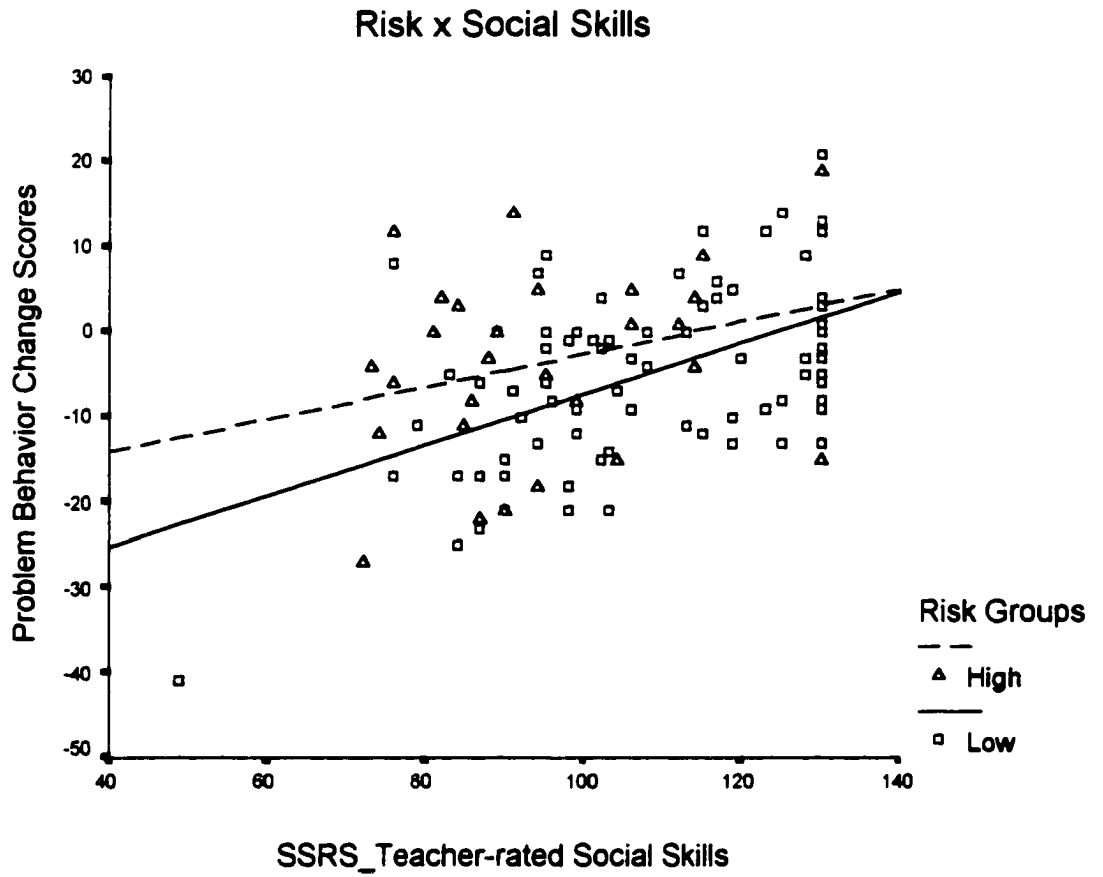
Results supported hypotheses that beneficial effects would be found for low External Locus of Control (LOC). As illustrated in Figure 4, the sharpest decline in Problem Behaviors was found for high risk children who also report lower levels of External LOC at Time1,  $R^2 = .054$ ,  $F(6,90) = 13.13$ ,  $p < .001$ . Findings suggest that perceiving more agency and personal control in one's life affords children greater potential for making positive changes over time.

Better Peer Relationship Quality, as reported by children, also explained some of

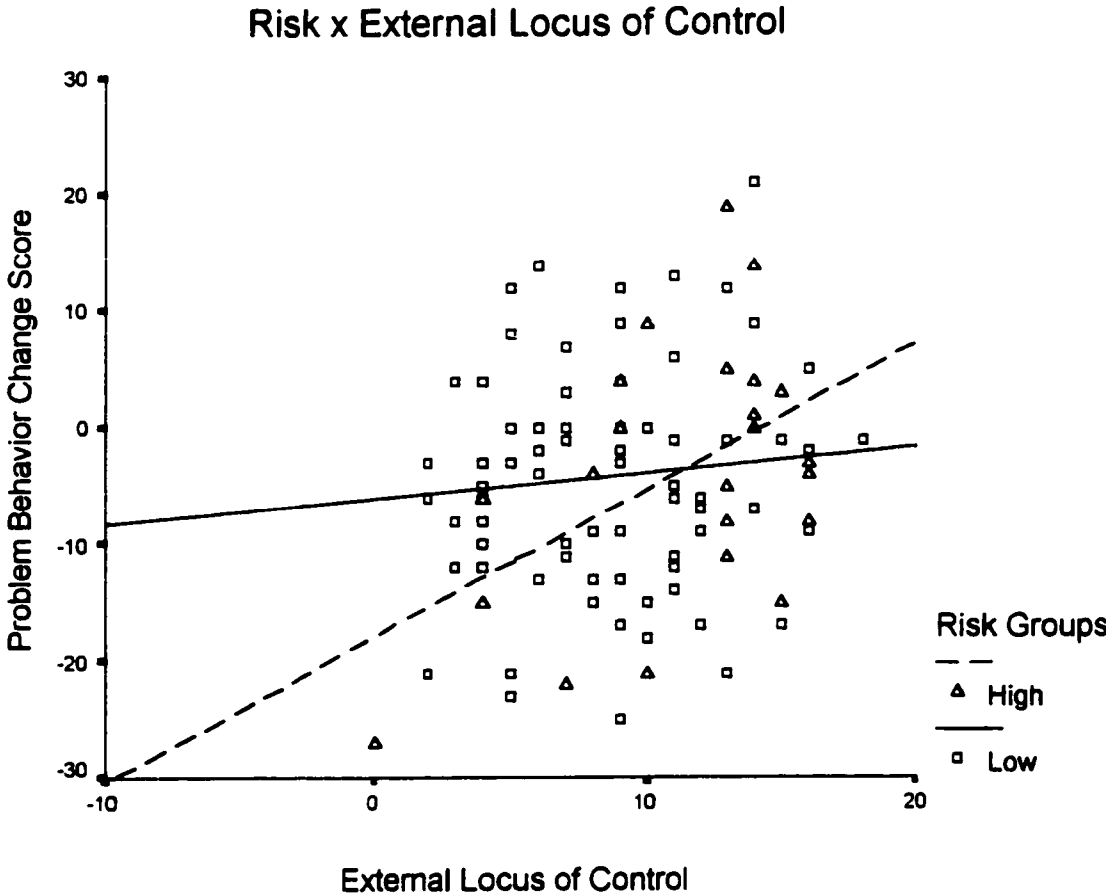
the change in Problem Behaviors,  $R^2 = 1.8$ ,  $F(5,91) = 12.79$ ,  $p < .001$ . However, as illustrated in Figure 5, the interaction between risk and Peer Relationship Quality was in a different direction than expected. Instead of predicting more positive changes (reduction) in Problem Behaviors over time, better Peer Relationship Quality was associated with less change overall in Problem Behaviors, and this was most evident among low risk children. This finding instead suggests that better Peer Relationship Quality is associated with more stability in behavioral adjustment over time, and this was most evident among low risk children. The direction of the interaction illustrated in figure 5 suggests that low risk children with peer relational problems at Time 1 were more likely to show behavioral improvement over the next year than were high risk children reporting similar levels of problems. Alternately, children reporting few relationship difficulties at Time 1 were least likely to show any change in behavioral adjustment.

Results indicate three variables moderate the relationship between risk and behavioral change: teacher-rated Social Skills, Locus of Control, and Peer Relationship Quality. These interactions are illustrated in figures 3 through 5.





**Figure 3.** Interaction between risk and social skills in predicting problem behavior change scores.



**Figure 4.** Interaction between risk and external locus of control in predicting problem behavior change scores.



**Figure 5.** Interaction between risk and peer relationship quality in predicting problem behavior change scores.

The four environmental variables included child-rated Family Conflict, Family Cohesion, Classroom Involvement, and Social Support from parents, peers, and teachers. None of these variables were able to explain a significant amount of variance in Problem Behavior change scores. Only the individual predictors, as outlined above, were able to explain changes in teacher-rated Problem Behaviors between 6<sup>th</sup> and 7<sup>th</sup> grade.

### Predictors of Change in GPA

Results of the hierarchical regression analyses conducted with GPA change scores as the criterion variable yielded similar lack of findings for the role of environmental variables in predicting changes in academic performance. When individual variables were analyzed, only Peer Relationship Quality was important in the prediction of GPA change scores. Peer Relationship Quality explained 5.7% of the variance,  $R^2 = .057$ ,  $F(1, 120) = 7.24$ ,  $p < .01$ . None of the interaction terms was significant in predicting change in academic performance. Findings failed to provide evidence that hypothesized protective factors provide help with explaining changes in academic performance.

As anticipated, the lack of findings with GPA change scores might reflect the limited range that GPA change scores represent. Ranging from -1.5 to 1.8, this narrow range of scores may be too small to elucidate any meaningful relationships between GPA change and the predictors analyzed. Furthermore, the use of change scores for criterion variables, as explained earlier, failed to answer inferential questions regarding the role of hypothesized resource and protective factors. For this reason, it was expected that cross-sectional analyses of the same predictor-criterion relationships might provide more meaningful information about the role of hypothesized protective factors. However, an initial step is necessary to examine whether the values of potential protective factors changed or remained stable over time. Any differences observed in the relationship between predictor and criterion variables from cross-sectional or longitudinal analyses could be due to the instability of protective factors over time. Therefore, a series of Pearson correlations were first conducted to address the hypothesis that some protective

factors would change over time, while others would remain stable.

### **The Stability of Resource and Protective Factors**

Presented below is a summary of the correlations obtained between the first and second assessment of child variables. Results of these correlations indicate more change with particular variables and more stability with others. See Table 4.

Table 4.

Stability of Resource and Protective Factors Between 6<sup>th</sup> and 7<sup>th</sup> Grade.

Variable	Correlation with Same Variable at Time 2	Significance	n (Time 1; Time 2)
Self-Concept	.646**	.000	(123; 119)
Secure Attachment	.387**	.000	(134; 129)
Classroom Involvement	.194*	.034	(123; 119)
Perceived Support	.350**	.000	(126; 123)
Family Cohesion	.548**	.000	(128; 123)
Family Conflict	.382**	.000	(128; 123)
Peer Relation Quality	.393**	.000	(125; 122)
External LOC	.543**	.000	(116; 110)
Social Skills	.302**	.001	(127; 111)

(Teacher-Rated)

\*  $p < .05$     \*\*  $p < .01$ 

With Pearson correlations between .19 and .65, these variables show varying degrees of stability. Despite having achieved significance, the correlation value of particular variables suggests less stability than was expected. Due to the changing nature of the variables measured in just two years (beginning of 6<sup>th</sup> grade until the end of 7<sup>th</sup> grade), it is possible that the effects observed in longitudinal analyses are subject to more variability than was expected. These findings provide further support for using cross-sectional analyses, as discussed earlier, to explore the effects of risk and protection in

individuals. Perhaps the changing nature of resource and protective factors makes these constructs too variable to study over extended time periods. The following section will address findings from regression analyses of cross-sectional data, where Time 1 protective factors will serve as independent variables in the prediction of Time 1 criterion variables, GPA and TRF scores.

### **Cross-sectional Analyses**

Due to the nature of the criterion variable change scores, earlier analyses were unable to answer questions about hypothesized resource and protective factors. The next set of cross-sectional analyses was conducted to address questions about potential moderators and to identify a set of resource and protective factors for academic and behavioral adjustment.

### **Predictors of Time 1 Problem Behaviors**

Findings from a series of hierarchical regression analyses provided evidence for the importance of individual variables as either resource or protective factors in relation to behavioral outcomes. In addition, several environmental factors demonstrated a significant relationship to Problem Behaviors at Time 1. Results of these regression analyses will be reported in the following sequence: First, results of the regression analyses involving individual predictors will be presented, followed by results with similar analyses of environmental predictors. Next, an omnibus regression will be conducted to examine the unique contributions of all Individual and Environmental variables which were able to demonstrate significant predictive power in the first two equations.

Gender demonstrated no significant relationship to teacher-rated Problem Behaviors in 6<sup>th</sup> grade. Of the individual factors, teacher-rated Social Skills explained 52.2% of the variance in Problem Behaviors,  $R^2 = .522$ ,  $F(1,133) = 144.99$ ,  $p < .001$ , and Positive Self-Concept explained an additional 4.7%,  $R^2 = .047$ ,  $F(2, 132) = 87.23$ ,  $p < .001$ . Thus, social skills and self-concept emerged as important resource factors and were associated with lower levels of behavioral problems for all students, regardless of risk.

When environmental factors were entered into a second regression, Problem Behaviors were significantly correlated with child ratings of Social Support and Family Cohesion. The finding for a main effect of Child's Perceived Social Support (explained 6.6 % of the variance) as well as an interaction between Child's Perceived Social Support and Risk Status (explained 24 % additional variance) indicated that social support serves as a protective factor, exerting more positive effects with high risk children,  $R^2 = .306$ ,  $F(3, 130) = 36.92$ ,  $p < .001$ . Similar findings for Family Cohesion support the importance of this variable as a moderator of the relationship between risk and behavioral outcome status. Higher levels of child-reported Family Cohesion were related to lower levels of Problem Behaviors at Time 1, and these effects are particularly true for high risk individuals,  $R^2 = .027$ ,  $F(4, 129) = 30.63$ ,  $p < .001$ .

An omnibus regression analysis was conducted using predictors which demonstrated significance in the first two analyses. Results of this omnibus regression, including standardized betas, t-scores, and significance levels for all predictors can be found in Table 5.



Table 5.

Individual and Environmental Variables Predicting Teacher-rated Problem Behaviors at Time 1.

Variable	Standardized <u>B</u>	t	Sig. Level (t)
Social Skills (Teacher-rated)	-.389	-12.04	.000
Self-Concept	-.262	-3.82	.000
Perceived Social Support	.004	.055	.730
Risk Status	.095	1.43	.735
Risk x Social Skills	.069	1.17	.929
Risk x Self-Concept	.097	1.57	.852
Risk x Perceived Social Support	-.010	-.155	.746
Risk x Family Cohesion	.045	.693	.788

In this final regression equation, none of the interaction terms were found to demonstrate a significant portion of the variance in Time 1 Problem Behaviors. However, main effects were found for teacher-rated Social Skills and child Self-Concept, where these two variables together explained 56.9% of the variance in behavioral outcome,  $R^2 = .569$ ,  $F(2,132) = 87.23$ ,  $p < .001$ . When considered in combination with individual variables, the protective effects of environmental variables were no longer present. Instead, individual variables demonstrated superior predictive power in explaining Problem Behaviors. Children's social skills and positive self-concept appear to serve as resource

factors that are associated with positive behavioral outcomes for all children. Findings from longitudinal analyses discussed earlier supported the role of social skills in long-term changes with behavioral adjustment, where the having fewer social skills at the beginning of 6<sup>th</sup> grade was associated with more positive reduction in problem behaviors over time. However, results of cross-sectional analyses reported here demonstrated there are immediate advantages felt by kids with higher social skills and self-concept at the beginning of 6<sup>th</sup> grade.

### Predictors of Time 1 GPA

A similar series of hierarchical regressions with Time 1 GPA as the criterion variable revealed new information about the relationship of both individual and environmental factors to academic performance.

Of the individual predictors, External LOC helped explain some of the variance in Time 1 GPA,  $R^2 = .031$ ,  $F(1,128) = 4.15$ ,  $p < .05$ . Significant interaction effects were found between risk and Positive Self-Concept ( $R^2 = .141$ ,  $F(3,126) = 39.15$ ,  $p < .001$ ) and between risk and External LOC ( $R^2 = .026$ ,  $F(4,125) = 32.28$ ,  $p < .001$ .) In both cases, these variables predicted better GPA; however, contrary to expectations, these effects were most pronounced for low risk rather than high risk children (see Figures 6 and 9). Together, these individual resource and protective factors accounted for 50.8% of the variance in Time 1 GPA.

Analyses with environmental predictors revealed the importance of Classroom Involvement and child ratings of Family Conflict in explaining academic performance.

Evidence for protective effects was demonstrated in the significant contributions of each of these variables to more positive academic outcomes, with findings being particularly evident among high risk children. Even after the effects of risk status were considered, the interaction between risk and Classroom Involvement helped explain 4.8% additional variance,  $R^2 = .048$ ,  $F(2,136) = 43.26$ ,  $p < .001$  (see Figure 6). The interaction between risk and child-reported Family Conflict explained 10.1% additional variance in Time 1 GPA,  $R^2 = .490$ ,  $F(3,135) = 43.19$ ,  $p < .001$ . However, as illustrated in Figure 7, the interaction was in a different direction than expected, with higher conflict predicting better GPA for high risk youth.

An omnibus regression analysis used individual and environmental variables which demonstrated significance in prior regression equations to predict grade point average at Time 1. The results of this cross-sectional analyses of Time 1 GPA predictors are summarized in Table 6.

Table 6.

Individual and Environmental Predictors of Grade Point Average at Time 1.

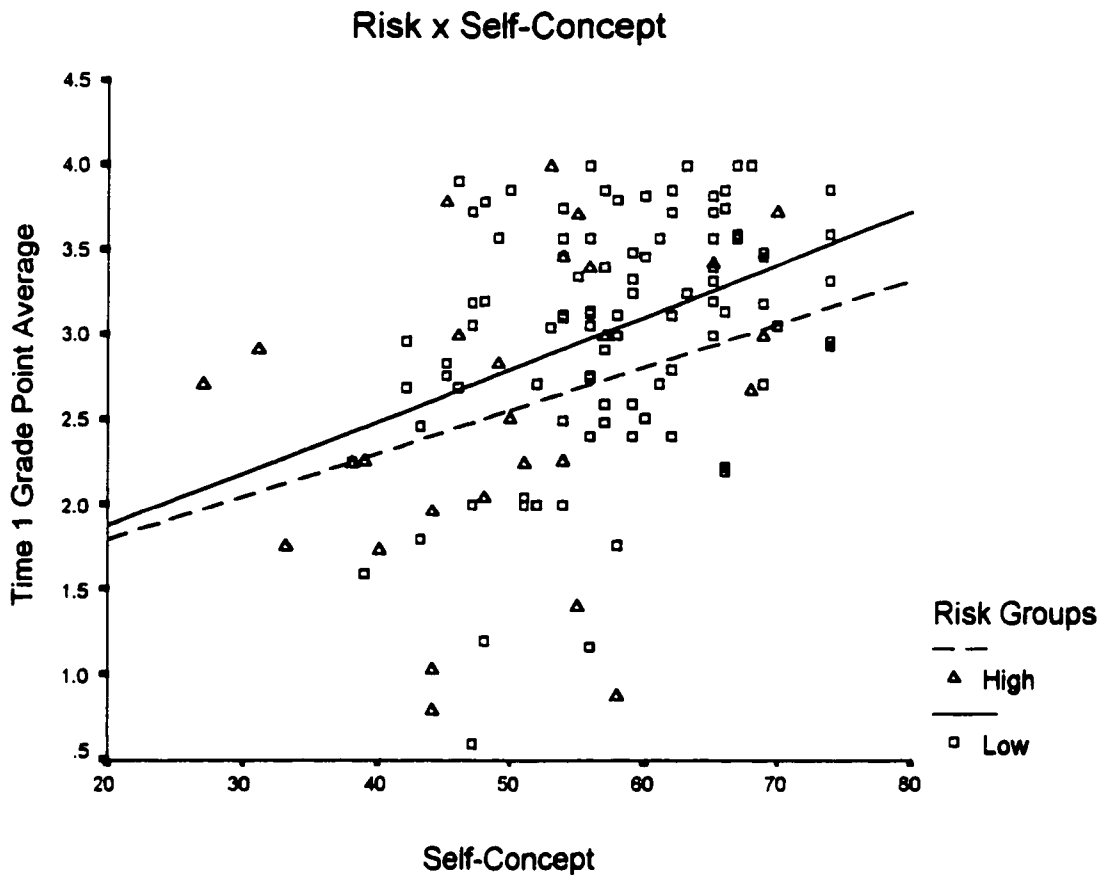
Variable	Standardized <u>B</u>	t	Sig. Level (t)
External LOC	1.00	4.75	.000
Self-Concept	13.340	.	.
Classroom Involvement	.227	4.159	.000
Family Conflict	.033	.615	.540
Risk Status	6.506	14.0110	.000
Risk x External LOC	-1.940	-7.925	.000
Risk x Self-Concept	-.785	-9.60	.000
Risk x Classroom Involvement	-2.204	-10.032	.000
Risk x Family Conflict	-1.997	-8.956	.000

n = 125

When Time 1 GPA was examined as the criterion measure in an omnibus regression analysis, most of the individual and environmental variables continued to demonstrate a significant relationship to academic performance. By itself, child's report of External LOC was important in the prediction of GPA, with lower External LOC predicting higher GPA. In addition, several interaction factors contributed substantially to this prediction. Significant interactions between risk status and several variables were found, including Positive Self-Concept, Classroom Involvement, child-reported Family Conflict, and External LOC. Combined, these individual and environmental factors were able to explain 76% of the variance in Time 1 GPA. At first, these findings appear to

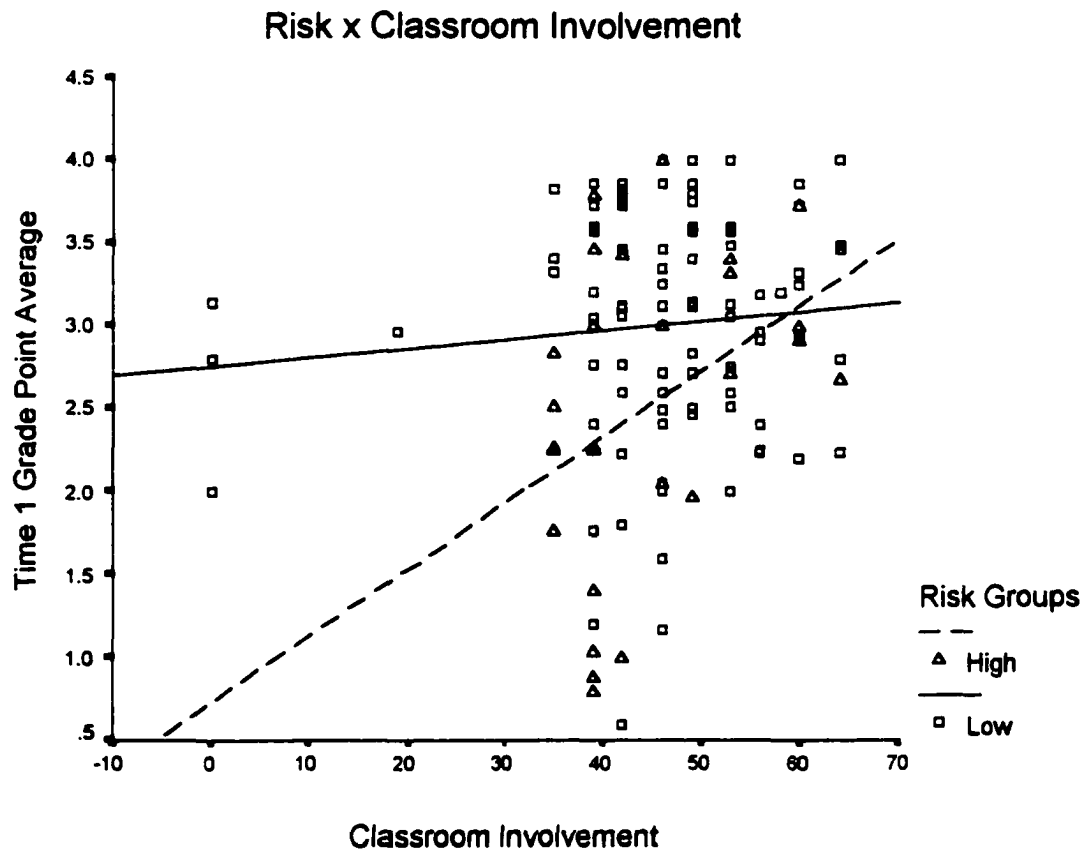
contrast earlier findings suggesting the same variables hold little explanatory power in the prediction of change in GPA. This suggests that academic performance, as measured by GPA, can best be explained by a combination of individual and environmental factors which have a more proximal relationship (temporally) to the criterion variable. Perhaps the effects of resource and protective factors on academic performance can best be viewed within a limited time range, and longterm changes in academic performance are better explained by factors which are measured within the same time period.

Findings demonstrated that four variables moderate the relationship between risk and academic outcomes, as measured by GPA: Positive self-concept, high classroom involvement, and higher ratings of Family Conflict and lower External Locus of Control. The interaction effects for each of these variables in the prediction of Time 1 GPA are illustrated in figures 6 through 9 below.



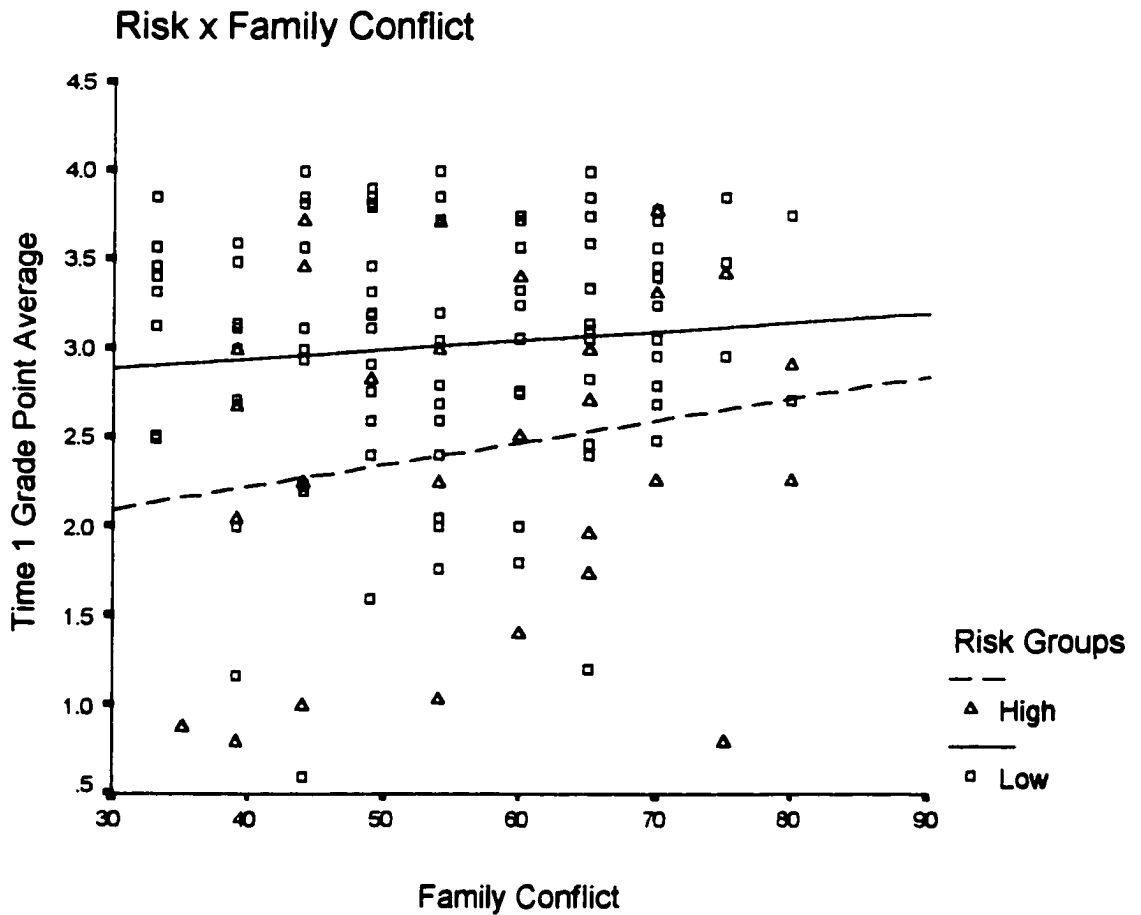
**Figure 6.** Interaction between risk and Self-Concept in predicting grade point average at Time 1.

As expected, Positive Self-Concept was associated with better GPA. However, as illustrated in Figure 6, the direction of this interaction suggests that low risk individuals benefitted more from having a strong self-image. The absence of a main effect of Self-Concept indicated that having a positive self-concept was *not* important overall. However, it clearly held advantages for low risk children, explaining 14% of the variance in academic outcomes.



**Figure 7.** Interaction between risk and classroom involvement in predicting grade point average at Time 1.

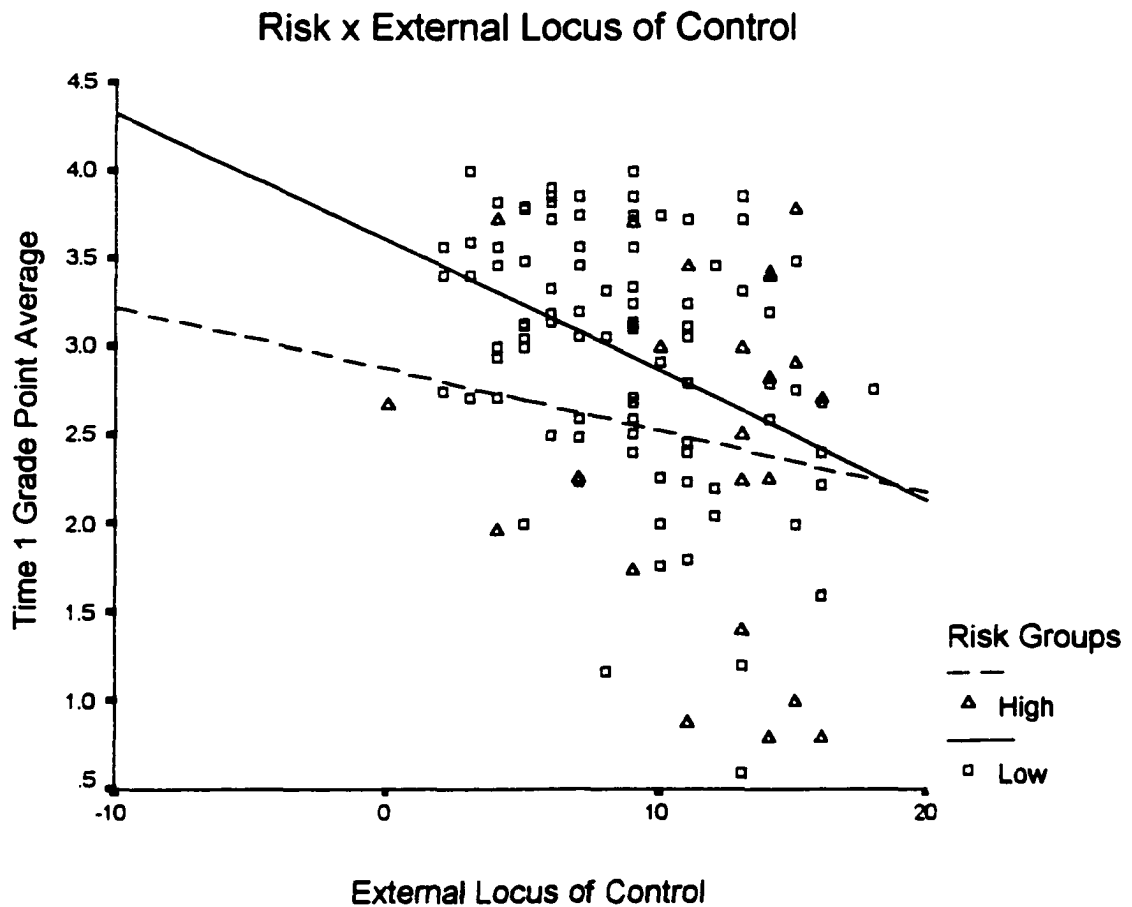
As illustrated in Figure 7, classroom involvement is involved in protective processes for academic status. High risk children with more classroom involvement show significantly higher grade point averages, where this effect is not as apparent for low risk children.



**Figure 8.** Interaction between risk and family conflict in predicting grade point average at Time 1.

As illustrated in Figure 8, the interaction between risk and family conflict appears to be in a different direction than was expected. First, the presence of a main effect of Family Conflict suggests a trend toward higher GPA with subjects who reported higher family conflict. Second, the presence of an interaction shows this trend is more pronounced for high risk individuals. High risk children with more reported family conflict earned higher academic status than low risk children.





**Figure 9.** Interaction between risk and external locus of control in predicting grade point average at Time 1.

Results illustrated in Figure 9 indicate that having a lower external locus of control was associated with better academic status overall. Both high and low risk children appear to benefit differentially from having lower External LOC. Contrary to hypotheses, low risk children appear to benefit the most from having a low external LOC. As indicated by the steeper slope for the low risk group's regression line, low risk children who also have a lower external LOC demonstrate better academic standing than is found with high risk

children, for whom having a slightly more external LOC appears to be less significant to overall academic outcomes. This finding appears contrary to expected results and deserves further attention.

### **Mediation Models**

Given the significant interrelationships between several hypothesized protective factors, the likelihood of multicollinearity is great. The problem of overlapping variance explained by two or more variables leads to confusion about which variable is most important in the explanation of adjustment outcomes. In order to understand how variables interact with each other in determining outcomes, it was important to conduct tests of mediation. However, several potential mediating relationships are possible and it would be infeasible to examine all of these relationships within the scope of this study. Therefore, a review of the literature provided direction for which variables would be selected for tests of mediation. As outlined in Chapter 1, three hypothesized mediators were selected for analyses, including Positive Self-Concept, Social Skills, and Perceived Social Support. Variables were selected based on evidence from prior research indicating their influence as mediators of developmental outcomes. For further review of supporting research, refer to Chapter 1.

In order to determine whether the influences of resource and protective factors are mediated by Social Skills, Social Support, or Positive Self-Concept, three sets of regression analyses were conducted for each of the two dependent variables. The first set of analyses tested mediation models using Time 1 predictors and hypothesized mediators

to explain behavioral adjustment (TRF Total Problem Behaviors) at the end of 7<sup>th</sup> grade.

The same mediation models were then tested again, using Time 1 predictors and hypothesized mediators to explain academic outcomes (GPA) at the end of 7<sup>th</sup> grade.

### Mediators of Behavioral Adjustment Between 6<sup>th</sup> and 7<sup>th</sup> Grade

#### Positive Self-Concept

The first set of analyses began with an assessment of the contribution of individual factors to the prediction of behavioral adjustment between 6<sup>th</sup> and 7<sup>th</sup> grades. It was originally hypothesized that the relationship between three individual predictors (Competence, External LOC, and Peer Relationship Quality) and behavioral adjustment at Time 2 would be mediated by Positive Self-Concept. Procedures followed the analytic logic outlined in Baron and Kenny (1986) (described earlier) for identifying mediating variables through multiple regression, and involved calculating regression equations with and without the potential mediators and examining the effects of the inclusion of the potential mediators on the weights of the theoretically relevant variables. Results from the first set of analyses assessing the contribution of three potential mediators, Positive self-concept, Perceived Social Support, and Teacher-rated Social Skills, are summarized in Table 7.

Results of these initial analyses provided support for the hypothesized mediational effects of Positive Self-Concept on the relationship between individual protective factors and behavioral adjustment over time. The top of the first data column in Table 7 presents the results of the regression equations estimating Problem Behaviors at Time 2 using Time

1 predictors Perceived Competence, External LOC, and Peer Relationship Quality. The second data column presents the results of this regression analysis with the inclusion of Positive Self-Concept (assessed at the beginning of 6<sup>th</sup> grade).

Initial regression analyses demonstrated that Perceived Competence, assessed at the beginning of 6<sup>th</sup> grade, was not able to predict changes in behavioral adjustment over time. Therefore, Perceived Competence was not considered in tests of mediation because it did not meet the initial criteria for potential mediating effects (Independent variable must predict the dependent variable). Peer Relationship Quality, demonstrated significance ( $p < .01$ ) in the prediction of Time 2 Problem Behaviors; however, the significance of this relationship disappeared when the hypothesized mediator Self-Concept was introduced into the equation (compare the beta weights for peer relationship quality in the first and second data columns of Table 7). The relationship between Peer Relationship Quality and Problem Behaviors changed as a function of the mediating variable, Self-Concept. Similarly, the relationship between External LOC and Time 2 Problem Behaviors was significant by itself ( $p < .01$ ). However, when Positive Self-Concept was introduced into the equation, External LOC became non-significant in predicting behavioral outcome status. Results demonstrated that Positive Self-Concept mediates the relationship between two variables, External LOC and Peer Relationship Quality, and behavioral outcome status at Time 2.

Table 7.

Models Testing for Effects of Self-Concept, Perceived Social Support, and Social Skills on Behavioral Adjustment at Time 2

Variable	Beta Weights for Time 2 Problem Behavior	
	Equation 1 <sup>a</sup>	Equation 2 <sup>b</sup>
Perceived Competence	-.110	.236
External LOC	.325**	-.141 <b>M</b>
Peer Relationship Quality	.249**	-.171 <b>M</b>
<b>Positive Self Concept</b>		
Family Conflict	.061	-.016
Family Cohesion	-.125	.005
Teacher-rated Social Skills	-.261**	-.008 <b>M</b>
Secure Attachment	-.027	.018
<b>Perceived Social Support</b>		
Peer Relationship Quality	.249**	-.061 <b>M</b>
<b>Teacher-rated Social Skills</b>		

Hypothesized mediators indicated by bold type.

<sup>a</sup>Equation 1 excludes hypothesized mediator. <sup>b</sup>Equation 2 includes hypothesized mediator.

<sup>c</sup>p < .10 (marginally significant). \*p < .05. \*\*p < .01.

**M** indicates the variable's effect on DV is mediated.

### Social Support

The next series of analyses tested the hypothesis that higher perceived Social Support would mediate the influence of Family conflict, Family Cohesion, Teacher-rated Social Skills and Secure Attachment (assessed at the beginning of 6<sup>th</sup> grade) on Time 2 assessment of Problem Behaviors. Results demonstrated support for the mediating

influence of higher perceived Social Support on the relationship between Social Skills and behavioral outcome status at the end of 7<sup>th</sup> grade (compare the beta weights for these two variables in the first and second data columns of Table 7 above). Teacher-rated Social Skills demonstrated diminished predictive power when child's ratings of Social Support were considered in the equation. Thus, results support the hypothesis that the role of social skills in behavioral adjustment is mediated by the effects social support as perceived by the child.

Original hypotheses included Secure Attachment, as well as Family Conflict and Family Cohesion, as potential predictors of behavioral adjustment. However, these variables were not predictive of behavioral outcomes at Time 2, even prior to test of mediation (note beta weights in the middle of the first data column for these two variables). These findings are consistent with results of earlier regression analyses where Family Conflict and Family Cohesion were considered along with several other potential protective factors and were not found predictive of Problem Behavior change scores over time. An interesting but contradictory finding (also reported earlier) was that family environment variables did interact with risk to predict a significant amount of the variance in cross-sectional analyses with behavioral adjustment. These findings suggest that family environment factors have immediate impacts on behavioral outcomes assessed at the beginning of sixth grade; however their impact lessens when assessed over time.

## Social Skills

The final series of analyses with Time 2 Problem Behaviors as the dependent variable provided initial evidence for teacher-rated Social Skills as a significant mediator of the relationship between Peer Relationship Quality and behavioral adjustment. Table 7 illustrates that Peer Relationship Quality (assessed at the beginning of 6<sup>th</sup> grade) is significant in the prediction of positive behavioral adjustment at the end of 7<sup>th</sup> grade. The significance and absolute value of the beta weight for peer relationship quality are diminished when teacher-rated Social Skills are included in the equation. Thus, Social Skills mediate the relation of Peer Relationship Quality to behavioral adjustment over time.

## Mediators of Academic Status

The second set of regression analyses were conducted to test for the effects of the three potential mediators, positive Self-Concept, perceived Social Support, and teacher-rated Social Skills (all assessed at the beginning of 6<sup>th</sup> grade), on academic functioning at the end of 7<sup>th</sup> grade. Results from these analyses are summarized in Table 8.

Table 8.

Models Testing for the Effects of Self-Concept, Perceived Social Support, and Teacher-rated Social Skills on GPA at Time 2

Variable	Beta Weights For GPA at Time 2	
	Equation 1 <sup>a</sup>	Equation 2 <sup>b</sup>
Perceived Competence	.181	-.243
External LOC	-.401**	.160 <b>M</b>
Peer Relationship Quality	-.241**	.017 <b>M</b>
<b>Positive Self-Concept</b>		
Family Conflict	.002	.106
Family Cohesion	.157 <sup>t</sup>	-.095 <b>M</b>
Teacher-rated Social Skills	.597**	-.076 <b>M</b>
Secure Attachment	.163	-.092 <b>M</b>
<b>Perceived Social Support</b>		
Peer Relationship Quality	-.216**	.162* <b>M</b>
<b>Teacher-rated Social Skills</b>		

mediators indicated by bold type.

<sup>a</sup>Equation 1 excludes hypothesized mediators. <sup>b</sup>Equation 2 includes hypothesized mediators.

<sup>t</sup>p < .10 (marginally significant). \* p < .05. \*\* p < .01.

**M** indicates this variable's effect on DV is mediated.

### Positive Self-Concept

Initial analyses tested whether Self-Concept is a mediator of the relation between three variables (perceived Competence, External LOC, and Peer Relationship Quality) and academic status at Time 2. As illustrated in Table 8, results failed to support the



relationship of self-reported Competence to academic status at Time 2. Thus, no further assessments of mediation effects were conducted with Competence as the independent variable. Peer relationship quality had a direct influence on 7<sup>th</sup> grade GPA, independent of Self-Concept. However, the significance of this influence disappeared when self-concept was included. The diminished role of peer relationships when Self-Concept is considered indicated that a mediating relationship exists, where Self-Concept is one variable through which peer relationships exert their effects on GPA over time. Furthermore, the relationship between External LOC and Time 2 GPA also diminished when child's perceived self-concept was included in the equation. This seems to suggest that a child's perception of personal agency affords him or her a more positive self-concept, which then increases potential for better academic outcomes.

### Social Support

Results support Social Support as a mediator of the relationship between several independent variables and GPA. In testing for the mediating effects of perceived Social Support, three of the four independent variables examined were predictive of GPA at the end of 7<sup>th</sup> grade. Family Cohesion, Social Skills, and Secure attachment, assessed at the beginning of 6<sup>th</sup> grade, contributed directly to the explanation academic status at Time 2 (see the middle of the first column in Table 8). Family Conflict was not significantly predictive of GPA and was therefore not considered in further tests of mediation. When perceived social support was added to the equation with secure attachment, the influence of secure attachment became insignificant (compare beta weights in first and second

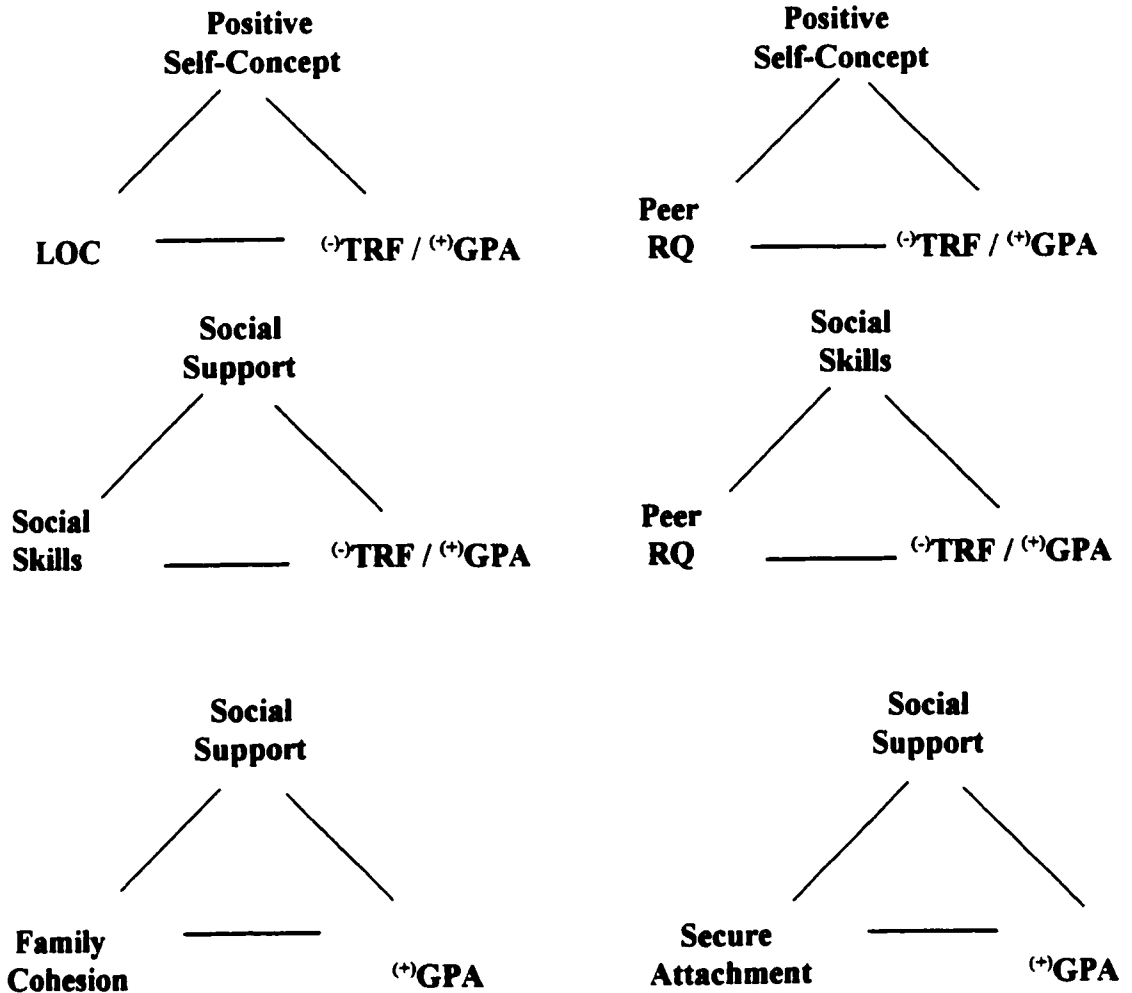
columns of Table 8), thus providing evidence for social support as a mediator of the relationship between secure attachment and positive change in academic status over time. Similar results were found with Social Skills and Family Cohesion, where the added presence of perceived Social Support was associated with the diminished role of these variables in explaining academic outcomes.

### Social Skills

A final series of analyses confirmed the role of social skills as a mediator in the relation of Peer Relationship Quality to academic status at the end of 7<sup>th</sup> grade. Peer Relationship Quality, assessed at the beginning of 6<sup>th</sup> grade, demonstrated a significant and direct influence upon GPA, as illustrated in bottom of the first column in Table 8 above. However, the inclusion of teacher-rated social skills was associated with the diminished predictive power of peer relationships (compare beta weights in bottom of first and second data columns in Table 8 above). This diminished influence, when social skills is included in the equation, suggested that a mediating relationship exists. Findings indicate that social skills may be one mechanism by which peer relationships exert their influence on academic outcomes over time.

A summary of the mediators between predictor variables and academic and behavioral outcomes can be found in figure 10.

### Mediators



**Figure 10.** Summary of mediating relationships.

## Chapter 4: Discussion

The current investigation sought to address resources and protective processes among low and high risk middle school students in a longitudinal study. Findings first identified individual variables associated with more positive changes in outcome status between 6<sup>th</sup> and 7<sup>th</sup> grade. Next, several individual and environmental factors were shown to act as moderators of risk status in determining behavioral and academic adjustment at the beginning of 6<sup>th</sup> grade. Finally, this investigation showed the effects of particular variables on longitudinal outcomes were mediated by the presence of intervening variables. Findings are discussed in light of intervention and future research.

### Predictors of Change in Academic and Behavioral Adjustment

Longitudinal analyses using change scores as the criterion variable were unable to address hypotheses regarding potential resource and protective effects. As discussed in Chapter 3, using change scores as the dependent variable did not permit interpretation of outcomes as either strictly *positive* or *negative* adjustment (i.e., a Problem Behavior change score of "0" could either mean that the child remained at a stable, high rate of problem behaviors or, it could also mean that he/she remained at a stable, low rate or problem behaviors). Thus, findings from analyses using change scores as the dependent variable were not interpreted in light of protective effects, as originally intended. Instead, findings from cross-sectional analyses addressed questions about resources and protection, and results from those analyses are discussed later.

Findings from longitudinal analyses of changes scores provided interesting information about which variables are linked to positive changes in behavioral and academic adjustment between 6<sup>th</sup> and 7<sup>th</sup> grade. Environmental variables, including social support, classroom involvement, family cohesion, and family conflict, were not predictive of changes in either behavioral adjustment or academic status over time. Despite their demonstrated importance with behavioral and academic outcomes at the beginning of 6<sup>th</sup> grade, environmental factors were unrelated to outcome over an extended duration of time. The lack of significant predictive power could be partially explained by the relatively lower stability in these factors between 6<sup>th</sup> and 7<sup>th</sup> grade. For example, classroom involvement showed a low correlation between Time 1 and Time 2, indicating a fairly low level of stability over time. Social support and family environment were only moderately correlated, thus providing further evidence that contextual variability may be responsible for some of the non-significant findings with academic and behavioral changes. Variability might also have resulted from the child's reporting of these influences at two different points in his/her development. Variable reporting of family environment factors might arise from the child's differing perceptions of the family context at two different points in his/her development. Future research with this population would need to distinguish the effects of the child's perception of environmental influences from observed changes in these same variables over time.

The lack of significance with environmental predictors presents an important question about the impact of environmental on changes in youth adjustment. Are environmental factors important in youth adjustment? Previous studies have demonstrated

the importance of family environment and social support for youth adjustment (Buysse, 1997; Wills & Cleary, 1996; Siefer et al., 1992). This investigation also found environmental factors predicted immediate outcomes when assessed at the beginning of 6<sup>th</sup> grade, but the same factors did not predict the degree of change in adjustment over time. Later findings from mediation tests showed that the child's perceived social support mediates the relationship between several individual variables and adjustment status at the end of 7<sup>th</sup> grade, thus indicating that the impact of environmental factors does hold up over time. How can the same environmental factors predict longitudinal outcomes but not predict the changes that took place over time? The answer to this question involves a closer look at the nature of the dependent variable, change scores.

Change scores revealed the *degree* (positive or negative) of change that took place over time; alternatively, cross-sectional and mediational findings tested whether environmental factors could predict *outcomes* at Time 1 and Time 2. Assessing the degree of change in the dependent variable, Problem Behaviors, tells us nothing about whether outcomes will be good or bad (a person could show very little change and still remain at a very high GPA from Time 1 to Time 2). Thus, findings from analyses with change scores must be interpreted differently than findings from cross-sectional and mediation analyses.

This study attempted to discern the relationship between individual and environmental variables as they predict changes in adjustment status. This study found that environmental variables are less important to the degree of *change* in adjustment, but are more important with adjustment as measured at certain points in the youth's development. Future analyses with change scores will want to distinguish the nature of questions asked

when using change scores as a dependent variable.

An unexpected finding was that all students demonstrated significant reductions in behavior problems between Time 1 and Time 2. Despite earning consistently higher problem behavior ratings in both 6<sup>th</sup> and 7<sup>th</sup> grades, high risk students showed a decrease in problem behaviors similar to their low risk peers. The presence of prevention activities at both middle schools could certainly have impacted these youth. Prevention activities were available to all youth and should therefore enhance positive outcomes for everyone, including both high and low risk groups. Despite their improvements, high risk children still received significantly higher ratings of problem behaviors at the end of 7<sup>th</sup> grade. Perhaps high risk youth are most severely impacted by the stressful transition to middle school in early adolescence, thus showing exaggerated problems at the beginning of 6<sup>th</sup> grade. The initial transition to a new school with new class structures and daily schedule demands probably involves uncertainty and stress, which could be expressed through increased behavioral acting out. With time, these high risk children are likely to gain familiarity with new environmental demands, and their improved behavioral adjustment may reflect this adaptation. In either case, the significant improvement in behavioral adjustment is likely to affect analyses using change scores as the dependent variable, where all children will show a trend toward positive movement (reduction) in Problem Behaviors. Therefore, interpretation should be tempered as a result of trends toward positive change in behavior problems for all subjects.

Interaction effects between risk and three individual predictors, social skills, external locus of control, and peer relationship quality, were meaningful in this

investigation.

Lower social skills at Time 1 predicted more positive changes in behavioral adjustment between assessment periods. Kids with fewer social skills at the beginning of 6<sup>th</sup> grade were also likely to have more behavior problems, given the negative correlation between these two variables. Having more problem behaviors, these children are more apt to show positive change, or reduction, in problem behaviors than are children who already have low levels of behavior problems at Time 1 (i.e., they have more room to show improvement). High risk children who also had fewer social skills at Time 1 showed less improvement over time than their low risk peers. Such a finding deserves attention. These children appear to begin with fewer skills and show more resistance to the improvements demonstrated by their low risk peers. Perhaps these children are not benefitting to the same extent from the positive influences available to low risk youth who showed greater change. High risk youth may have a more restricted range of interventions beneficial to them. Alternatively, high risk youth did show significant reductions in behavior problems, similar to their low risk peers. Despite their reductions, the high risk youth still showed higher problem behaviors than their low risk peers at Time 2. Perhaps high risk youth are less likely to show dramatic changes in short time periods as in this study. Instead, the impact of positive influences in their lives might take more time to show effects that will be more apparent in the future. The need to identify interventions which have specific benefit for high risk youth are greatly needed, and specific attention should be paid to the length of programs in relation to outcomes for high and low risk youth individually.

Another individual characteristic associated with movement in problem behaviors



was the child's locus of control. As expected, having an internal locus of control at the beginning of 6<sup>th</sup> grade was associated with decreasing problem behaviors for all children, but behavioral improvements were especially evident among high risk youth with more internality. This finding suggests that high risk youth tend to show substantially better improvement when they perceive things in their lives are in their control. Of particular importance then is the finding that high risk youth, as a group, showed a significant trend toward greater extenality between 6<sup>th</sup> and 7<sup>th</sup> grade. The few high risk youth who developed a sense of personal efficacy and control showed substantially improved behavioral adjustment. Activities that enhance a child's sense of personal control or efficacy in their environment seem to benefit these high risk individuals the most. Learning that emphasizes personal responsibility by incorporating cause-and-effect relationships in the child's immediate context could help youth with an external locus become more aware of their unique influence on outcomes.

Positive behavioral and academic changes were found for children with poorer peer relationship quality at the beginning of 6<sup>th</sup> grade, but these effects were restricted to low risk youth. Perhaps these children initially face considerable adjustment difficulties as they struggle to feel accepted among peers; however, their improved GPA seems to indicate they find reward in other areas which are tied to better adjustment over time. Alternately, positive behavioral changes were not tied to peer relationship quality for high risk youth, despite the finding that high risk kids showed lower peer relationship quality overall. Perhaps one reason high risk children who are behaviorally maladjusted show little improvement as a result of peer connectedness is that they receive less prosocial support

from their peer group. Pawlby, Mills, Taylor, and Quinton (1997) showed that high risk youth tend to chose peers associated less with “same age and same school” patterns and more with antisocial or delinquent behavior. They may have more friends outside of school or friends with reduced investment in school. Perhaps improved adjustment for high risk youth will depend on peer-related interventions that emphasize prosocial norms by combining high and low risk peers in groups with positive peer culture among same age peers.

Interestingly, there were few significant predictors of change in academic status between 6<sup>th</sup> and 7<sup>th</sup> grade. As discussed earlier, the lack of findings with predictors of GPA changes scores may be reflective of the limited range of potential values for this dependent variable. Predictive relationships may not be discernable from such a restricted range of values, and further analyses with cross-sectional data provide some confirmation of this hypothesis. These findings will be discussed below, along with other cross-sectional findings.

### **Findings From Cross-Sectional Analyses With Hypothesized Moderators**

#### **Individual Variables**

Cross-sectional analyses answered questions about potential resource and protective factors in relation to behavioral and academic outcomes at the beginning of 6<sup>th</sup> grade. Risk interacted with individual and environmental variables to predict outcomes, thus highlighting different effects for high and low risk groups. Findings indicate the need for interventions with well-defined target populations and selected outcomes.

Social skills and positive self-concept demonstrated resource effects, where higher levels of these characteristics were associated with positive outcomes for all individuals, regardless of risk. Social skills emerged as a predictor of positive behavioral adjustment when children were assessed at the beginning of 6<sup>th</sup> grade. In the short run, the ability to apply skills like cooperation, assertion, and empathy when interacting with others appears to be an important resource for all children. Findings discussed earlier suggested higher social skills are predictive of behavioral stability, thus indicating these positive behavioral effects will endure for children who begin middle school with higher social skills. In addition, children appear to benefit from having positive self-concept, or a sense of themselves as valuable, and worthy of praise from others. However, the hypothesis that self-concept would be most protective for high risk youth was not supported. Instead, self-concept acts as a resource factor, exerting positive effects for all children. When academic outcomes are considered, self-concept was most beneficial to low risk children. Perhaps high risk children face more affronts to their self-perception as they receive more negative feedback from others in their environment (parents, teachers, etc.). As a result, they may develop a more protected approach to the world, where self-perceived limitations are not so central to their overall development. Low risk children, on the other hand, are more strongly impacted by limited self-worth, as suggested by the closer connection that self-concept has to GPA for them.

Despite findings from longitudinal analyses that lower externality was associated with positive changes in behavioral adjustment, no relationship to behavioral adjustment was found at the beginning of 6<sup>th</sup> grade. Instead, a low external locus of control

demonstrated benefits with academic rather than behavioral gains, when assessed at the beginning of 6<sup>th</sup> grade. Low externality served as a resource factor which was associated with higher GPA for all children. However, contrary to expectations, the immediate benefits of perceiving more personal agency and control in one's life were more evident for low risk than for high risk individuals. This unexpected advantage for low risk children might be explained by different environmental demands faced by low and high risk children. Perhaps for high risk children who face more adversity, the ability to externalize problems might be associated with more adaptability than it would for low risk children. Attributing the problems to external sources may free them from internalizing problems that could be associated with self-blame. Academic status may be less negatively affected by externality for high risk youth who are able to find reasons, other than themselves, for their lower grades. Thus, the adaptive advantage of being able to externalize problems might offset the gains that other (low risk) children experience as a result of more perceived control. For children with fewer stressors, however, the advantages of perceiving internal control for one's life are apparently linked to better performance in academics. Low risk youth may benefit more from perceiving control over their circumstances because they encounter more successes (positive praise) than failures (problematic interactions with teachers, parents, etc.) in their daily lives. The opportunity to take responsibility for successes may afford these children better self-esteem to help them achieve further gains.

Perceiving more personal control is related to better academic gains for low risk children. For high risk kids, locus of control appears to be more salient for long-term

behavioral changes, and is only somewhat related to their immediate gains with academic status. Interventions aimed at enhancing kids' personal efficacy should consider long-term adjustment as well as short-term functioning. Activities aimed at building a child's sense of personal efficacy or control should be reserved for individuals in need of long-term improvement with behavioral adjustment, while short-term academic gains will require additional emphasis on other assets.

### Environmental Variables

When other variables were not considered in the same equation, environmental variables interacted with risk to predict short-term advantages in behavioral adjustment. Higher perceived social support and family cohesion at Time 1 predicted fewer teacher-reported problem behaviors. In fact, perceived social support provided the strongest source of environmental protection for high risk individuals. Family cohesion explained a small portion of the variance in problem behaviors after social support was considered; however, the significant correlation between these two variables indicated some multicollinearity and a possible overstatement of the total variance explained with problem behaviors at Time 1. Further analyses revealed that social support mediates the effects of family cohesion on academic outcomes. Close relationships and bonding among family members has an indirect impact on academic outcomes over time, where the child who perceives more supportiveness through closer family bonding shows better academic performance over time.

When environmental predictors were considered along with social skills, self-

concept, and external locus of control, the significance of perceived support and family cohesion diminished. When both high and low risk children were considered together, individual resource factors, such as social skills and self-concept, were more important in determining problem behaviors at Time 1 than were environmental influences. For immediate behavioral adjustment among both high and low risk children at the beginning of 6<sup>th</sup> grade, the impact of more proximal individual characteristics is greater than more distal environmental influences. Thus, general prevention programs targeting behavioral adjustment among all 6<sup>th</sup> graders could focus more on individual characteristics, rather than targeting family or environmental changes. Activities that enhance children's social skills and self-concept may show the greatest overall improvements with behavioral adjustment. Alternatively, high risk children appear to derive more immediate protection through their environments. High risk children benefit from contextual influences, such as classroom involvement and perceiving support from family, teachers, and friends. Thus intervention programs targeting immediate behavioral adjustment among high risk youth could emphasize active participation in school and family activities.

Academic status depended on the combined influence of individual and environmental factors, with environmental factors offering the most immediate protection for high risk children. In addition to the importance of perceived control and positive self-concept, significant environmental variables were highlighted. The hypotheses that Classroom Involvement would be involved in protective processes for academic outcomes was supported in this study. Higher levels of teacher-rated classroom involvement were associated with higher GPA for all students. However, this effect was most evident among

high risk individuals. Furthermore, classroom involvement was protective for high risk individuals in the short run, but was unrelated to changes over time (as reported in longitudinal analyses). This suggests that class involvement carries only immediate benefits. Perhaps the child's engagement in classroom activities is less important to academic adjustment over a longer time period. Instead, this involvement shows more immediate effects on students' grades.

Analyses with GPA at Time 1 also revealed unexpected interaction effects between risk and family conflict, where higher family conflict predicted better GPA, particularly among high risk children. This finding contrasted with hypotheses that low levels of conflict would play a protective role for high risk children. One explanation for these contradictory findings is that children from conflicted families may seek to control what they can by removing concerns about their academic performance from the list of stressors already present. This might be illustrated by the child who achieves exemplary grades and acknowledges few problems in order to appear well-adjusted in light of conflicted circumstances at home. Initial support for this interpretation is provided by the indirect relationship, although not significant, between child's report of family conflict and lower teacher-rated problem behaviors. Perhaps these children compensate for their conflicted surroundings at home by achieving and doing well in school. Additionally, these children may seek support outside their conflicted family environment within the mentoring relationship of a teacher who provides extra encouragement or feedback. Thus, higher risk children who do well in school might be finding solace from their conflicted family context.

An alternative explanation for findings that higher conflict was related to higher GPA for high risk youth is that family conflict also implies the child receives more attention. Not all family conflict is perceived by the child as negative, particularly if that child perceives the interaction with other family members to be normative or rewarding. Buysse (1997) emphasizes that conflict with parents increases overall during the onset of adolescence; however, adolescent relationships with parents are not conflict-ridden overall; they are supportive as well as conflicted. Perhaps high risk children benefit somewhat from higher conflict because it provides them extra interaction and engagement with parents they would otherwise be without. Further research is needed to discern whether different types of conflict are associated with positive versus negative adjustment. It seems important to distinguish whether conflict has detrimental effects, or if it is associated with more positive gains overall.

#### Implications:

The results from analyses of moderator variables suggest that prevention programs targeting immediate academic outcomes should focus on improving childrens' social skills, self-concept, and engagement in classes. Particularly for high risk youth, active involvement in classroom activities or discussion seems extremely relevant to immediate improvements with grades. Activities that offer plenty of reward for individual successes may bolster perceived self-concept so that students are more likely to feel good about themselves and their ability to earn better grades. Similarly, activities that offer small group interactions or model effective communication could assist with social skills



enhancement.

Implications from findings with family conflict are less clear, but seem to suggest somewhat better academic status for high risk youth with higher conflict. Feeling engaged with and receiving attention from one's family might outweigh any negative effects that might be expected from higher levels of family conflict. This interpretation is supported by findings that perceived supportiveness from others and close bonding with family members are especially protective for high risk youth. Thus, school-wide programs that foster family involvement and supervision could help build more connections for supportive relationships between children and parents. Alternatively, programs could emphasize a mentoring role for teachers of such children, where special attention and encouragement is provided outside of the home. Finally, the perception of control in one's life appears to benefit low risk more than high risk children with regard to academic standing in the short run. Perhaps the flexible adaptation of internality and externality in relation to successes and failures will benefit high risk youth who already face several challenges to their overall self-concept. Rather than targeting improvements with locus of control, academic interventions with high risk youth may need to include alternative emphases on increasing parent-child engagement and experiencing personal successes through class participation. Because having an internal locus of control was associated with long-term improvements for high risk children, the child's sense of personal agency should be considered for more longitudinal interventions with behavioral adjustment.

### **Mediators of Academic and Behavioral Outcomes**

This study also identified several mediators of academic and behavioral adjustment. Testing models of mediation provided new information which could not be ascertained from moderator analyses reported earlier. Protective factors were highly interrelated, thus indicating that some multicollinearity and overstatement of results is possible. Thus, it was important to distinguish the effects of one protective factor from another, and to understand how they interact with each other. Findings from mediator analyses shed light on how these variables interact to determine youth adjustment during the transition through middle school. Specifically, mediators were identified as variables that intervene in the relationship between protective factors and outcomes. Mediators are of importance to prevention programs because these intervening variables have a more proximal effect on childrens' adjustment. By targeting mediators, prevention dollars can be more efficiently distributed to activities that directly impact childrens' adjustment.

The goal of mediator analyses was to identify paths through which adjustment occurs by examining the interrelationship between hypothesized protective factors in determining behavioral and academic outcomes over time. Several mediating relationships were identified, where the influence of one variable on outcomes was mediated by the presence of a third, intervening variable.

### **Mediators of Behavioral Adjustment**

Self-concept, social support, and social skills were found to mediate the effects of individual and environmental characteristics on academic and behavioral outcomes at Time

## 2. Self-concept mediated the effects of locus of control on behavioral adjustment.

Perceiving higher levels of internal control in one's life was predictive of more positive self-concept, and higher self-concept was associated with fewer behavior problems at the end of 7<sup>th</sup> grade. These findings are supported by Weiner's (1974) Attribution Theory, where self-esteem depends on the child's ability to attribute successes to their own efforts and to perceive mistakes or failures as learning experiences that can be altered. Internal control over the events in one's life was associated with more positive behavioral changes in high risk children, as reported earlier. However, these children did *not* show the same level of benefit from internalizing control when the outcome in cross-sectional analyses involved immediate academic status. The presence of a mediating relationship indicates that perceiving internal control will have more long-term and indirect effects on behavioral adjustment through its influence on self-concept.

Self-concept also mediated the relationship between peer relationship quality and behavioral adjustment at Time 2. Findings suggest that peer acceptance affects behavioral adjustment indirectly through higher self-concept and having positive self-concept affords the child increased chances for having better behavioral conduct. Analyses demonstrated that being accepted among and connected to peers is very important to one's self-concept. However, findings also show that higher self-concept has a direct influence on behavioral outcomes, thus indicating that children do not necessarily have to report decent peer relationships in order to exhibit good behavioral adjustment. Perhaps children whose behavioral conduct is suffering might benefit more from interventions which directly target self-concept over peer relationship building.

Further analyses demonstrated that social support is an important mediator of the relationship between social skills and behavior outcomes at Time 2. Higher levels of social support appear to improve the relationship between social skills and behavior outcomes, so that social skills' effect on behavioral adjustment over time are not as direct as might be expected. Instead, higher levels of social skills afford children better opportunities to make supportive connections with others. These supportive affiliations appear to be most important in determining the child's behavioral adjustment over time. Interestingly, the effects of peer relationships on behavioral adjustment were mediated by social skills, suggesting that feeling acceptance among and connections with a peer network provides opportunities to exercise appropriate skills, like empathy, self-assertion, and self-control. In connection with findings reported above, one begins to discern possible pathways through which individual variables exert their influence on behavioral outcomes over time. Acceptance among a network of peers is associated with two immediate benefits: better social skills and higher self-concept. Higher self-concept has a direct impact on better behavior adjustment, independent of other influences. Having better social skills is also a potential pathway for establishing more supportive relationships that are more directly tied to better behavioral adjustment.

**Implications:**

Findings for mediating effects with social support and positive self-concept carry at least two implications. First, perceiving one's relationships as supportive and having a positive view of oneself are important influences which carry protection from long-term

behavioral adjustment problems. Interventions targeting initial steps in the pathway to behavioral adjustment could include focus on social skills and peer relationships. However, more directly influential mediator variables like social support and positive self-concept deserve particular emphasis for their impact on behavioral adjustment. Interventions that emphasize positive peer culture and prosocial norms among same-age peer groups could help children identify the types of relationships that are supportive and stable. These might include outdoor programs or after-school games emphasizing cooperation and respect. Second, programs have two options for addressing improved levels of support and self-concept among youth. Environmental or contextual sources of support could be emphasized, and these may bring more short-term improvements (particularly with academic performance), as demonstrated with cross-sectional analyses earlier. Alternatively, programs might emphasize development of individual competencies which build the child's self-concept and ability to successfully negotiate social interactions. Activities offering a variety of physical and intellectual challenges at various skill levels will allow children to choose an appropriate level and to experience more successes. In addition to immediate impacts, as demonstrated with cross-sectional analyses, social skills and self-concept were associated with benefits to behavioral adjustment that appear to be more significant than contextual influences when considered over time. This implication for individual over environmental influences seems to support the notion that contextual differences may affect the child in the short run, but long term adjustment will depend more on the child's ability to successfully negotiate a variety of contexts which change over time.

### Mediators of Academic Outcomes

Analyses with GPA at Time 2 revealed similar pathways, where the effects of individual and environmental variables on academic outcomes were largely mediated by self-concept, social support, and social skills. Findings supported hypotheses that the effects of having lower external locus of control and acceptance among a network of peers are mediated by their influence on the individual's self-concept. The relative importance of self-concept in behavioral adjustment carries important implications for intervention programs with limited scope. Such programs would most efficiently achieve targeted behavioral adjustment goals by improving the individual's perception of personal abilities and worth. At least in addition to (but perhaps in lieu of) activities targeting peer relationships, these activities would address the more immediate and direct influence that self-concept has on longterm academic adjustment.

Social support emerged again as an important mediator of the effects that individual and environmental variables had on academic outcomes at the end of 7<sup>th</sup> grade. Family cohesiveness, child social skills, and secure attachment were all influential in determining GPA at Time 2. However, these variables were shown to affect academic outcomes indirectly, through their influence on the child's perception of support in their environment. Perceptions that others are available and supportive appears to be the most directly influential variable among these characteristics.

**Implications:**

Perhaps the most important finding with mediators of academic and behavioral outcomes is that several intercorrelations exist between hypothesized resource and protective factors. The overlapping variance explained by related variables could easily be confused if variables are analyzed independently. However, analyzing relationships between individual predictors and mediators allows for better discrimination of *how* this variance is shared. Costly prevention and intervention programs must identify strategies that most efficiently target improvements in behavioral and academic adjustment. Prevention programs targeting long-term behavioral adjustment should focus on individual characteristics like self-concept and social skills, which will have more direct impact with long-term behavioral outcomes for all children. Additionally, children will benefit from supportive relationships which show benefits with both short-term and long-term adjustment. However, the immediate benefits of supportive relationships are less apparent than the immediate effects of individual characteristics, like self-concept. The presence of individual characteristics will enable the child to develop more supportive relationships which will effect positive changes over time; however, short-term interventions could additionally work to improve social supports in the child's immediate context. These might include family therapy targeting deficits in communicating support, or school programs like "parent-child game night" that foster parent involvement in school activities. In either case, the child's ability to form and maintain supportive relationships will depend on individual characteristics, like positive self-concept and social skills, which are more proximal to the child.

**Summary**

In summary, individual resource factors, self-concept, locus of control, and social skills, appear to carry the most benefit for low risk individuals at the beginning of 6<sup>th</sup> grade, while their long-term benefits are apparent for all children. These resource factors are distinguished from protective mechanisms, which are most beneficial to high risk individuals. Environmental characteristics, including classroom involvement, supportive relationships, and family bonding, appear to have more immediate impact with the adjustment of high risk children at the beginning of 6<sup>th</sup> grade. However, long-term outcomes are more dependent upon individual factors, like self-concept and perceived support, and these effects are seen with both high and low risk individuals. Particularly for high risk individuals, having an internal locus of control was associated with positive changes in behavioral adjustment over time. Self-concept and perceived support from others appear to mediate the relationship between several other predictors and adjustment between 6<sup>th</sup> and 7<sup>th</sup> grade, thus emphasizing the relative importance of these more proximal influences on long-term adjustment.

Findings indicate different avenues for prevention and intervention efforts. For example, short-term intervention programs might target improvements with high risk kids through school and family-based activities that encourage engagement and enhanced support networks for the child. It is important to recognize that immediate benefits to high risk children might be achieved through changes in the child's family and school context. Active engagement in classroom activities and perceived supportiveness from peers, teachers, and family are related to better adjustment during the initial transition into 6<sup>th</sup>



grade. Thus, the higher levels of problem behaviors observed among high risk children during this transition period might be curbed by prevention programs that begin targeting classroom and family involvement during the year prior to 6<sup>th</sup> grade. Setting the stage for continuous involvement and investment of parents and teachers will provide these high risk youth with better chances to successfully negotiate the transitions of early adolescence. In addition to carrying immediate benefits for high risk kids at the beginning of 6<sup>th</sup> grade, these interventions are likely to show long-term effects for all children as they transition through middle school. As outlined earlier, classroom activities, like small group tasks and using discussion leaders, might offer high risk children more opportunities to participate. Family bonding and supportiveness could be achieved through parent-child game nights, or offering parents recognition for participation in school-related activities. Family therapy could be used to achieve more supportive communication and engagement among some high risk youth and their family members. Perhaps youth with less supportive family contexts could be selected for mentoring programs or specialized tutoring programs with school personnel.

Alternatively, prevention activities targeting improved behavioral and academic adjustment among both high and low risk children could emphasize resources like social skills and self-concept that carry benefits for all youth. These may show more immediate benefits for low risk youth. However, long-term benefits should become apparent for both high and low risk children. Thus, activities targeting increased self-concept should show long-term benefits for all children during the transition through middle school. By offering a range of challenges in different skill areas, children will be able to select activities which

offer a higher likelihood of success experiences. Small group activities could be used in lieu of larger classroom discussions so that less confident students will be encouraged to attempt new skills. After-school or evening programs could encourage development of new hobbies or talents that improve childrens' sense of personal worth and efficacy while fostering development of supportive relationships. As discussed above, the positive effects of improving individual characteristics like self-concept social skills should be immediately apparent among low youth; however, their ultimate benefit will become more apparent among high risk individuals when exposed to these interventions over time. Thus, evaluating the effectiveness of interventions will depend on different durations of time for low and high risk individuals. A longer time period may be necessary to observe the effects of specific interventions with high risk youth.

### **Limitations**

One limitation of this study was the limited number of participants available for final analyses. Due to attrition and incomplete data sets, this reduced number of students may have limited the power of regression analyses using several independent predictors. Findings therefore have limited generalizeability and should be confirmed by further research. Future analyses with resource and protective factors warrant the use of larger subject pools. This is particularly true for analyses exploring the effects several potential protective factors at once.

Another limitation of the study involves the relative homogeneity of the population studied. Although a large number of participants were from low SES households, the

majority were from middle class, 2-parent intact homes. Ethnic groups represented included mostly Caucasians, with a small number of Native Americans living in both urban and rural, non-reservation settings. Other ethnic groups were not available within the population studied. Thus, these findings may not be generalizable to other ethnic groups.

This study utilized mostly self-report measures, with the exception of two teacher rating scales. Risk status was determined by more objective measures of adjustment and is therefore more likely to be an accurate representation of the stressors a child faces. As with any self-report measure, the subjectivity of child and teacher responses may call into question whether findings are representative of actual differences. Increased validity could be achieved with more extensive research comparing self-report and teacher-ratings with live observation methods. The child's perception of family environmental variables has been shown to be a more important determinant of adjustment than observed changes in at least one study (Buisse, 1997). However, more research is needed to determine whether observed differences in the child's environment are more important than self-reported and teacher-rated differences for predicting adjustment.

The use of Problem Behavior and GPA change scores as dependent variables with initial analyses presented problems with addressing hypotheses regarding resource and protective mechanisms. The use of change scores in these analyses ignored potential effects with regression toward the mean. Students with extremely high or low scores on Problem Behaviors or GPA at Time 1 may have been more likely to show changes over time, given their potential room for movement in the opposite direction. Alternately, students with "middle of the road" scores on the dependent variables at Time 1 would be

less likely to show dramatic changes in either direction. Furthermore, the meaning of an individual's stability on dependent measures of change was not assessed. The meaning of two different children receiving a change score of "0" could not be discerned from the analyses conducted. Therefore, one child who receives a change score of "0" remained at a high level of Problem Behaviors throughout middle school. This could not be distinguished from another child who received a change score of "0" for remaining at a stable, low rate of Problem Behaviors throughout middle school. These limitations with using change scores as the dependent variable represent a limitation on the interpretation of original hypotheses. However, findings did provide insight on variables associated with changes. Future research will want to address the longitudinal impact of these factors, using alternative methods to indicate change in the dependent variable. The dependent variable will also need to account for the unique meaning associated with stability or change in each individual participant.

As discussed earlier, the use of a dichotomous variable for classification of risk status presented some limitations to the conclusions that could be drawn in this study. With a criterion cutoff method of classification, participants were classified into either high or low risk groups. This method may have resulted in unnecessarily partitioning some individuals into discrete risk groups, whereas a more continuous method of classification would have allowed for a more descriptive understanding of individuals at various levels of risk. Future research will need to address problems with definitions of risk, including the need for a more dimensional approach to risk classification.

Attrition of subjects certainly limited the number of subjects available for final

analyses, as mention above. Additionally, several students either transferred schools or moved away, and it is not known which subjects moved and which subjects transferred schools. Thus, it is unclear what impact their inclusion would have had on the final data analyses. School-based research is necessarily impacted by attrition of subjects due to drop-out or family relocation. Perhaps future research can access information about these transitional students by asking permission, at the beginning of the study, to use school records to maintain contact with families if their children drop out or move to another school.

Despite the wide range of protective and risk mechanisms examined, this study included only general categories of individual and environmental influences. For example, the measure of social support included separate subscales assessing perceived support, individually, from teachers, parents, and peers. However, the limited number of items and the lack of reliability and validity data prohibited analyses with each of these subscales individually. It seems important to understand the importance of different sources of support as tapped by these subscales. Kids may benefit differently from these unique sources of support; they may derive more protection from parents or teachers, or they may derive less protection from peer support when parental support is high. Further research is needed to establish the effects of each kind of support individually, and to understand interactive effects from different sources of support when considered together. Similarly, the scale used to assess social skills in this study was a general measure of teacher-reported social skills. The ability to analyze separate subscales may provide valuable information about which aspects of social skills are most important to different youth.

Choosing standardized measures which have validity and reliability data for individual subscales will allow for closer examination of which aspects of social support and social skills are most important in resource and protective processes.

Finally, the potential mediators examined in this study were selected based on their demonstrated importance in previous research. However, these mediators represent only a limited number of the potential mediators available, and several other mediating relationships are expected to occur. Furthermore, closer examination of mediating relationships suggests these relationships might occur in the opposite direction as well. For example, self-concept was shown to mediate the relationship between locus of control and behavioral adjustment. Perhaps locus of control mediates the relationship between self-concept and behavioral adjustment. It is unclear whether the tests of mediation utilized in this study are able to answer questions about the specific direction of effects. Further research is needed to identify whether the demonstrated tests of mediation will hold up if variables are reversed. If so, research will need to answer questions about mediating effects through other statistical methods, such as path analytic models.

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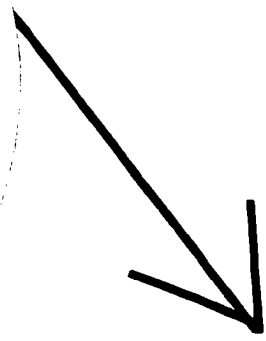
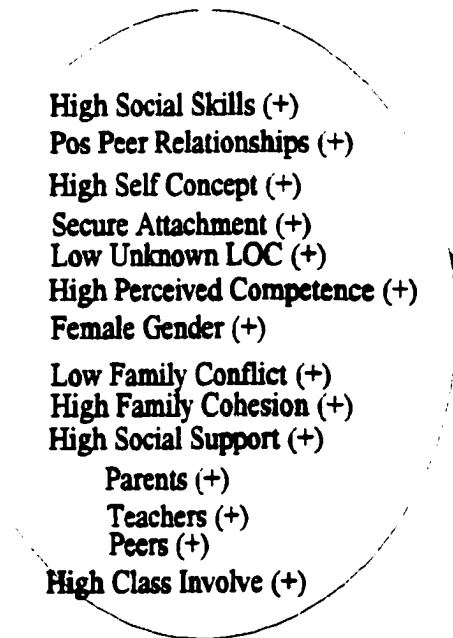
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**Protective Factors:**

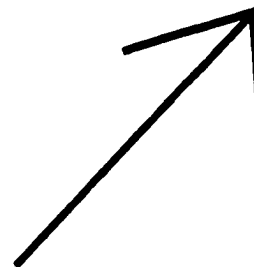


**Increase in GPA**

**Decrease in TRF**

**Risk Factors:**

- Low SES (-)
- < 2 Permanent Parents (-)
- Crowding (-)
- High Absences (-)
- High Suspensions (-)
- /Detentions (-)
- Ethnicity (-)



**Figure 11.** Risk and protective factors in the prediction of GPA and TRF.

## Appendix 1. Attachment Style Questionnaire (Revised)

Show how much you agree with each of the following items by rating them on this scale: 1 = totally disagree, 2 = strongly disagree, 3 = slightly disagree, 4 = slightly agree, 5 = strongly agree, or 6 = totally agree

Confidence	1 Overall, I am <u>an okay</u> person.
Confidence	2 I am easier to get to know than most people
Confidence	3 I feel confident that other people will be there for me when I need them
Discomfort	4 I prefer to <u>take care of things</u> by myself rather than <u>depend on</u> other people
Discomfort	5 I prefer to <u>be by</u> myself.
R as S	6 To ask for help is to <u>admit</u> that you're a failure
R as S	7 People's value should be judged by what they achieve.
R as S	8 Achieving things is more important than <u>making friends</u> .
R as S	9 Doing your best is more important than <u>getting along</u> with others
R as S	10 If you've got a job to do, you should do it no matter who gets hurt
N for A	11 It's important to me that others like me.
N for A	12. <u>I try to avoid</u> doing things that others won't like.
N for A	13 <u>It's hard</u> to make a decision unless I know what other people think.
R as S	14 My friendships with others are <u>kind of</u> superficial.
N for A	15. Sometimes I think I am no good at all.
Discomfort	16. I find it hard to trust other people.
Discomfort	17 I find it difficult to depend on others.
Preoccupation	18 I find that others are <u>slower to get to know me</u> as I would like
Confidence	19 I find it <u>pretty</u> easy to get to <u>know</u> other people
Discomfort	20. I <u>think it's</u> easy to trust others.(R)
Discomfort	21. I <u>am</u> comfortable depending on other people. (R)
Preoccupation	22. I worry that others won't care about me as much as I care about them
Discomfort	23. I worry about people getting too close.
N for A	24. I worry that I won't <u>be as good</u> as other people.
Discomfort	25. <u>I am not sure I want to be</u> close to others.
Discomfort	26. While I want to get close to others, I feel uneasy about it.
N for A	27. <u>Sometimes</u> I wonder why people would want to <u>hang around</u> with me
Preoccupation	28. It's very important to me to have a close <u>friend</u> .
Preoccupation	29. I worry a lot about my <u>friendships</u> .
Preoccupation	30. I wonder how I would <u>do</u> without somebody who loves me.
Confidence	31. I feel confident about <u>getting along with</u> others.
Preoccupation	32. I often feel left out or alone.
Confidence	33. I often worry that I do not really fit in with other people. (R)
Discomfort	34. Other people have their own problems, so I don't bother them with mine
N for A	35. When I talk over my problems with others, I <u>kind of</u> feel ashamed or foolish.
R as S	36. I am too busy with other <u>things</u> to put much time into <u>friendships</u> .
Confidence	37. If something is bothering me, others are usually aware and concerned.
Confidence	38. I am confident that other people will like and respect me.
Preoccupation	39. I get frustrated when others are not available when I need them.
Preoccupation	40. Other people often disappoint me

\*revised items are underlined

## Appendix 2. Attachment Style Questionnaire

Show how much you agree with each of the following items by rating them on this scale: 1 = totally disagree, 2 = strongly disagree, 3 = slightly disagree, 4 = slightly agree, 5 = strongly agree, or 6 = totally agree.

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Confidence	1 Overall, I am a worthwhile person.
Confidence	2 I am easier to get to know than most people
Confidence	3 I feel confident that other people will be there for me when I need them
Discomfort	4 I prefer to depend on myself rather than on other people
Discomfort	5 I prefer to keep to myself
R as S	6 To ask for help is to admit that you're a failure
R as S	7 People's worth should be judged by what they achieve
R as S	8 Achieving things is more important than building relationships
R as S	9 Doing your best is more important than getting on with others.
R as S	10 If you've got a job to do, you should do it no matter who gets hurt
N for A	11 It's important to me that others like me
N for A	12 It's important to me to avoid doing things that others won't like.
N for A	13 I find it hard to make a decision unless I know what other people think
R as S	14 My relationships with others are generally superficial.
N for A	15 Sometimes I think I am no good at all.
Discomfort	16 I find it hard to trust other people.
Discomfort	17 I find it difficult to depend on others.
Preoccupation	18 I find that others are reluctant to get as close as I would like.
Confidence	19 I find it relatively easy to get close to other people.
Discomfort	20 I find it easy to trust others.(R)
Discomfort	21 I feel comfortable depending on other people. (R)
Preoccupation	22 I worry that others won't care about me as much as I care about them
Discomfort	23 I worry about people getting too close
N for A	24 I worry that I won't measure up to other people
Discomfort	25 I have mixed feelings about being close to others.
Discomfort	26 While I want to get close to others, I feel uneasy about it.
N for A	27 I wonder why people would want to be involved with me.
Preoccupation	28 It's very important to me to have a close relationship
Preoccupation	29 I worry a lot about my relationships.
Preoccupation	30 I wonder how I would cope without someone to love me.
Confidence	31 I feel confident about relating to others.
Preoccupation	32 I often feel left out or alone.
Confidence	33 I often worry that I do not really fit in with other people. (R)
Discomfort	34 Other people have their own problems, so I don't bother them with mine.
N for A	35 When I talk over my problems with others, I generally feel ashamed or foolish.
R as S	36 I am too busy with other activities to put much time into relationships.
Confidence	37 If something is bothering me, others are generally aware and concerned.
Confidence	38 I am confident that other people will like and respect me.
Preoccupation	39 I get frustrated when others are not available when I need them.
Preoccupation	40 Other people often disappoint me

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## C.A.S.S.

Now, circle always, most of the time, sometimes, hardly ever, or never for each question. Make sure that you listen carefully as I read each question.

1. Some kids feel left out by their friends, but other kids don't. Do you feel left out by your friends?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

2. Some kids are well-liked by their friends, but others aren't. Are you well-liked by your friends?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

3. Some kids get picked on and teased by their friends, but other kids don't. Do you get picked on and teased by your friends?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

4. Some kids' friends make fun of them, but other kids' friends don't. Do your friends make fun of you?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

5. Some kids' friends like to hear their ideas, but other kids' friends don't. Do your friends like to hear your ideas?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

6. Some kids and their friends do a lot of things for each other, but other kids and their friends don't. Do you and your friends do a lot of things for each other?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

7. Some kids feel very close to their friends, but other kids don't. Do you feel very close to your friends?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

8. Some kids can count on their friends for help or advice when they have problems, but other kids can't. Can you count on your friends for help or advice with problems?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

9. Some kids think their friends really care about them, but other kids don't. Do you think your friends really care about you?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

10. Some kids' friends make them feel bad, but other kids' friends don't. Do your friends make you feel bad?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

11. Some kids can count on their families for help or advice when they have problems, but other kids cannot. Can you count on your family for help or advice when you have problems?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

12. Some kids and their families do a lot of things for each other, but other kids and their families don't. Do you and your family do a lot of things for each other?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

13. Some kids' families make them feel bad, but other kids' families don't. Does your family make you feel bad?

always	most of the time	sometimes	hardly ever	never
(1)	(2)	(3)	(4)	(5)

14. Some kids share a lot with their family, but other kids don't. Do you share a lot with your family?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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15. Some kids have a hard time talking to their family, but other kids don't. Do you have a hard time talking to you family?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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16. Some kids feel like their family is there when they need them, but other kids don't feel this way. Do you feel like your family is there for you when you need them?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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17. Some kids feel left out by their family, but other kids don't. Do you feel left out by your family?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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18. Some kids' families ignore their ideas, but other kids' families don't. Does your family ignore your ideas?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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19. Some kids are an important member of their family, but other kids are not. Are you an important member of your family?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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20. Some kids think their families really care about them, but other kids don't. Do you feel your family cares about you?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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21. Some kids feel like they belong in their family, but some kids feel like they don't belong. Do you feel like you belong in your family?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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22. Some kids think their families are mean to them, but other kids don't. Do you think your family is mean to you?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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23. Some kids feel like they belong in their class, but other kids don't. Do you feel like you belong in your class?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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24. Some kids feel left out by their class, but other kids don't. Do you feel left out by your class?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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25. Some kids feel like nobody in their class cares about them, but other kids don't feel this way. Do you feel like nobody in your class cares about you?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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26. Some kids feel well-liked by their classmates, but other are not. Are you well-liked by your classmates?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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27. In some classes, kids do a lot of things for each other, but in other classes they don't. In your class, do kids do a lot of things for each other?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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28. Some kids' classmates make fun of them, but other kids' classmates don't. Do your classmates make fun of you?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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29. Some kids' classmates help them with their problems, but other kids' classmates don't. Do your classmates help you with your problems?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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30. Some kids get picked on and teased by their classmates, but other kids don't. Do you get picked on and teased by your classmates?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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31. Some kids' classmates make them feel bad, but other kids' classmates don't. Do your classmates make you feel bad?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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32. Some kids feel very close to their teachers, but other kids don't. Do you feel very close to your teachers?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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33. Some kids' teachers make them feel like they are not good enough, but other kids' teachers don't make them feel this way. Do your teachers make you feel like you are not good enough?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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34. Some kids have a hard time talking to their teachers, but other kids don't. Do you have a hard time talking to your teachers?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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35. Some kids think their teachers care about them, but other kids don't. Do you think your teachers care about you?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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36. Some teachers are good to ask for help or advice about problems, but other teachers are not. Are your teachers good to ask for help or advice about problems?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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37. Some kid's teachers are mean to them, but other kids' teachers are not. Are your teachers mean to you?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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38. Some kids have teachers who make them feel important, but other kids don't. Do your teachers make you feel important?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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39. Some kids' teachers make them feel bad, but other kid's teachers don't. Do your teachers make you feel bad?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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40. Some kids' teachers choose them for special jobs, but other kids' teachers don't. Do your teachers choose you for special jobs?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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41. Some kids' teachers make them feel nervous, but other kids' teachers don't. Do your teachers make you feel nervous?

always (1)	most of the time (2)	sometimes (3)	hardly ever (4)	never (5)
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## N-SLCS

Please circle Yes or No for each question as it applies to you.

- |     |    |     |  |
|-----|----|-----|--|
| Yes | No | 1.  | Do you believe that most problems will solve themselves if you just don't fool with them?                            |
| Yes | No | 2.  | Do you believe that you can stop yourself from catching a cold?  |
| Yes | No | 3.  | Are some kids just born lucky?   |
| Yes | No | 4.  | Most of the time do you feel that getting good grades means a great deal to you?                                     |
| Yes | No | 5.  | Are you often blamed for things that just aren't your fault?   |
| Yes | No | 6.  | Do you believe that if somebody studies hard enough he or she can pass any subject?                                  |
| Yes | No | 7.  | Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?             |
| Yes | No | 8.  | Do you feel that if things start out well in the morning it's going to be a good day no matter what you do?          |
| Yes | No | 9.  | Do you feel that most of the time parents listen to what their children have to say?                                 |
| Yes | No | 10. | Do you believe that wishing can make good things happen?   |
| Yes | No | 11. | When you get punished does it usually seem it's for no good reason at all?   |
| Yes | No | 12. | Most of the time do you find it hard to change a friend's opinion?   |
| Yes | No | 13. | Do you think that cheering more than luck helps a team to win?   |
| Yes | No | 14. | Do you feel that it's nearly impossible to change your parent's mind about anything?                                 |
| Yes | No | 15. | Do you believe that your parents should allow you to make most of your own decisions?                                |
| Yes | No | 16. | Do you feel that when you do something wrong there's very little you can do to make it right?                        |
| Yes | No | 17. | Do you believe that most kids are just born good at sports?  |
| Yes | No | 18. | Are most of the other kids your age stronger than you are?   |
| Yes | No | 19. | Do you feel that one of the best ways to handle most problems is just not ch to do with what kind of grades you get? |
| Yes | No | 23. | Do you feel that when a kid you age decides to hit you, there's little you can do to stop him or her?                |
| Yes | No | 24. | Have you ever had a good luck charm?   |

- Yes No 25. Do you believe that whether or not people like you depends on how you act?
- Yes No 26. Will your parents usually help you if you ask them to?
- Yes No 27. Have you felt that when people were mean to you it was usually for no reason at all?
- Yes No 28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?
- Yes No 29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?
- Yes No 30. Do you think that kids can get their own way if they just keep trying?
- Yes No 31. Most of the time do you find it useless to try to get your own way at home?
- Yes No 32. Do you feel that when good things happen they happen because of hard work?
- Yes No 33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?
- Yes No 34. Do you usually feel that it's easy to get friends to do what you want them to?
- Yes No 35. Do you usually feel that you have little to say about what you get to eat at home?
- Yes No 36. Do you feel that when someone doesn't like you there's little you can do about it?
- Yes No 37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?
- Yes No 38. Are you the kind of person who believes that planning ahead make things turn out better?
- Yes No 39. Most of the time, do you feel that you have little to say about what your family decides to do?
- Yes No 40. Do you think it's better to be smart than to be lucky? -