

Family and Contextual Variables as Predictors of School Engagment and Developmental Outcomes in Adolescence

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BOSTON COLLEGE

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Applied Developmental and Educational Psychology

**FAMILY AND CONTEXTUAL VARIABLES AS PREDICTORS OF SCHOOL
ENGAGEMENT AND DEVELOPMENTAL OUTCOMES IN ADOLESCENCE**

Dissertation

by

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Abstract

Previous research has found higher levels of school engagement to be related to various positive outcomes such as higher academic achievement, higher levels of competence, lower depression, and better personal adjustment. Overall, there is strong evidence to suggest a broad positive association between school engagement and a variety of academic, social, and emotional outcomes. However, existing work has certain limitations and some important questions remain to be addressed. In an effort to address the limitations of previous research, this study aimed to establish the within and across time relationships between family and contextual variables and school engagement.

The sample for this longitudinal study included 596 students who were part of the 4-H Study of Positive Youth Development. These students were first surveyed in the fifth grade and completed subsequent questionnaires in the 6th and 7th grade (44% male; 56% female). In addition to the CES-D, several scales were constructed from the broad array of measures used in the 4-H study. The goals of this research were to identify the within and across time family and contextual predictors of school engagement, the predictors of the emotional and cognitive outcomes that result when adolescents are engaged in school, and to determine whether school engagement acts as a mediator between the variables of school climate, teacher support and parental involvement and the outcomes of grades,

perceived academic competence, depression, educational aspirations, and educational expectations. The effects of gender, SES, and race were also examined.

Statistical tools including regression analysis and tests of mediation were used. The findings indicated that the predictors of school engagement varied for 5th, 6th, and 7th graders in this sample. The changing predictors of school engagement and thus, the ways in which school engagement mediated the relationships between family and contextual variables and developmental outcomes demonstrated the fluidity of the adolescent and their changing needs and influences. These findings also illustrated the value of the longitudinal design of this study.

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TABLE OF CONTENTS

Chapter 1: Introduction p.1

- The Adolescent in School p.1
- Systems Models as a Basis for Conceptualizing Development p. 3

Chapter 2: Review of the Literature p. 8

- Schools as Key Settings for Adolescents p. 8
- Positive School Climate p. 9
- Teacher Support p. 10
- Parental Involvement p. 11
- School Engagement p. 13
- School Engagement and Developmental Outcomes p. 16
- Covariates of School Engagement p. 20
- Summary p. 23

Chapter 3: Methodology p. 25

- Research Questions & Proposed Analysis p. 25
- Conceptual Model: Example of Proposed Mediated Relationships p. 27
- Mediation p. 28
- Procedures p. 31
- Participants p. 31
- Final Sample p. 33
- Measures p. 35

Chapter 4: Results p. 42

- Reliability p. 42
- Within Time Analysis p. 43
- Within Time Predictors of School Engagement p. 44
- Within Time Mediation p. 53
- Across Time Analysis p. 61
- Across Time Predictors of School Engagement p. 63
- Across Time Mediation p. 68

Chapter 5: Discussion p. 80

- Major Findings p. 81
- Conclusions p. 92

- Limitations p. 94
- Implications for Future Research p. 96
- Appendix A: Variables of Interest p. 97

Bibliography p. 104

List of Tables

- Table 1: Racial Composition of Sample p. 33
- Table 2: Geographic Regions Represented p. 34
- Table 3: Ages across Waves p. 34
- Table 4: Reliability of Measures p. 42
- Table 5: Within Time Predictors of School Engagement p. 44
- Table 6: Significant Predictors of School Engagement Within Time p. 45
- Table 7: Within Time Predictors of Outcomes p. 47
- Table 8: Significant Predictors of Grades Within Time p. 50
- Table 9: Significant Predictors of Academic Competence Within Time p. 51
- Table 10: Significant Predictors of Depression Within Time p. 52
- Table 11: Within Time Causal Mediation of School Engagement as a Mediator of the Relationship Between Predictors and Outcomes p. 53
- Table 12: Within Time Sobel Test of Mediation p. 58
- Table 13: Across Time Lagged Plus Change Regression Model of Significant Predictors of Changes in School Engagement p. 63
- Table 14: Across Time Lagged Plus Change Regression Model of Significant Predictors of Changes in Outcomes p. 64
- Table 15: Across Time Causal Mediation of School Engagement as a Mediator of the Relationship Between Predictors and Outcomes p. 68
- Table 16: Sobel Test Mediation by School Engagement p. 73
- Table 17: Relationships Mediated by School Engagement Revealed by Sobel Test p. 78
- Table 18: Sobel Test of Mediation of Gender, SES & Outcomes p. 78

CHAPTER 1

INTRODUCTION

The Adolescent in School

Adolescence is a period of development characterized by multiple changes including biological, social, and cognitive changes (Lerner, 1985a). Important developmental advances occur during the middle childhood and early adolescent period (ages 6-14), as many youth begin a transition from childhood into adulthood. If provided with support, encouragement, and appropriate social contexts, children can develop into healthy young adults (Eccles & Harold, 1993). Youth begin to establish an identity, become more competent, more self aware, and involve themselves in the world beyond their immediate families. Biological and cognitive changes impact both the body and mind (Eccles, 1999). Youth come to expect, as a result of their new sense of self and individuality that they will fail or succeed at different tasks. When placed in a setting that does not meet their emotional needs and independence level, they may lose self-esteem and engage in negative behaviors. Therefore, it is critical to examine the contexts that adolescents find themselves in to better understand how they can achieve positive outcomes. One such critical setting for adolescents is the school.

Schools are formal institutions whose goals include the education of children and the preparation of children for work in the adult world. Unfortunately, not all schools are responsive to the development of their students. For example, the academic environment of typical junior high and middle schools are not well matched to the needs and capabilities of students as elementary schools are (Eccles, Wigfield, Midgley, Reuman,

Maclver, & Feldlaufer, 1993). Transitions between schools, such as the transition from elementary to middle school, has been associated with negative changes for some youth (Simmons & Blyth, 1987). If there is a good “fit”, then children and adolescents will engage in learning opportunities and challenges. If the “fit” is poor then children and adolescents will disengage from school and engage in behaviors that prevent them from gaining from the opportunities provided. Disengagement behaviors include not paying attention in class, stopping doing homework, and skipping school (Eccles, 2007). A poor “fit” between the child and the school and classroom environment increases the risk of disengagement and school problems and can have a powerful negative impact over time (Eccles & Midgely, 1989).

Finn (1989) examined student dropout through two developmental models--the frustration/self esteem model and the participation/identification model. This model of school engagement consisted of two dimensions, a behavioral element (participation) and an emotional element (identification). Participation in school includes behaviors such as responding to requirements, class-related initiative, engaging in extra-curricular activities, and decision making. Identification with school includes having feelings of belonging to school and valuing school itself.

Finn (1989) found that dropping out of school is highly correlated with several other problem behaviors. The Participation-Identification model proposes that a lack of school engagement is part of a process of school withdrawal that begins well before an individual drops out of school. Students who do not participate in school, who do not identify with their school community, and who do not value school are at an increased

risk for dropping out of school and other delinquent behaviors. Thus, identifying the processes that lead to school engagement could serve to prevent school dropout and other problem behaviors. This study will attempt to identify these processes that lead to school engagement. The theoretical basis for studying youth in their contexts comes from systems models which are discussed next.

Systems Models as a Basis for Conceptualizing Development

Many scholars have tried to describe how all the different instances of the context of child development impact a person across the first two decades of his or her life. One very useful approach to understanding this **ecology of child development**, that is, the multiple instances or levels of the context of development, has been proposed by the renowned developmental psychologist, Urie Bronfenbrenner.

Bronfenbrenner (1979, 2001; Bronfenbrenner & Morris, 1998, 2006) divides the context into different systems. A **system** is the organized relations among the parts of a whole. There are four systems that Bronfenbrenner (2001; Bronfenbrenner & Morris, 1998) believes exist in the ecology of human development: The **microsystem** is the part of the ecology within which the child is behaving at any given time (e.g., the family, the child care center or school, the playground). The **mesosystem** is the set of all interacting settings (home, child care center, school, etc.) within which the child may behave at a particular time in his or her life. The **exosystem** is composed of settings within which the child does not behave (e.g., the child may not ordinarily be present in a parent's office or in a courtroom) but that influence the child because these settings affect people with whom the child does have a relationship (e.g., his or her mother or father). Finally, the

macrosystem contains the broad institutions of a society and the components of its culture (e.g., media, public policies) that affect all people, including children, living within the society.

Bronfenbrenner (2001; Bronfenbrenner & Morris, 1998, 2006) also describes the role of historical change (what he terms the **chronosystem**) on all of the systems within the ecology of human development. He notes that at different times in history new settings may exist for children; for example, the increasing reliance on daycare and after school care for children. Similarly, the macrosystem constantly changes, as new laws involving children and families are enacted. For example, the new policies regarding school reform that were enacted into law in the most recent administration have impacted a child's experience in school.

Bronfenbrenner's approach has recently been renamed "bioecological systems theory" (Bronfenbrenner & Morris, 2006) to emphasize that a child's own biology is a primary environment fueling her development. The interaction between factors in the child's maturing biology, his immediate family/community environment, and the societal landscape fuels and steers his or her development. For example, the time at which an adolescent goes through puberty and experiences physical changes impacts the teen's self esteem and interactions with peers and family. Thus, to study an adolescent's development, we must look not only at the child and his or her immediate environment, but also at the interaction of the larger environment as well.

Richard M. Lerner has built on the ecological approach of Bronfenbrenner by focusing on the role of the child as an active agent in his or her own development

(Lerner, 1982, 1991, 2002, 2004) In his **developmental contextual theory**, Lerner notes that an added complexity in the multiple levels of the ecology of human development are the dynamic relations between individuals that are changing interdependently across time and history (Lerner, 2002).

For example, parents are the major source of influence on their child's development. This is certainly the case from infancy through childhood and, arguably, even across the adolescent years. However, because of child effects (gender, temperament, personality), children influence the parents that are influencing them. Children are, then, shaping a key source of their own development. In this sense, children are producers of their own development (Lerner, 1982), and the presence of such child effects constitutes the basis of a **bidirectional** relationship between parents and children: Children influence the parents that are, at the same time, influencing them.

Of course, this bidirectional relationship continues when the child is an adolescent and an adult. Corresponding relationships exist between the individual child and the siblings, friends, teachers, and, indeed, all other significant people in his or her life. In addition, the relationships a child has with another person in his or her social world do not exist in isolation. For instance, both the child and the parent have other social roles. Parents are also spouses, adult children of their own parents, workers, and neighbors. Children also may be siblings and friends of other children; and as they progress in childhood and adolescence, they become students and often part-time employees, respectively. The sorts of relationships in these other social groups in which children and

parents engage when "outside" of their role of child or parent respectively, influence the parent-child relationship and the child's development.

This set of relationships underscores the complexity of understanding child and adolescent development in the school setting. For example, children's poor performance at school may influence their behavior in the home, and especially, may alter the quality of the parent-child relationship. In turn, a problematic home situation--as is experienced by children in families wherein parental abuse or neglect of the child occurs--will affect the child's relationships with peers, with teachers, and with other family members.

Following from this perspective, this study seeks to examine individual, family, and school characteristics that independently or in combination work to promote or inhibit school engagement and contributes to developmental outcomes for adolescents. Utilizing an ecological framework (Bronfenbrenner, 1979), a Development Systems perspective (Ford & Lerner, 1992), and a longitudinal sample of adolescents as they advance from grades 5-7 in the 4H study of Positive Youth Development (Lerner et al, 2005), this study will focus on the following general research questions:

1. What are the predictors of School Engagement at each wave (within time) and across time (waves 1-3)? Both within and across waves, regression analyses will be done to determine the predictive relationships between family and contextual variables and School Engagement. The effects of Gender, SES, and Race will also be examined.

2. What are the predictors of the emotional and cognitive outcomes that are associated with School Engagement within time at each grade level (5th, 6th, and 7th) and across time (from wave 1 to wave 3)?

3. Does School Engagement act as a mediator between school and family variables such as School Climate, Teacher Support and Parental Involvement and child outcomes such as Perceived Academic Competence, Depression, Educational Aspirations, and Expectations.

CHAPTER 2

REVIEW OF THE LITERATURE

Schools as Key Settings for Adolescents

Schools, as institutions, serve as critical contexts where not only do youth engage in numerous meaningful relationships, but the healthy and productive development of the individual can be supported (Elder, 1998; Ford & Lerner, 1992). Schools are a key microsystem setting for youth and provide unique educational experiences, interactions with peers, and role models. They serve as a critical, proximal context for the development for youth, and as such, can affect a variety of developmental outcomes. Schools can provide a supportive environment which is comprised of safety, positive teacher-student relations, and support for parental involvement, all of which protect youth from risk (Skinner & Belmont, 1993). Conversely, schools can contribute to risk for students by providing a "lack of fit" between the students and the expectations of the school culture (Eccles, Early, Frasier, Belansky, & McCarthy, 1997). Research has consistently demonstrated that the degree to which students feel connected to their schools has considerable impact on their academic, social, and emotional development (Roeser & Eccles, 1998; Sirin & Rogers-Sirin, 2004). What follows is a review of some of the important factors in the school, home, and individual context that will be a focus of this research and are believed to influence school engagement. These include school climate, teacher support, and parental involvement.

Positive School Climate

School climate is a general term that describes the overall environment of the school and includes aspects of a school such as school size, how safe a school is, and how much support is available to students. Positive school climates have been linked to several aspects of healthy development. A school climate that promotes success for all students is positively related to student achievement. Brand, Felner, Shim, Seitsinger, & Dumas (2003) found school climate to be related to academic achievement, behavior problems, substance use, and socioemotional adjustment. Roeser, Midgely, and Urduan (1996) found that middle school environments that are perceived as supportive are related to a more adaptive pattern of cognition, affect, and behavior. Way and Robinson (2003) studied a diverse group of adolescents and found that a positive school climate was significantly related to an increase of self-esteem over time.

Hauser-Cram, Erikson, Warfield, Stadler, and Sirin (2007) studied the impact of school climate on student engagement. Schools with more positive climates have been found to promote children's engagement in learning (Hauser-Cram et. al, 2007). Yet, what aspect in particular leads to engagement has been disputed. For example, Phillips (1997) found that schools that emphasize academics had students who were more engaged than schools that emphasized a more collaborative climate. Thus, the literature provides evidence that school climate is an important component of understanding the adolescent's relationship with the school context, and how this relationship may promote healthy development.

Teacher Support

During the middle childhood and early adolescent years, children spend less time under their parent's supervision and come increasingly under the influence of teachers and other adults (Eccles, 1991). Indeed, adolescents need close relationships with nonfamilial adults to assist them in sorting out independence and identity issues. Teachers are most likely to be the primary nonfamilial adult in many adolescents' lives (Eccles & Harold, 1993), and the relationship that they have with their students has the potential to exert both a positive and negative impact on a student's experience in school. Teachers can have a major positive impact and play a protective role in the lives of their students.

Teachers who are trusting, respectful, and caring of students provide the type of emotional support that students need to persist on academic tasks and develop positive self-perceptions, high self-esteem, and a sense of belonging and emotional comfort at school (Roeser & Eccles, 1998). Teacher support has been argued to be the most important factor in students' engagement (Patrick, Ryan, & Kaplan, 2007). Tucker, Zayco, Herman, Reinke, Trujillo, Carraway, Wallack and Ivery (2002) found that teacher support directly impacted students' engagement levels positively. Teachers who emphasize academics and stress the importance of academic performance tend to hold their students to high standards for both academic and social performance (Hoy & Sabo, 1998). Although this research contributes to our understanding of teacher support, much of it including Tucker et. al., (2002) is cross-sectional.

Skinner and Belmont (1993) studied the importance of teacher behavior on student engagement with children in grades three through five. Children who perceived their teachers as providing clear expectations, strategic help, and involvement were behaviorally and emotionally engaged in the classroom (Skinner & Belmont, 1993). A later study by Roeser and Eccles (1998) found that adolescent's perceptions of positive teacher regard and school task goal structure was related to increases in academic achievement and decreases in depressive symptoms.

Parental Involvement

In addition to teachers, parents and the family at large play a crucial role in a student's life and especially in their level of school engagement. Clearly, the role that parents play in their child's life changes over time. Particularly when children enter adolescence and puberty, the relationship adolescents have with their parents can be characterized by fewer interactions, questioning of family roles, and higher levels of conflict (Fulgini, 1998; Fulgini & Zhang, 2006). Unquestionably, however, although the relationship appears different, parents continue to exert a powerful and influential role in their adolescent's life. Although adolescents demand greater autonomy, they also need to know that their parents support them and their academic and extracurricular endeavors.

Parents influence their children through the social and cultural capital that they have--that is, the specific types of experiences they provide for their children. Active involvement with, and monitoring of, children's and adolescents' school work and time spent on achievement related activities influence both the child's skill level and the child's interest in these activities. Parents also manage the family's time and resources

(Steinberg, 2001). Many parents try to expose their children to experiences that will promote further opportunity for enjoyment and success. In the area of academics, parents' engagement in managing their child's experiences is directly and powerfully related to their child's subsequent academic success (Furstenburg, Cook, Eccles, Elder, & Sameroff, 1999). Parents who help their children with homework, prepare them for transitions between schools, and connect with teachers have children who have improved classroom behavior and higher academic achievement (Grolnick, 2003). Garcia-Reid & Reid, (2005) found that Latino youth who received parent supervision and perceived positive social support were likely to be more highly engaged in school.

Parental involvement in school has been described by Sui-Chu and Willms (1996) on the following four dimensions: home supervision, home discussion, home-school communication, and volunteer work (Sui-Chu & Willms, 1996). Parental support has been associated with adolescents' school motivation, academic performance, involvement, and with students' academic competence (Rosenfeld, Richman, & Bowen, 1998). High levels of involvement may also help parents provide more effective help at home.

Parental involvement in schooling changes over time. In general it tends to lessen as children age; yet, differences exist in parents who are more or less involved in their child's schooling. Youth whose parents had higher levels of education did more homework together than peers whose parents had lower levels of education, and higher parental interest and involvement in schooling was correlated with children having higher levels of school engagement and academic competence across diverse racial, ethnic, and

economic backgrounds (Englund, Luckner, Whaley, & Englund, 2004; McNeal, 1999). Parental level of education and employment as measured by SES also has been identified as a predictor of school engagement. For example, (Berends, 1995) found that youth from higher SES families showed higher school engagement.

In sum, school characteristics such as size, location, and available resources (Ma, 2003; McNeely, Nonnemaker, & Blum, 2002), individual level variables such as participation in school sponsored extracurricular activities, and family variables such as academic attainment of parents and parental involvement and support have been examined in terms of contributing to a student's sense of belonging and connection to school (LaBahn, 1995; Kenny, Blustein, Chaves, Grossman & Gallagher, 2003). Higher levels of parental involvement and greater participation in extracurricular activities have both been associated with higher levels of school engagement (McNeely, Nonnemaker, & Blum, 2002; LaBahn, 1995). In sum, students learn more and perform better in school when parents are involved, emphasize academic success, and have a climate at home that is conducive to teaching and learning (Ma & Klinger, 2000). Yet, much of this research has not been longitudinal in nature and thus does not allow us to understand changes over time.

School Engagement

There have been different foci and definitions of the term “school engagement” throughout much of the literature. For the purpose of this research, the term “school engagement” will be defined as encompassing numerous components including a positive attitude towards school, teachers, fellow students, and academic learning. Conversely, to

be “disengaged” in school is to possess a perception of school as a boring, alienating, and a negative context (Fredericks, Blumenfeld, & Paris, 2004).

School engagement involves indicators such as hours spent doing homework, preparation for class, and perseverance on academic tasks. Most believe that there are emotional and cognitive components of engagement. Finn and Rock (1997) view school engagement as a comprehensive construct that includes behavioral participation and emotional identification with school. Marks (2000), regards school engagement as a psychological process in which students put attention, interest, investment, and effort into their learning. Emotional engagement pertains to a student's sense of connectedness at school, feelings about school (Stipek, 2002; Lee & Smith, 1995), and identification with school (Voelkl, 1997).

School engagement, defined as the student's behavioral and affective identification with the school (Sirin & Rogers-Sirin, 2004), has repeatedly been shown to be a powerful predictor of school success, and has been linked to academic motivation. Students who are highly engaged identify with the role and responsibility of being a student and tend to be actively involved in their schoolwork (Fredericks et. al, 2004). Engagement occurs when the student exhibits active involvement and concentration in school (Newman, 1992).

Whether students are engaged or disengaged has an impact on the classroom climate and the student's achievement (Newman, 1992). Young people who find schools engaging are less likely to cheat, skip classes, fight in school, or to participate in peer groups who exhibit these behaviors (Roeser & Eccles, 1998). Conversely, a disengaged

student might skip school or complete tasks while lacking a genuine interest in learning (Newman, 1992).

School engagement is an important way to understand the relationship between the young person and the school environment (Brand, Felner, Shim, Seitsinger, and Dumas, 2003). Students who are more engaged in school have been found to have better psychological functioning and more positive academic outcomes (Roeser & Eccles, 1998). Although higher school engagement has been linked to many positive outcomes, the pathways by which adolescents from various economic and ethnic backgrounds become engaged and maintain engagement, and how this process may change over time, has yet to be fully examined. The present study will be able to examine changes in school engagement during the middle school period and consider the factors that contribute to changes in engagement over time.

One troubling finding is the decline in school engagement over time. As students move forward in their studies they tend to become more and more disengaged. This pattern has been found for both middle class and low SES students (Marks, 2000; Hauser-Cram et. al., 2007). The transition from elementary to middle school, and from middle school to high school are both transitions that have been associated with notable decline in engagement (Newman, 1992). Hauser-Cram et. al., (2007) found change in school engagement to be predicted by one school characteristic; (K-5) children in schools with more positive academic climates demonstrated fewer declines in school engagement.

Early school engagement appears to be a crucial factor in a child's adjustment to school. Feelings of incompetence and frustration early in a child's academic career have been associated with a broad negative pattern of adaptation towards schooling (Eccles, 1991). Early positive experiences have the opposite effect, whereby positive feelings towards school and academic tasks formed early facilitate a child's interest in school. Greater engagement in kindergarten was associated with better literacy skills in both third and fifth grade (Hauser-Cram et. al., 2007). Conversely, children who were less engaged in school in first grade were 2.5 times more likely to drop out of school than their peers who were more engaged (Alexander, Entwistle, & Horsey, 1997). Consistently, however, girls, students from higher SES backgrounds, and academically successful students tend to be more engaged (Marks, 2000). Thus, the present study will, using a large diverse sample of adolescents, examine the predictors of school engagement including parent involvement, teacher support, and school climate. The ways in which school engagement may lead to differing developmental outcomes for adolescents will be discussed next.

School Engagement and Developmental Outcomes

School engagement and related constructs have been linked to a variety of academic, social, and emotional outcomes for adolescents. Skinner, Wellborn, and Connell (1990) found that older elementary children who are more engaged in school earn higher grades and show better personal adjustment to school. In addition, low levels of school engagement have been associated with numerous negative outcomes including (but not limited to) delinquency, substance use, early sexual activity, low school achievement, school dropout, low school motivation, and poor social and emotional

adjustment (Battistich, Watson, Solomon, Schaps, & Solomon, 1991; Eccles, Early, Frasier, Belansky, & McCarthy, 1997; Finn, 1989; Furrer & Skinner, 2003; Roeser, Midgley, & Urdan, 1996).

Feeling like you belong to your school appears to be an important factor in one's psychological health and academic success. For example, Anderman (2003) examined school level differences in the relations between school belonging and various psychological outcomes. Using data from the National Longitudinal Study of Adolescent Health, he found several school level characteristics that affected school belonging. Busing was found to be related to lower perceived belonging. Urban schools were found to have significantly lower levels of perceived belonging and K-12 schools were found to have higher levels of belonging. Interestingly, when background and psychological characteristics were controlled, high school belonging was associated with lower level of depression, less social rejection, fewer school problems, higher reports of optimism and academic achievement.

An increasing body of research has shown that **academic achievement** is positively associated with school engagement. In fact, a bidirectional relationship exists between school engagement and academic achievement. For example, youth who are more engaged at school demonstrate stronger academic performances than those who are not and youth who are academically successful, report higher levels of school engagement. Youth who report high levels of school engagement, and who regulate their attention and effort have higher motivation and do better on various indicators of academic achievement (Zimmerman & Schunk, 2001). Studies with youth of various

ages and from different ethnicities find that engaged youth are more likely to have academic success and complete high school than their counterparts (Goodenow, 1993; Osterman, 2000). Conversely, as reported above, emotional disengagement with school is one of the primary reasons for dropping out (Fine, 1991).

The present study will assess perceived academic competence as well as school grades. The consistent finding that adolescents who are more engaged in school have higher levels of academic competence (Eccles, 1991) demonstrates how important it is that youth remain engaged in school. Adolescents who view themselves as succeeding in school and being competent academically have better emotional and psychological health than adolescents who do not. Generally, children enter the middle childhood years optimistic about their abilities. Yet, by age 10, children are less optimistic and there is a much stronger relationship between their self-ratings and their actual performance (Eccles, 1991). This finding has been demonstrated consistently. However, this research finding is based on a cross-sectional investigation of an eighth grade cohort. It has not been tested longitudinally.

Children and adolescents, who see themselves as competent (perceived academic competence), have better emotional and psychological health than children who do not view themselves as competent in academic and other domains. Being optimistic about one's academic future and having a positive educational attitude contributes to one's perception of oneself as being a competent individual and capable of being successful later in life. Children who do not see themselves as competent report high levels of

depression, social isolation, anger, and aggression (Cole, 1991; Parkhurst & Asher, 1992).

In sum, higher school engagement is related to various positive outcomes such as **higher academic achievement, higher levels of competence, lower depression**, and better personal adjustment (Whitlock, 2006; Jimerson, Campos, & Greif, 2003). Overall, there is strong research evidence to suggest a broad positive association between school bonding and a variety of academic, social, and emotional outcomes. Because students who feel bonded to their school have a range of positive outcomes, it is imperative that we are equipped with a more in depth understanding of which individual, school, and family level variables contribute to school engagement, how these vary based on **ethnicity, gender, and SES**, and how they might evolve over time.

There is an accumulating body of research that has examined school engagement and contributed to our understanding of contextual factors such as parent involvement, school engagement, and developmental outcomes. However, existing work has certain limitations and some important questions remain to be addressed. In particular, many of the previous studies have investigated developmental changes by looking cross-sectionally at cohorts of students at different ages (Eccles, 1991; Ma & Klinger, 2000). Other studies were restricted to children of a younger age and single SES (Hauser-Cram et al., 2007). Others including Tucker et al., 2002, looked solely at African-American students. The unique contribution of this study is in its large, diverse sample, and longitudinal design. This study enables us to look at change over time for the same individuals on a year to year basis. Given the relevancy of understanding the predictors of

and outcomes related to school engagement, it is clear that a study of this design is needed.

Furthermore, although previous work has provided valuable information about school engagement, the mechanisms and processes through which contextual factors interact and contribute to academic and psychosocial health for adolescents are not fully understood. The changing role that school engagement plays in contributing to positive outcomes for youth merits further investigation. The unique contribution of this study is in its ability to establish the within and across time relationships between family and school variables and school engagement. By utilizing data consisting of a large, diverse sample of adolescents over a three year period, a thorough examination of school engagement over time will be undertaken. Particularly, many of the contributing factors to school engagement and academic and psychosocial outcomes at the critical juncture of the transition from elementary to middle school will be examined. In this work, I propose a model positing multiple interactions between contextual factors, school engagement, and adolescent outcomes that has not been tested before.

Covariates of School Engagement

Race and ethnicity are related to academic achievement (Strand, 1999). The low academic achievement of certain racial and ethnic groups has been attributed to many factors including their low SES (Hull, 1990), unsuccessful incorporation into the dominant Eurocentric culture (Ogbu & Simmons, 1998), and family structure (Pong, 1998). In addition, school engagement studies with diverse racial or ethnic groups report similar findings. These studies provide additional evidence that how one perceives the

school context has a strong relationship to academic success. Sirin and Rogers-Sirin (2004) investigated the psychological factors in regards to academic performance in middle class African-American adolescents and found that school engagement and educational expectations have the strongest relationship to academic performance.

SES has also been consistently demonstrated to have a long lasting and profound impact on students' level of school engagement and academic performance (Brooks-Gunn & Duncan, 1997). Strong correlations between SES, student achievement, and parental involvement have been reported. High SES parents are more likely to be involved in schools and promote their child's academic growth at home (Stevenson & Baker, 1987). This may be one important factor that contributes to our understanding of the large gap that exists between low and high SES children and their academic performance. However, the relation between specific aspects of school climate and various academic skills have been somewhat inconclusive and age specific (Hauser-Cram, Wafield, Stadler, & Sirin, 2007). For children in poverty, child, family, and school factors have all been found to predict change in a child's academic performance (Ma & Klinger, 2000). Children from low SES backgrounds who are in schools with more positive academic climates show less declines in being engaged over time. There is also an association between self directed learning and literacy skills, whereby children who are more engaged become better readers and are also more able to approach more academic challenges and demands. Poor students who are not engaged early on develop poorer literacy skills, more disengagement, and poorer academic performance (Hauser-Cram et. al., 2007).

Gender also plays an important role in understanding school engagement. There are notable differences in levels of school engagement between boys and girls. Generally, throughout schooling females report higher levels of engagement than males. They also tend to have higher GPA's than males and report fewer school behavior problems than males do (Roeser, Eccles, & Sameroff, 2000). Interestingly, however, in the middle school years, girls report more emotional difficulties and mistreatment by teachers. Although girls continue to do well in school, they report poorer mental health. Differential treatment by teachers based on gender has been suspected to contribute to this outcome (Lee, Croninger, Linn, & Chen, 1996).

There exists several influential relationships between ethnicity, SES, and gender as they relate to school achievement. Adolescents who are white, female, or had parents with more education or income had higher GPA's than adolescents who were African-American, male, or had parents with less education or income. African-American and male adolescents reported more problem behaviors in school than their white and female counterparts (Roeser, Eccles, & Sameroff, 2000). Gaps between test scores of African-American and white students continue to exist even when factors such as SES, family structure, and school racial composition have been controlled for. The impact of these demographic factors will be examined in the current study.

Summary

Upon a review of the relevant research, one can see that a variety of terms are used to describe and measure school engagement and related constructs. These include terms such as school bonding, school connectedness, school involvement, attitude toward school, commitment to school, student engagement, and school belonging. Although the names and definitions differ, the measures used are similar, if not identical. In other instances, identical terms have been used to describe a construct that is measured in vastly different ways. The impact of school engagement and related constructs is widely studied. This review of the literature explored how constructs related to school engagement are defined, measured, and studied. There exists strong research evidence to suggest a broad positive association between school engagement and a variety of academic, social, and emotional outcomes.

Therefore, a systematic examination of longitudinal data may move the field forward and may provide evidence about the nature of relations between various predictors of school engagement, school engagement, and developmental outcomes for adolescents across time. Such data may indicate how to foster school engagement and positive developmental outcomes. Exploring a data set that includes indexes of these variables—the 4-H Study of Positive Youth Development (Lerner, et al., 2005) enables us to understand this important issue.

This study seeks to extend current research by examining more thoroughly the individual, school, and family level characteristics that independently or in combination work to promote or inhibit school engagement. Utilizing an ecological framework

(Bronfenbrenner, 1979), a Developmental Systems perspective (Ford & Lerner, 1992), and a longitudinal sample of adolescents as they advanced from grades 5-7 in the 4H study of Positive Youth Development (Lerner et al, 2005), this study will focus on the school, family, and contextual variables that are related to school engagement.

This study also seeks to examine if differences exist across economic and ethnic backgrounds. Patterns of youth school engagement will be analyzed as they change or remain stable over time. The behavioral, emotional, and cognitive outcomes that result when adolescents are engaged in school will be explored and outcomes will be carefully evaluated. Specifically, differences based on ethnicity, SES, and gender will be investigated. This research study will also carefully examine the influence of school engagement, specifically, whether or not school engagement acts as a mediator between variables such as school climate, teacher support and parental involvement and indices of school success within and across time will be studied.

CHAPTER THREE

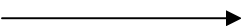
METHODS

Research Questions & Proposed Analysis

Several hypotheses have been proposed with the goal of better understanding the complex relationships between family and contextual variables as they relate to developmental outcomes for adolescence and whether the relationship between these variables and outcomes are being mediated by school engagement. Gender, SES, and race are important covariates that will be considered throughout the analysis.

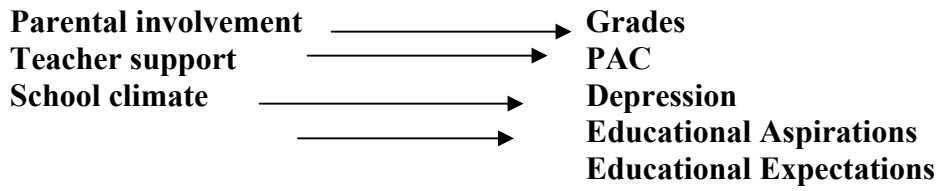
Hypothesis 1: Across all waves, Parental Involvement, Teacher Support, and School Climate will be significant predictors of School Engagement. Thus, higher levels of Parental Involvement, Teacher Support, and more positive School Climate will predict higher levels of School Engagement.

WAVES 1, 2, and 3

Parental involvement
Teacher support  **School Engagement**
School climate

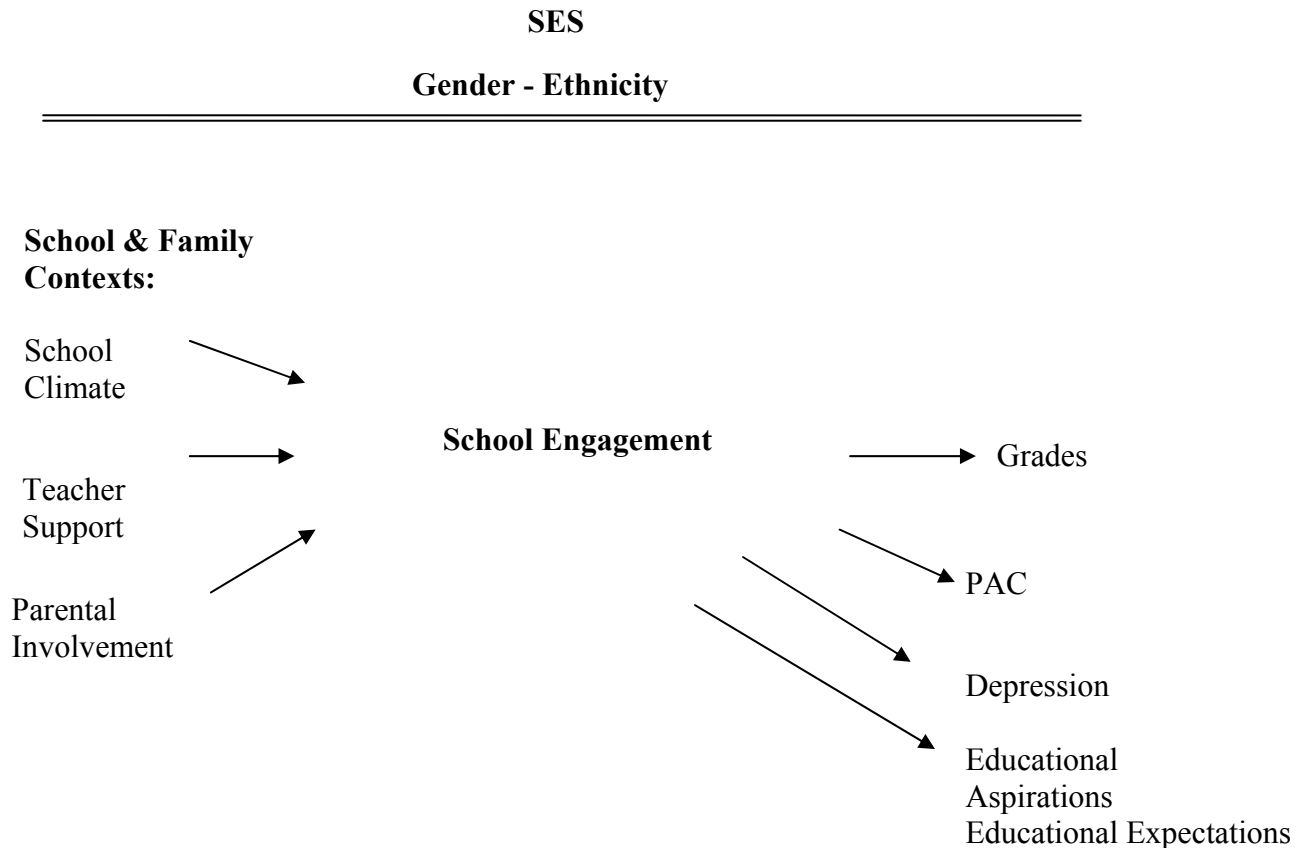
Hypothesis 2: Parental Involvement, Teacher Support, and School Climate are significant predictors of Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations. Thus, adolescents who report higher levels of Parental Involvement, Teacher Support, and positive School Climate will have higher Grades, higher levels of Perceived Academic Competence, higher Educational Aspirations and Expectations.

SES
Gender
Race/Ethnicity



Hypothesis 3: Both within and across time, the relationship between the school and family predictors (Parental Involvement, Teacher Support, and School Climate) and the outcomes (Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations) is being mediated by School Engagement.

Conceptual Model: Example of Proposed Mediated Relationships



For the following questions, OLS regression models with both time varying and concurrent predictors will be used to test the within time and across time relationships between parent involvement, teacher support, school climate and levels of school engagement as well as the relationship between school engagement and emotional and cognitive outcomes. In addition, I will test whether school engagement acts as a mediator between the predictors and the outcomes for both within and across time.

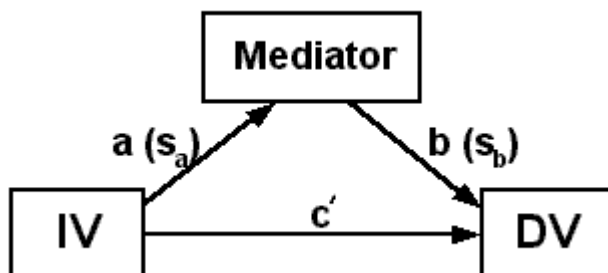
Mediation

In order to test for mediation, two types of mediation analysis will be run. The first type, the causal steps approach, requires that one estimate regression coefficients for the effects of a predictor on the mediator, the predictor on the outcome, and mediator on outcome controlling for the predictor (Baron & Kenny, 1986). For both within and across time analysis, individual models will test whether school engagement functions as a mediator to the extent that it accounts for the relation between each predictor (school climate, teacher support, etc) and the criterion variables (academic, professional, and psychological outcomes). The relation between predictor and criterion should be reduced (to zero in the case of total mediation) after controlling the relation between the mediator and criterion variables.

Yet, there are several limitations to this approach as noted by Preacher & Hayes (2004). The causal steps approach does not provide a direct hypothesis test for mediation. It is not easily adaptable when there are two or more mediating pathways between predictor and outcome. Lastly, it lacks statistical power. Therefore, as suggested by Baron & Kenny (1986) a second and more powerful test of mediation which reduces type II errors, the Sobel test will be run for both within and across time analysis (Sobel, 1982). A series of Sobel tests will be conducted to test whether school engagement mediates the effects of parent involvement, teacher support, and school climate on the outcomes of interest. The Sobel test will indicate whether full or partial mediation exists as well as possibly reveal new and different relationships that the causal steps approach could not expose.

Sobel test equation (Sobel, 1982)

$$z\text{-value} = a*b/\text{SQRT}(b^2*s_a^2 + a^2*s_b^2)$$



(Preacher & Leonardelli, 2006).

A repeated measures ANOVA was run on the variable of interest, school engagement, at W1, W2, and W3 and found that school engagement at W1 (mean = 9.02, std. deviation= 1.92) was significantly different from school engagement at W2 (mean = 8.75, std. deviation= 1.98) and W3 (mean =8.62, std. deviation= 1.92). Post hoc analyses indicated that while W1 school engagement was significantly different from W2 and W3 school engagement, W2 and W3 school engagement were not significantly different from each other ($F=7.766, p<.05$). Because school engagement across W2 and W3 were essentially fundamentally equivalent, and in order to avoid over interpretation of minor variation, school engagement at W1 and W3 were used in the following across time analyses.

While within time analysis will utilize an OLS regression model, in order to asses across time relationships between predictors, school engagement and developmental

outcomes, one type of longitudinal multivariate regression models was used with multiple variants. All models assessed changes in predictors of school engagement, school engagement, and outcomes over a two year period, allowing for a stronger developmental focus than point-in-time estimates (as run in the first set of analyses). All models also controlled for race, gender, and SES, which have previously been found to be related to all variables of interest.

This technique models cognitive and emotional outcomes at time 3 as a function of the predictors and mediator at time 1 as well as changes in the predictors and mediator at time 3 controlling for the cognitive and emotional outcomes at time 1. This model presumes that school engagement changes over time, and further, that predictors of school engagement at times 1 and 3, will have distinct effects on the outcomes.

By conducting both within and across time models, and through using a lagged regression model, this study will assess both short term and long term effects of the predictors on school engagement, and school engagement on adolescent outcomes, controlling for both individual and contextual factor.

Procedures

Data Collection

For all Waves of data collection, teachers or program staff gave each child an envelope to take home to their parent or guardian, containing a letter explaining the study, consent form, a parent questionnaire, and a self-addressed envelope for returning the parent questionnaire and consent form. For those youth who received parental consent, data collection was conducted either in the school or program by trained study staff or hired assistants for remote locations. The procedure began with reading the instructions for the student questionnaire (SQ) to the youth. Participants were instructed that they could skip any questions they did not wish to answer. Data collection took approximately two hours, which included one or two short breaks. During Waves 2 and 3, students who were unable to be surveyed at their school or 4-H site, in that they were either absent during the day of testing or the school superintendent did not allow testing to occur in the school, received a survey in the mail, or took the survey online.

Participants

At Wave 1 (5th grade), participants came from sites located in 13 states that provided regional, rural-urban, racial/ethnic, and religious diversity. Schools were chosen as the main unit for collecting the sample. Assessment was conducted in 57 schools and in four after school programs. Participants were 1,720 fifth grade adolescents (48% males; mean age = 11.0 years, SD = .46 years; 52% females, mean age = 10.92 years, SD = .52 years) and 1,139 of their parents.

At Wave 2, (6th grade), youth who were in the fifth grade during Wave 1 were retested. In addition, in order to control for the influence of prior testing on the findings, an additional sample of previously unassessed sixth graders was tested. A total of 1,973 youth (46% males; mean age = 12.17 years, $SD = .72$ years; 54% females, mean age = 12.17 years, $SD = .67$ years) and 1,239 of their parents participated in Wave 2 data collection, sampled from 53 schools and 5 after-school programs in 20 states across the nation.

At Wave 3 (7th grade), in addition to retesting Wave 1 and Wave 2 participants, a new group of participants was again added to the sample. A total of 1,600 youth (40% male, mean age = 13.2 years, $SD = .08$; 60% female, mean age = 13.2 years, $SD = .90$) and over 1,182 of their parents from 17 states were tested. The participants varied in regard to race, ethnicity, socioeconomic status, family structure, rural-urban location, geographic region, and experiences in after-school programs.

Attrition in the 4-H sample is not randomly distributed across schools. In Wave 2, some principals withdrew consent for their schools to participate, and thus these students “dropped out” without our having had the opportunity to ask them if they wanted to remain in the study. For example, in one state we were unable to collect data in Wave 2, resulting in the loss of over 250 participants. Overall, we lost 561 participants in Wave 2 because of the absence of principal or superintendent permission to continue. In turn, however, attrition from Wave 1 to Wave 2 for students who *were* allowed to be asked to remain in the study was only 10%. Out of 1,954 participants tested in Wave 2, 337

participants (17.5%) dropped out because of school/site attrition in Wave 3, but there was also 21.5% individual attrition.

For the current analysis I focused on the 634 adolescents who were included in all three waves of data collection. Of the 634 participants, 38 were dropped. Of the 38 who were dropped, 8 were dropped out because they did not meet any of the age cutoffs (participants needed to be between the ages of 9 and 12 for grade 5, 10 and 13 for grade 6, and 11 and 14 for grade 7), and the remaining 30 did not meet the criteria of having 50% data complete on the variables of interest. The final sample used in this research involved 596 participants (grades 5-7) (43.8% males; 56.2% females) from 13 states from the longitudinal study who participated in all three waves of data collection, whose ages fell within the given age range, and who had at least 50% of the data complete on the variables of interest. The sample was racially diverse (65.6% European American, 14.0% Latino/a, 5.9% multiethnic/multiracial, 5.1% Asian American, 4.6% African American, 2.9% Native American, 2.0% other, and .5% did not indicate race or ethnicity).

Table 1: Racial Composition of Sample

Race	Male	Female	Total	Percent
Native American	4	13	17	2.9
Asian American	9	21	30	5.1
African American	13	14	27	4.6
Latino/a	36	47	83	14.0
White	178	211	389	65.6
Multiethnic	17	18	35	5.9
Other	4	8	12	2.0

Table 2: Geographic Regions Represented

State	Frequency	Percent	State	Frequency	Percent	State	Frequency	Percent
MA	112	18.8	NY	51	8.6	KS	5	.8
MT	90	15.1	AZ	50	8.4	MN	2	.3
FL	82	13.8	TN	36	6.0	MI	1	.2
WI	76	12.8	NC	24	4.0			
WA	60	10.1	MD	6	1.0			

Table 3: Ages across Waves

	Mean	Minimum	Maximum
Wave 1	10.97	9.92	12.83
Wave 2	12.02	10.92	14.17
Wave 3	13.03	11.92	15.08

Attrition analyses were conducted to assess whether those 38 adolescents who were excluded from this study differ significantly in any way from the 596 adolescents included in this study. Attrition subjects differed from those included in this study based on SES and race but not by gender. For SES, an independent sample t-test was run. The mean family income for those included in the study was \$62,603 (minimum= \$5,499, maximum= \$162,500) while it was \$44,715 (minimum = \$10,000, maximum = \$103,750) for those excluded. This was a significant difference ($t=2.485$, $p<.05$), and showed that those who were excluded from this study did differ significantly on income from those who were included. Those who were included in this sample tended to be from higher SES families than those excluded.

For race, a Chi-Square test of association was run indicating that there was a significant difference between those included in the study versus those excluded from this

study based on race (Chi-Square= 9.384, $p < .05$). The excluded group had less European Americans than expected and more Latinos than expected. For gender, a Chi-Square test of association was run and found no significant difference for gender between those who were included and excluded in this study (Chi-Square= 1.131, $p < .05$). There were 261 males and 335 females included in this study which did not differ significantly from the expected. There were 20 males and 18 females excluded from this study which did not differ from the expected.

Measures

All variables in the present research will be drawn from the broad array of measures that have been part of the 4-H Study of Positive Youth Development. They are listed below. All measures were completed by the adolescent in the 4-H study.

The Search Institutes' Profiles of Student Life – Attitudes and Behaviors Survey (PSL-AB) (Benson, Leffert, Scales, Blyth, 1998) was used to index several of the variables of interest in the proposed research. The PSL-AB is a 156-item survey. Scale development for the 99 PSL-AB items used in the 4-H Study is reported in Theokas and Lerner (2006). The fourteen scales that emerge were examined for their conceptual integrity and were associated with the appropriate construct in the present study.

Parental Involvement Scale (SEARCH/PSL-AB). Parental involvement is a subscale of the ecological assets construct (see Theokas, Almerigi, Lerner, Dowling, Benson, Scales, & Von Eye, 2005) consisting of four items. These items were derived from the PSL-AB (Search Institute; Benson, Leffert, Scales, and Blyth, 1998). Each item is measured using a five point Likert-type scale ranging from 0 = Never to 4 = Very

Often with a higher score reflecting greater parental involvement. The score is computed by taking the mean of at least three of the four items. Cronbach's alphas for this scale are 0.62, 0.77 and 0.77 for Waves 1, 2, and 3 respectively.

Parental Involvement Items:

1. Help you with your homework
2. Talk to you about what is going on in school
3. Ask you about your homework
4. Go to meetings or events at your school

School Climate Scale. Students own perception of their school's climate was assessed using the ABOUT MY SCHOOL SCALE. This scale was comprised of 5 items that were derived from the PSL-AB (Search Institute; Benson, Leffert, Scales, and Blyth, 1998). Participants were asked to report whether they agree or disagree with each statement and how much they agree/disagree. A score of "1" indicates that the participant strongly disagrees with the statement and a score of "5" indicates that he or she strongly agrees with the statement. Cronbach's alphas for this scale are 0.65, 0.69, 0.75 for Waves 1, 2, and 3 respectively.

School Climate Items:

1. Students help decide what goes on in my school.
2. Students in my school care about me.
3. In my school there are clear cut rules for what students can and can't do.
4. At my school, everyone knows you'll get in trouble for using alcohol or other drugs.
5. If I break a rule at school, I'm sure I'll get in trouble.

Teacher Support Scale. The level to which adolescents report their teachers to provide clear expectations, strategic help, and involvement was assessed using the Teacher Support Scale. This scale was comprised of 3 items derived from the Search Institute's PSL-AB. Each item was measured with a 5-point Likert-type scale, indicating

different levels of agreement to the statement. Participants were asked to report whether they agree or disagree with each statement. A score of “1” indicates that the participant strongly disagrees with the statement and a score of “5” indicates that he or she strongly agrees with the statement. ?” Cronbach’s alphas for this scale are 0.74, 0.81 and 0.85 for Waves 1, 2, and 3 respectively.

Teacher Support Items:

1. My teachers really care about me.
2. I get a lot of encouragement at my school.
3. Teachers at school push me to be the best I can be.

School Engagement Scale. This scale was comprised of 7 items. Four items were derived from the SEARCH SCHOOL ENGAGEMENT Scale and 3 additional items from the ABOUT ME SCALE (Search Institute; Benson, Leffert, Scales, and Blyth, 1998). Each item was measured with a 5-point Likert-type scale, indicating different levels of agreement to the statement. Cronbach’s alphas for this scale are 0.64, 0.74 and 0.70 for Waves 1, 2, and 3 respectively.

School Engagement Scale:

1. Feel bored at school.
2. Come to class without bringing paper or something to write with.
3. Come to classes without your homework finished.
4. Come to classes without your books.
5. At school, I try as hard as I can to do my best work.
6. I don’t care how I do in school.
7. I care about the school I go to.

Participants were asked to report whether they agree or disagree with each statement and how much they agree/disagree. A score of “1” indicates that the participant strongly disagrees with the statement and a score of “5” indicates that he or

she strongly agrees with the statement. The score for some items were reverse coded and higher scores indicate higher engagement levels.

Grades Earned Item (4-H Study). This item was taken from the Search Institute's PSL-AB 156 item questionnaire. This item was used to measure one of the thriving behaviors - school success. It was measured with an 8-point Likert-type scale. Participants are asked to report their grades in school. A score of "1" indicates that the participant gets "Mostly A's" in his/her school and a score of "8" indicates that a participant gets "Mostly below D's" in his/her school. This variable was reverse coded later (higher becomes better) and recoded to 0.5 to 4.0.

Self-Perception Profile for Children (SPPC). The SPPC Cognitive subscale (Harter, 1983) was used for this study. The SPCC was developed to assess perceived competence in regard to five specific domains of functioning and one of global self-worth: (a) academic competence (reflecting school performance), (b) social competence (emphasizing peer popularity), (c) physical competence (stressing ability at sports and outdoor games), (d) physical appearance (assessing satisfaction with one's appearance), (e) conduct or behavior adequacy (emphasizing behaving in accordance with rules for conduct), and (f) self-worth (indexing feelings of self-esteem, in general).

Cognitive Scale of the Self-Perception Profile for Children (Harter, 1983) is assessing academic performance (e.g., doing well at schoolwork, being smart). This is a widely used scale which showed good psychometric properties of reliability (.76 - .83) and validity (East, Lerner, Lerner, Talwar, Ohannessian, & Jacobson, 1992; Harter, 1982; Talwar, Schwab, & Lerner, 1986; Windle, et al., 1986). In prior research, the correlation

between teacher and student ratings on this scale was .40 - .51 (Harter, 1982; Talwar, Schwab, & Lerner, 1986). Similar patterns were obtained between perceived cognitive competence and standardized achievement scores (.45 - .56 for 5th and 6th graders) (Harter, 1982; Talwar, Schwab, & Lerner, 1986). Perception of higher cognitive competence was associated with lower depression ($r = -.24$, $p < .01$) and favorable peer nominations were highly correlated with both self- ($r = .45$, $p < .001$) and teacher-rated competence ($r = .52$, $p < .001$) (CES-D; Radloff, 1977) (East, et al., 1992; Windle, et al., 1986). An example of an item of this scale is: “Some kids often forget what they learn BUT other kids can remember things easily”. Cronbach’s alphas for this scale are 0.73, 0.78 and 0.80 for Waves 1, 2, and 3 respectively.

Center for Epidemiological Studies Depression Scale (CES-D) The CESD (Radloff, 1977) is a widely used self-report measure of depressive symptomatology and was included as a measure of risk. Depression was conceptualized as feelings of frustration, sadness, demoralization, loneliness, and pessimism about the future (Radloff, 1977). Depression was assessed using adolescents’ reports on the 20 items of the CES-D (Radloff, 1977). The instrument has been reported to have adequate reliability ($\alpha = .85$) and validity (e.g., CES-D correlates significantly with other measures of mood states such as Profile of Mood States-Short Form and Bradburn Positive and Negative Affect Scale) (Conerly, Baker, Dye, Douglas, Zabora, 2002; Radloff, 1977; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). The CES-D has an internal consistency of .85 for the general population and of .90 for psychiatric patients (Radloff, 1977). The measure has been used extensively in adolescence and validity and reliability with

populations in high-school and junior high-school have been established (Radloff, 1977). For instance, Windle, et al. (1986) demonstrated the construct validity of the measure with sixth graders. Cronbach's alphas for this scale are 0.82, 0.82 and 0.87 for Waves 1, 2, and 3 respectively.

The CES-D is a 20-item self-report measure of depressive symptomatology. The instrument is scored using a 4-point scale ranging from 0 (rarely/none of the time) to 3 (most/all of the time) to indicate how frequently the respondent experienced symptoms during the previous two weeks. Participants responded to 20 individual items and reported how often they felt that way during the past week. Examples of items included "During the past week I was bothered by things that usually don't bother me" and "During the past week I felt sad." Items are summed for a total score, with higher scores indicative of higher depressive symptomatology. Potential scores range from 0 to 60. A measure of depressive symptomatology. Includes 20 items about how respondents felt during the past week and about various behaviors (e.g., felt sad, sleep was restless). There are no subscales for this measure.

Attitudes about youth aspirations and expectations for their own education will be assessed by the following two items.

Educational Aspirations. To assess the highest level of education that youth wish to complete, participants responded to the following open-ended question created for the purpose of this study:

"If it were totally up to you, what is the highest level of education that you dream of completing? (Or, How far would you like to go in school?)"

Youth answers were transferred into an Excel file and assigned one of the following numerical codes: 1.00 = “8th grade or less,” 2.00 = “some high school,” 3.00 = “high school diploma,” 4.00 = “some college,” 5.00 = “2-year college – A.A./A.S. degree,” 6.00 = “4-year college – B.A./B.S. degree,” 7.00 = “M.A. or M.S. degree,” 8.00 = “doctoral degree.”

Expected Educational Attainment. To assess the highest level of education that youth expect to complete, participants responded to the following open-ended question created for the purpose of this study:

What is the highest level of education that you believe you will actually complete? (Or, How far do you believe you will go in school?)

Youth answers were transferred into an Excel file and assigned one of the following numerical codes: 1.00 = “8th grade or less,” 2.00 = “some high school,” 3.00 = “high school diploma,” 4.00 = “some college,” 5.00 = “2-year college – A.A./A.S. degree,” 6.00 = “4-year college – B.A./B.S. degree,” 7.00 = “M.A. or M.S. degree,” 8.00 = “doctoral degree.

CHAPTER FOUR

RESULTS

Alphas

Reliability analyses were run on all composite variables of interest across all three waves to ensure that the measures used were reliable. Findings indicate acceptable reliabilities on all scales. Alphas ranged from .626 to .879.

Table 4: Reliability of Measures Used

Scale	WAVE 1			WAVE 2			WAVE 3		
	Mean	SD	Alpha	Mean	SD	Alpha	Mean	SD	Alpha
Parental Involvement	3.52	.69	.62	3.43	.78	.77	3.13	.82	.77
School Climate	4.21	.57	.65	4.05	.63	.69	3.88	.69	.75
Teacher Support	4.14	.79	.74	3.86	.86	.81	3.68	.88	.85
School Engagement	9.02	1.91	.64	8.66	2.06	.74	8.49	1.96	.70
Academic Competence	3.02	.64	.73	3.05	.59	.78	3.06	.61	.80
Depression	13.01	8.95	.82	11.85	8.63	.82	12.42	9.39	.87
Educational Aspirations							6.92	2.62	
Educational Expectations							6.59	2.46	

Within Time Analysis:

For each wave, a series of hierarchical linear regressions (OLS) were run to establish which, if any of the predictors (SES, Race, Gender, Parental Involvement, Teacher Support, and School Climate) significantly predicted the outcome variables (Grades, Academic Competence, Depression, and Educational Aspirations and Expectations (wave 3 only) at each wave. Stepwise regressions were run at each wave. Variables were entered from the most proximal to the most distal influences. In step 1, the covariates were entered. In step 2, Parental Involvement was entered. In step 3, Teacher Support was entered and in step 4 School Climate was entered.

Hypothesis1: At each wave, Parental Involvement, Teacher Support, and School Climate will be significant predictors of School Engagement. Thus, higher levels of Parental Involvement, Teacher Support, and more positive School Climate will predict higher levels of School Engagement.

WAVES 1, 2, and 3

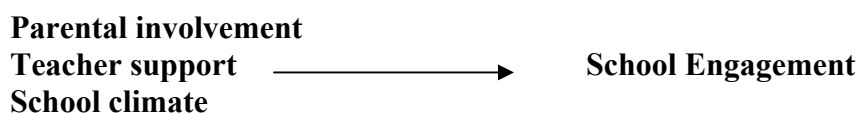


Table 5: Within Time Predictors of School Engagement

		Wave 1		Wave 2		Wave 3	
Predictors		B (unstand)	Sig.	B (unstand)	Sig.	B (unstand)	Sig.
Step 1	Gender	.64	.000***	.70	.000***	.23	.16
	White	.07	.75	-.05	.78	-1.31	.52
	Latino	.38	.24	.27	.36	-3.94	.16
	Income	.73	.02*	.83	.00**	.15	.60
▲R ²		.07		.06		.03	
Step 2	Parental Invol.	.04	.75	.26	.02*	.53	.000***
▲R ²		.02		.11		.12	
Step 3	Teacher Support	.39	.01*	.84	.000***	.42	.00**
▲R ²		.06		.16		.07	
Step 4	School Climate	.68	.00**	.60	.00**	.43	.01*
▲R ²		.02		.01		.01	
Overall R ²		.17	.000***	.36	.000***	.23	.000***

p<.05*, p<.01**, p<.001***

At wave 1, the significant predictors of School Engagement were Gender, Income, Teacher Support, and School Climate. Girls, on average, had higher School Engagement than boys. Adolescents from higher SES families, those with higher Teacher Support, and those with more positive School Climates also had higher School Engagement.

At wave 2, the significant predictors of School Engagement were Gender, Income, Parental Involvement, Teacher Support, and School Climate. Girls, on average,

had higher School Engagement than boys. Adolescents from higher SES families, those with higher Parental Involvement, higher Teacher Support, and those with more positive School Climates also had higher School Engagement.

At wave 3, the significant predictors of School Engagement were Parental Involvement, Teacher Support, and School Climate. Those adolescents with higher Parental Involvement, higher Teacher Support, and those with more positive School Climates also had higher School Engagement.

Changes in the predictors of school engagement over time:

Across the three waves of data several interesting changes occur in the predictors of School Engagement. Gender was a significant predictor of School Engagement in wave 1 and 2. Income was a significant predictor of School Engagement in waves 1 and 2. Parent Involvement was a predictor of School Engagement in waves 2 and 3. Teacher Support and School Climate were both significant predictors of school engagement across all three waves.

Table 6: Significant Predictors of School Engagement Within Time

	Wave 1	Wave 2	Wave 3
Gender	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
White			
Latino			
Income	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Parental Involvement		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Teacher Support	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
School Climate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

= A sig. predictor

Hypothesis 2: Parental Involvement, Teacher Support, and School Climate are significant predictors of Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations. Thus, adolescents who report higher levels of Parental Involvement, Teacher Support, and positive School Climate will have higher Grades, higher levels of Perceived Academic Competence, and higher Educational Aspirations and Expectations.

Extant research identifies a number of contextual factors that have been shown to influence an adolescent’s academic performance and psychological well being. It is important to partial out the influence of these characteristics from the central relationships of interest between the predictors (Parental Involvement, Teacher Support, and School Climate) and the outcomes (Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations). Thus, SES, Race, and Gender were included in the analysis as covariates.

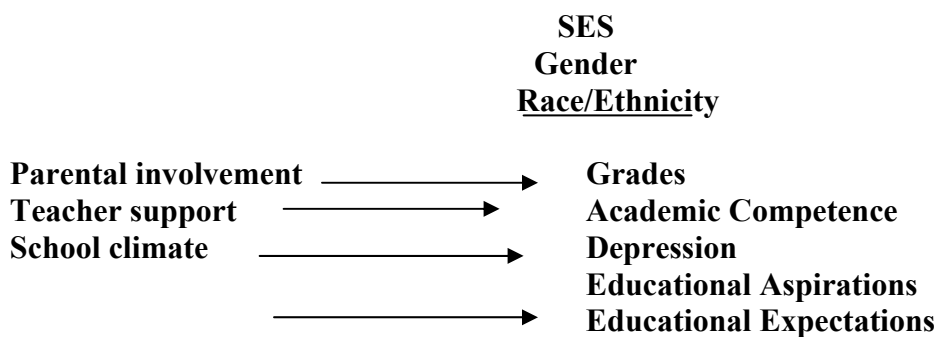


Table 7: Within Time Predictors of Outcomes

		<u>Wave 1</u>		<u>Wave 2</u>		<u>Wave 3</u>	
		B (unstand)	Sig.	B (unstand)	Sig.	B (unstand)	Sig.
GRADES:							
Step 1	Gender	.03	.54	.09	.08	.05	.32
	White	.04	.53	.02	.75	.09	.18
	Latino	-.22	.03*	-.27	.00**	-.19	.05
	Income	.47	.000***	.48	.000***	.34	.00**
▲R ²		.09		.10		.08	
Step 2	Parental Invol	-.04	.36	.00	.84	.00	.92
▲R ²		.00		.01		.01	
Step 3	Teacher Support	.09	.07	.13	.00**	.12	.00**
▲R ²		.01		.03		.05	
Step 4	School Climate	.04	.53	.04	.51	.13	.02*
▲R ²		.00		.00		.01	
Overall R ²		.10	.000***	.15	.000***	.16	.000***
ACADEMIC COMP:							
Step 1	Gender	.06	.34	-.02	.68	-.11	.05
	White	.08	.30	.16	.01*	.05	.46
	Latino	.09	.43	.23	.02*	-.00	.96
	Income	.40	.00**	.42	.000***	.18	.08
▲R ²		.05		.06		.03	
Step 2	Parental Invol	.03	.49	.01	.68	.09	.01*
▲R ²		.017		.05		.05	
Step 3	Teacher Support	.14	.00**	.25	.000***	.16	.000***
▲R ²		.032		.13		.07	
Step 4	School Climate	.05	.42	.08	.20	.09	.13
▲R ²		.002		.00		.00	
Overall R ²		.10	.000***	.25	.000***	.16	.000***

DEPRESSION:

Step 1	Gender	-.11	.89	.88	.25	4.34	.000***
	White	-1.00	.35	-1.04	.28	-1.11	.28
	Latino	.87	.57	.48	.72	1.42	.32
	Income	-5.48	.000***	-2.18	.13	-1.69	.25
▲R ²		.053		.02			.06
Step 2	Parental Invol.	-.46	.50	-.83	.13	-1.74	.00**
▲R ²		.015		.05			.05
Step 3	Teacher Support	-2.34	.00**	-2.40	.000***	.34	.59
▲R ²		.033		.07			.02
Step 4	School Climate	.08	.92	-1.77	.04	-4.15	.000***
▲R ²		.000		.00			.04
Overall R ²		.10	.000***	.16	.000***	.18	.000***

EDUCATIONAL ASPIRATIONS:

Step 1	Gender					.59	.01*
	White					-.04	.87
	Latino					-.13	.74
	Income					.47	.27
▲R ²						.03	
Step 2	Parental Invol.					.32	.04*
▲R ²						.02	
Step 3	Teacher Support					-.04	.81
▲R ²						.02	
Step 4	School Climate					.76	.00**
▲R ²						.01	
Overall R ²						.08	.000***

EDUCATIONAL EXPECTATIONS:

Step 1	Gender					.10	.63
	White					-.03	.90
	Latino					-.55	.16
	Income					1.00	.01*

▲R ²		.03	
Step 2	Parental Involv.	.36	.01*
▲R ²		.02	
Step 3	Teacher Support	-.03	.83
▲R ²		.00	
Step 4	School Climate	.56	.01*
▲R ²		.01	
Overall R ²		.08	.000***

p<.05*, p<.01**, p<.001***

At each wave, hierarchical regression analyses were run to determine the significant predictors of each outcome. Stepwise regressions were run. Variables were entered from the most proximal to the most distal influences. In step 1, the covariates were entered. In step 2, Parental Involvement was entered. In step 3, Teacher Support was entered and in step 4 School Climate was entered.

Predictors of Grades:

At wave 1, the significant predictors of Grades were Latino Race, Income, and Teacher Support. Being Latino, lower SES, and having low Teacher Support were all associated with lower grades.

At wave 2, the significant predictors of grades were being Latino, Income, and Teacher Support. Being Latino, lower SES, and having low Teacher Support were all associated with lower grades.

At wave 3, the significant predictors of Grades were Income, Teacher Support, and School Climate. Having low SES, low Teacher Support, and poor School Climate were all associated with lower grades.

Across the three waves of data, being Latino was a significant predictor of Grades for waves 1 and 2. Income and Teacher Support were significant predictors across all three waves. School climate was a significant predictor for Grades in wave 3.

Table 8: Significant Predictors of Grades Within Time

	Wave 1	Wave 2	Wave 3
Gender			
White			
Latino	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Income	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parental Involvement			
Teacher Support	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
School Climate			<input checked="" type="checkbox"/>

= A sig. predictor

Predictors of Academic Competence:

At wave 1, the significant predictors of Academic Competence were Income and Teacher Support. Having higher income and Teacher Support was related to higher Academic Competence.

At wave 2, the significant predictors of Academic Competence were Race, Income, and Teacher Support. Being White or Latino (as opposed to other), Having higher income and Teacher Support was related to higher Academic Competence.

At wave 3, the significant predictors of Academic Competence were Parental Involvement and Teacher Support. Higher Parental Involvement and higher Teacher Support were associated with higher Academic Competence.

Overall, Teacher Support appears to be an important predictor of Academic Competence, whereby students who report higher levels of Teacher Support report higher levels of Academic Competence across all three waves. Income also is a significant predictor of Academic Competence. In both wave 1 and wave 2, students from higher SES families report higher levels of Academic Competence than those from lower SES families.

Table 9: Significant Predictors of Academic Competence Within Time

	Wave 1	Wave 2	Wave 3
Gender			
White		<input checked="" type="checkbox"/>	
Latino		<input checked="" type="checkbox"/>	
Income	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Parental Involvement			<input checked="" type="checkbox"/>
Teacher Support	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
School Climate			<input checked="" type="checkbox"/>

= A sig. predictor

Predictors of Depression:

At wave 1, the significant predictors of Depression were Income and Teacher Support. Those with higher Income and higher Teacher Support had less Depression.

At wave 2, the significant predictors of Depression were Teacher Support and School Climate. Those with higher Teacher Support and more positive School Climates had less Depression.

At wave 3, the significant predictors of Depression were Gender, Parental Involvement, and School Climate. Girls, on average, had higher Depression than boys.

Those with more Parental Involvement and more positive School Climates had less Depression.

Gender was a significant predictor of Depression in waves 1 and 2. Income was a significant predictor only in wave 1. Parental involvement was a significant predictor only in wave 3. Teacher Support was a significant predictor in waves 1 and 2. Finally, school climate was a significant predictor in waves 2 and 3.

Table 10: Significant Predictors of Depression Within Time

	Wave 1	Wave 2	Wave 3
Gender			<input checked="" type="checkbox"/>
White			
Latino			
Income	<input checked="" type="checkbox"/>		
Parental Involvement			<input checked="" type="checkbox"/>
Teacher Support	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
School Climate		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

= A sig. predictor

Predictors of Educational Aspirations:

At wave 3, the significant predictors of Educational Aspirations were Gender, Parental Involvement, and School Climate. Girls, on average, had higher Educational Aspirations than boys. Those with more Parental Involvement and more positive School Climates also had higher Educational Aspirations than those who did not.

Predictors of Educational Expectations:

The significant predictors of Educational Expectations were Income, Parental Involvement, and School Climate. Higher SES, more Parental Involvement, and a more positive School Climate were all associated with higher Educational Expectations.

Hypothesis 3: Both within and across time, the relationship between the predictors (Parental Involvement, Teacher Support, and School Climate) and the outcomes (Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations) is being mediated by School Engagement.

Table 11: Within Time Causal Mediation with School Engagement as a Mediator of the Relationship Between Predictors and Outcomes

		<u>Wave 1</u>		<u>Wave 2</u>		<u>Wave 3</u>	
GRADES:		B (unstand)	Sig.	B (unstand)	Sig.	B (unstand)	Sig.
Step 1	Gender	-.06	.25	.01	.80	.03	.55
	White	.01	.82	.02	.74	.11	.11
	Latino	-.26	.01*	-.26	.00**	-.15	.11
	Income	.45	.000***	.33	.000***	.32	.00**
▲R ²		.09		.08		.08	
Step 2	Parental Invol.	-.06	.21	-.02	.49	-.05	.16
▲R ²		.00		.01		.01	
Step 3	Teacher Support	.08	.11	.02	.62	.08	.07
▲R ²		.02		.03		.05	
Step 4	School Climate	-.02	.68	-.03	.60	.09	.11
▲R ²		.00		.00		.01	

Step 5	School Eng.	.09	.000***	.12	.000***	.10	.000***
▲R ²		.07		.12		.07	
Overall R ²		.19	.000***	.26	.000***	.24	.000***

ACADEMIC COMP:

Step 1	Gender	-.03	.56	-.12	.02*	-.14	.00**
	White	.06	.38	.17	.00**	.05	.41
	Latino	.05	.65	.16	.08	.01	.85
	Income	.35	.00**	.26	.00**	.19	.04*
▲R ²		.06		.06		.03	
Step 2	Parental Invol.	.01	.82	-.00	.91	.01	.71
▲R ²		.01		.05		.05	
Step 3	Teacher Support	.08	.11	.15	.00**	.11	.00**
▲R ²		.03		.13		.07	
Step 4	School Climate	-.01	.83	-.02	.69	.03	.51
▲R ²		.00		.00		.00	
Step 5	School Eng.	.13	.000***	.13	.000***	.14	.000***
▲R ²		.12		.12		.15	
Overall R ²		.23	.000***	.37	.000***	.32	.000***

DEPRESSION:

Step 1	Gender	1.23	.15	1.59	.04*	4.61	.000***
	White	-.79	.46	-1.15	.23	-1.30	.19
	Latino	1.36	.36	.40	.77	.92	.51
	Income	-4.94	.00**	-.73	.61	-1.47	.30
▲R ²		.06		.01		.06	
Step 2	Parental Invol.	.00	.99	-.81	.15	-1.12	.04*
▲R ²		.00		.06		.05	
Step 3	Teacher Support	-1.65	.02**	-1.33	.05	.83	.19
▲R ²		.03		.06		.02	
Step 4	School Climate	.92	.35	-1.16	.20	-3.65	.000***

▲R ²		.00		.00		.04	
Step 5	School Eng.	-1.60	.000***	-1.03	.000***	-1.13	.000***
▲R ²		.09		.03		.04	
Overall R ²		.20	.000***	.19	.000***	.22	.000***

Educational Aspirations:

Step 1	Gender					.54	.02*
	White					.00	.99
	Latino					-.01	.97
	Income					.41	.32
▲R ²						.03	
Step 2	Parental Invol.					.18	.27
▲R ²						.02	
Step 3	Teacher Support					-.16	.39
▲R ²						.01	
Step 4	School Climate					.65	.00**
▲R ²						.02	
Step 5	School Eng.					.26	.000***
▲R ²						.03	
Overall R ²						.12	.000***

Educational Expectations:

Step 1	Gender					.03	.87
	White					.01	.95
	Latino					-.43	.27
	Income					.93	.02*
▲R ²						.03	
Step 2	Parental Invol.					-.17	.34
▲R ²						.02	
Step 3	Teacher Support					.20	.18
▲R ²						.00	
Step 4	School Climate					.44	.05

▲R ²		.01	
Step 5	School	.29	.000***
	Eng.		
▲R ²		.04	
Overall R ²		.12	.000***

p<.05*, p<.01**, p<.001***

The causal steps approach requires that one estimate regression coefficients for the effects of a predictor on the mediator, the predictor on the outcome, and mediator on outcome controlling for the predictor (Baron & Kenny, 1986). For both within and across time analysis, individual models will test whether school engagement functions as a mediator to the extent that it accounts for the relation between each predictor (school climate, teacher support, etc) and the criterion variables (academic, professional, and psychological outcomes). The relation between predictor and criterion should be reduced (to zero in the case of total mediation) after controlling the relation between the mediator and criterion variables.

For each wave, hierarchical regression analyses were run. Variables were entered from the most proximal to the most distal influences. In step 1, the covariates were entered. In step 2, Parental Involvement was entered. In step 3, Teacher Support was entered. In step 4 School Climate was entered. Finally, School Engagement was entered in step 5.

Results for Wave 1 Causal Mediation Model:

At Wave 1, there was mediation occurring in the relationship between Teacher Support and Academic Competence and partial mediation was found in the relationship between Teacher Support and Depression.

Results for Wave 2 Causal Mediation Model:

At Wave 2, the relationship between Teacher Support and Grades was being mediated by School Engagement while there was partial mediation of Teacher Support and Depression by School Engagement. Additionally, the relationship between School Climate and Depression was being mediated by School Engagement.

Results for Wave 3 Causal Mediation Model:

At Wave 3, several mediated relationships appear. The relationship between Teacher Support and Grades and School Climate and Grades was being mediated by School Engagement. The relationship between Parental Involvement and Academic Competence was being mediated by School Engagement while the relationship between Parental Involvement and Depression was being partially mediated. Lastly, the relationship between School Climate and Educational Expectations and Parental Involvement and Educational Expectations was being mediated by School Engagement.

There are several limitations to this approach as noted by Preacher & Hayes (2004). The causal steps approach does not provide a direct hypothesis test for mediation. It is not easily adaptable when there are two or more mediating pathways between predictor and outcome. Lastly, it lacks statistical power. Therefore, as suggested by Baron & Kenny (1986) a second and more powerful test of mediation which reduces type II errors, the Sobel test were run for both within and across time analysis (Sobel, 1982).

Sobel (1982) described a procedure whereby more complicated indirect effects could be tested. The utility and performance of the Sobel test has been discussed

and demonstrated (Stone & Sobel, 1990). MacKinnon, Lockwood, Hoffman, West, and Sheets (2002), in their comparison of 14 methods of assessing mediation effects, concluded that the Sobel test was superior in terms of power and intuitive appeal.

A series of Sobel tests were conducted to test whether school engagement mediates the effects of parent involvement, teacher support, and school climate on the outcomes of interest. The Sobel test directly addresses the primary question of interest-- whether or not the total effect of X on Y is significantly reduced upon the addition of a mediator to the model. The Sobel test indicates whether full or partial mediation exists as well as reveals new and different relationships that the causal steps approach could not expose.

Within Time Sobel Test Mediation of Outcomes:

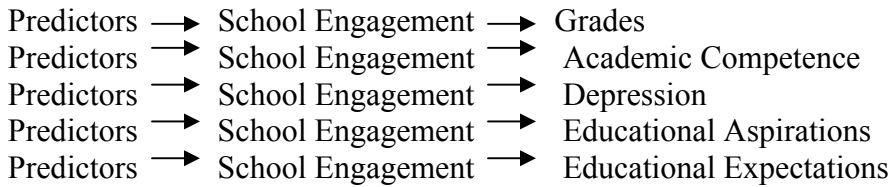


Table 12: Within Time Sobel Test of Mediation of Predictors and Outcomes by School Engagement

	WAVE 1		WAVE 2		WAVE 3	
GRADES:						
Parental Involvement	t=.31	p=.75	t=2.16	p=.03*	t=3.93	p<.00***
Teacher Support	t=2.30	p=.02*	t=4.93	p=.001*	t= 2.95	p=.00***
School Climate	t=2.83	p=.00**	t=2.92	p=.00**	t=2.37	p=.01*
Income	t=2.08	p=.03*	t=3.75	p=.000***		
Gender	t=2.99	p=.00**	t=2.56	p=.01*		
ACADEMIC COMPETENCE:						

Parental Involvement	t=.32	p=.75	t=2.17	p=.03*	t=4.32	p=<.00***
Teacher Support	t= 2.38	p=.01*	t= .49	p=.00**	t= 3.11	p=.00**
School Climate	t=2.99	p=.00**	t=2.91	p=.00**	t=2.44	p=.01*
Income	t=2.14	p=.03*	t=3.73	p=.00**		
Gender	t=3.18	p=.00**	t=2.55	p=.01*		

DEPRESSION:

Parental Involvement	t=.31	p=.75	t=-2.0	p=.04*	t=-3.44	p=.00**
Teacher Support	t= -2.34	p=.01*	t= -3.58	p=.00**	t= -2.73	p=.00**
School Climate	t=-2.92	p=.00**	t=-2.54	p=.01*	t=-2.25	p=.02*
Income	t=-2.11	p=.03*	t=-3.04	p=.00**		
Gender	t=-3.10	p=.00**	t=-2.30	p=.02*		

EDUCATIONAL ASPIRATIONS:

Parental Involvement					t= 3.04	p=.00**
Teacher Support					t= 2.52	p=.01*
School Climate					t=2.12	p=.03*
Income						
Gender						

EDUCATIONAL EXPECTATIONS:

Parental Involvement					t=3.31	p=.00**
Teacher Support					t= 2.66	p=.00**
School Climate					t=2.21	p=.02*
Income						
Gender						

p<.05*, p<.01**, p<.001***

Results for W1 Sobel Test of Mediation:

The relationship between Teacher Support and Grades, School Climate and Grades, and Income and Grades were being mediated by School Engagement. Teacher Support and Academic Competence, School Climate and Academic Competence, Income and Academic Competence, and Gender and Academic Competence were also being mediated by School Engagement. Lastly, Teacher Support and Depression, School Climate and Depression, Income and Depression, and Gender and Depression were being mediated by School Engagement.

Results for W2 Sobel Test of Mediation:

At Wave 2, the relationship between the predictors--Parental Involvement, Teacher Support, School Climate, Income, and Gender and the outcomes (Grades, Academic Competence, and Depression) were all being mediated by School Engagement.

Results for W3 Sobel Test of Mediation:

The relationship between the predictors--Parental Involvement, Teacher Support, and School Climate and the outcomes (Grades, Academic Competence, Depression, Educational Aspirations, Educational Expectations) were all being mediated by School Engagement at Wave 3.

Across Time Analysis:

To assess longitudinal relationships between predictors of School Engagement, School Engagement, and outcomes of School Engagement, lagged OLS regression models with time varying predictors were used. Because school engagement across W2 and W3 were essentially fundamentally equivalent, and in order to avoid over interpretation of minor variation, school engagement at W1 and W3 were used in the following across time analyses.

All models assess changes in these variables over an approximately 3 year period producing a stronger developmental focus and point in time estimates. All models controlled for the covariates thought to influence the factors of interest. This technique models outcomes as a function of initial levels of predictors as well as changes in these predictors over time, controlling for initial levels of the outcomes. All models controlled for adolescent, family, and demographic correlates likely to be related to the variables of interest. Controlling for initial levels of each outcome variable, this type of model controls for unmeasured differences in adolescents' that have a consistent effect on the outcome variable of interest. This model presumes that predictors change over time and that the level of predictors at each time point will have unique effects on the outcome variable of interest. Including both initial levels of a predictor and changes in a predictor allows one to examine both the short and long term effects of the predictor.

A primary goal of this study was to determine if School Engagement mediated the relationship between the predictors of interest and the outcomes. In order to test for causal mediation, models were constructed relating predictors to School Engagement,

predictors to the outcome of interest while controlling for the influence of School Engagement. The significant predictors of School Engagement at Wave 1 which were previously conducted for the within time analysis were once again utilized. At wave 1, the significant predictors of school engagement were gender, income, teacher support, and school climate.

In order to test for mediation, it needed to be established whether initial levels of School Engagement were related to the initial predictors. Then, in order to test whether changes in the predictors and changes in School Engagement were related, the following model was created. In the models that follow, covariates were entered as the first step. Initial predictors were entered in step 2 and changes in the predictors were entered in step 3. In the final model, covariates, initial predictors, change in the predictors, initial School Engagement, and changes in School Engagement were entered in that order.

Hypothesis1: Across all waves, Parental Involvement, Teacher Support, and School Climate will be significant predictors of later School Engagement. Thus, higher levels of Parental Involvement, Teacher Support, and more positive School Climate will predict higher levels of School Engagement.

WAVES 1-3

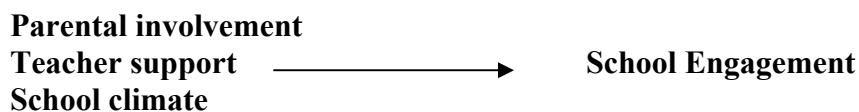


Table 13: Across Time Lagged Plus Change Regression Model of Significant Predictors of Changes in School Engagement

	<u>Predictors</u>	<u>B (unstand)</u>	<u>Sig.</u>
Step 1	Gender	-.12	.52
	White	-.06	.77
	Latino	-.55	.09
	Income	.48	.13
▲ R ²		.03	
Step 2	W1 School Engagement	-6.9	.000***
▲ R ²		.31	
Step 3	W1 Parent Involvement	.38	.02*
	W1 Teacher Support	.40	.04*
	W1 School Climate	.00	.98
▲ R ²		.00	
Step 4	▲ Parent Involvement	.60	.000***
	▲ Teacher Support	.37	.01*
	▲ School Climate	.19	.31
	▲ Parent Involvement	.60	.000***
▲ R ²		.10	
Overall R ²		.46	.000***

p<.05*, p<.01**, p<.001***

In order to assess which predictors accounted for changes in School Engagement, hierarchical regressions were conducted. Covariates were entered as the first step. Initial School Engagement was entered in step 2. Initial predictors were entered in step 3 and changes in the predictors were entered in step 4.

The significant predictors of Changes in School Engagement were W1 School Engagement, where lower scores on W1 School Engagement lead to more positive changes in School Engagement. Higher W1 Parental Involvement and W1 Teacher Support both were predictive of positive changes in School Engagement. Changes in

Parental Involvement and Changes in Teacher Support were also found to lead to more positive changes in School Engagement.

Hypothesis 2: Parental Involvement, Teacher Support, and School Climate are significant predictors of later Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations. Thus, adolescents who report higher levels of Parental Involvement, Teacher Support, and positive School Climate had higher Grades, higher levels of Perceived Academic Competence, higher Educational Aspirations and Expectations.

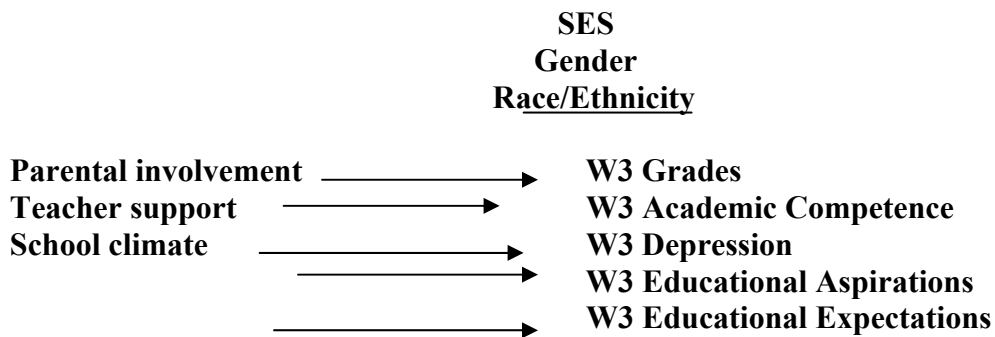


Table 14: Across Time Lagged Plus Change Regression Model of Significant Predictors of Changes in Outcomes

		B (unstand)	sig.
Changes in Grades:			
Step 1	Gender	.07	.52
	White	.09	.77
	Latino	-.06	.09
	Income	.10	.34
	▲R²	.07	
Step 2	W1 Grades	.38	.000***

▲R ²		.09	
Step 3	W1 Parental Invol.	.02	.71
	W1 Teacher Support	.15	.02*
	W1 School Climate	-.01	.89
▲R ²		.00	
Step 4	▲Parent Involvement	-.09	.04*
	▲Teacher Support	.16	.00**
	▲ School Climate	.08	.18
▲R ²		.07	
Overall R ²		.24	.000***

Changes in Acad. Comp.

Step 1	Gender	-.13	.02*
	White	.03	.02*
	Latino	-.05	.62
	Income	-.00	.97
▲R ²		.16	
Step 2	W1 Academic Comp.	.43	.000***
▲R ²		.50	
		.51	
Step 3	W1 Parental Invol.	.03	.55
	W1 Teacher Support	.12	.07
	W1 School Climate	.11	.18
▲R ²		.57	
Step 4	▲Parental Invol.	.10	.01*
	▲Teacher Support	.09	.05
	▲ School Climate	.08	.18
▲R ²			
Overall R ²		.33	.000

Changes in Depression:

Step 1	Gender	4.41	.000***
	White	-.71	.50
	Latino	1.3	.38
	Income	.45	.77
▲R ²		.05	
Step 2	W1 Depression	.29	.000***
▲R ²		.10	
Step 3	W1 Parental Invol.	-1.33	.09
	W1 Teacher Support	.29	.76
	W1 School Climate	-3.15	.01*
▲R ²		.00	

Step 4	▲ Parent Invol.	-1.77	.00**
	▲ Teacher Support	.78	.25
	▲ School Climate	-4.23	.000***
▲R ²		.10	
Overall R ²		.26	.000***

Educational Aspirations:

Step 1	Gender	.28	.28
	White	.14	.66
	Latino	.16	.72
	Income	.34	.46
▲R ²		.01	
Step 2	W1 Parental Invol.	.16	.49
	W1 Teacher Support	-.10	.73
	W1 School Climate	1.0	.00**
		.01	
Step 3	▲ Parent Involvement	.27	.13
	▲ Teacher Support	-.03	.88
	▲ School Climate	.65	.01*
▲R ²		.04	
Overall R ²		.07	.000**

Educational Expectations:

Step 1	Gender	-.20	.40
	White	.14	.65
	Latino	-.08	.84
	Income	.91	.04*
▲R ²		.02	
Step 2	W1 Parental Invol.	.32	.15
	W1 Teacher Support	-.22	.41
	W1 School Climate	1.12	.00**
▲R ²		.03	
Step 3	▲ Parent Involvement	.33	.05
	▲ Teacher Support	.08	.68
	▲ School Climate	.30	.24
▲R ²		.03	
Overall R ²		.08	.00**

p<.05*, p<.01**, p<.001***

In order to account for which predictors accounted for changes in the outcomes over time, hierarchical linear regressions were run. In the model above, covariates were entered as the first step. The initial predictor of interest was entered in step 2, while the remaining predictors were entered in step 3. Finally, changes in the predictor variables were entered in step 4 (excluding Educational Aspirations and Expectations for which there were only 3 steps).

Across Time Predictors of Changes in Grades:

The significant predictors of changes in Grades were W1 Grades, W1 Teacher Support, changes in Parental Involvement, and changes in Teacher Support. Higher W1 Grades, higher W1 Teacher Support, and higher changes in Teacher Support were predictive of positive changes in Grades, while smaller changes in Parental Involvement were predictive of negative (lower) changes in Grades.

Across Time Predictors of Changes in Academic Competence:

The significant predictors of changes in Academic Competence were Gender, W1 Academic Competence, and changes in Parent Involvement. Higher W1 Academic Competence and more positive changes in Parental Involvement were predictive of positive changes in Academic Competence.

Across Time Predictors of Changes in Depression:

The significant predictors of changes in Depression were Gender, W1 Depression, changes in Parental Involvement, W1 School Climate, and changes in School Climate. Being a girl was predictive of positive changes in Depression (i.e. higher Depression). Those who reported higher W1 Depression and lower School Climate at W1 also had

more positive changes in Depression (i.e. higher Depression). Lastly, negative changes in Parental Involvement were associated with positive changes in Depression—meaning, as Parental Involvement went up, Depression went down.

Across Time Predictors of Educational Aspirations:

The significant predictors of Educational Aspirations at W3 were W1 School Climate and Changes in School Climate. Those who had a more positive School Climate at W1 had higher Educational Expectations at W3. Positive changes in School Climate were predictive of positive changes in Educational Aspirations.

Across Time Predictors of Educational Expectations:

For Educational Expectations only W1 School Climate was a significant predictor. Those who had a more positive School Climate at W1 had higher Educational Expectations at W3.

Hypothesis 3: Across time, the relationship between the predictors (Parental Involvement, Teacher Support, and School Climate) and the outcomes (Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations) is being mediated by School Engagement.

Table 15: Across Time Causal Mediation of School Engagement as a Mediator of the Relationship Between Predictors and Outcomes

Changes in Grades:		B	sig.
		(unstand)	
Step 1	Gender	.05	.43
	White	.14	.05
	Latino	-.07	.52

	Income	.13	.24
▲R ²		.10	
Step 2	W1 Grades	.30	.000***
▲R ²		.08	
Step 3	W1 Parental Invol.	-.03	.56
	W1 Teacher Support	.10	.14
	W1 School Climate	-.07	.42
▲R ²		.00	
Step 4	▲Parent Involvement	-.12	.02*
	▲Teacher Support	.11	.02*
	▲School Climate	.05	.39
▲R ²		.06	
Step 5	W1 School Engagement	.09	.000***
	▲School Engagement	.06	.00**
▲R ²		.04	
Overall R ²		.29	.000***

Changes in Academic Competence:

Step 1	Gender	-.13	.02*
	White	.06	.35
	Latino	-.07	.50
	Income	-.05	.59
▲R ²		.02	
Step 2	W1 Academic Comp.	.36	.000***
▲R ²		.20	
Step 3	W1 Parent Involvement	-.05	.28
	W1 Teacher Support	.05	.44
	W1 School Climate	.07	.38
▲R ²		.00	
Step 4	▲Parent	.00	.96

	Involvement		
	▲Teacher	.04	.34
	Support		
	▲School Climate	.02	.73
▲R ²		.05	
Step 5	W1 School	.12	.000***
	Engagement		
	▲School	.13	.000***
	Engagement		
▲R ²		.13	
Overall R ²		.42	.000***

Changes in Depression:

Step 1	Gender	4.17	.000***
	White	-.80	.47
	Latino	.82	.60
	Income	.35	.82
▲R ²		.05	
Step 2	W1 Depression	.23	.000***
▲R ²		.07	
Step 3	W1 Parent Invol.	-.10	.90
	W1 Teacher	.89	.38
	Support		
	W1 School	-3.57	.00**
	Climate		
▲R ²		.00	
Step 4	▲Parent	-.80	.21
	Involvement		
	▲Teacher	1.20	.10
	Support		
	▲School Climate	-4.22	.000***
▲R ²		.10	
Step 5	W1 School	-.65	.06
	Engagement		
	▲School	-.85	.00**
	Engagement		
▲R ²		.02	
Overall R ²		.25	.000***

Educational Aspirations:

Step 1	Gender	.11	.68
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	White	.22	.49
	Latino	-.04	.92
	Income	.00	.99
▲R ²		.01	
Step 2	W1 Parent Invol.	.02	.91
	W1 Teacher	-.15	.61
	Support		
	W1 School	.60	.13
	Climate		
▲R ²		.01	
Step 3	▲Parent	.22	.24
	Involvement		
	▲Teacher	-.04	.81
	Support		
	▲School Climate	.41	.13
		.03	
▲R ²		.35	.000***
Step 4	W1 School		
	Engagement		
	▲School	.09	.28
	Engagement		
▲R ²		.04	
Overall R ²		.10	.000***

Educational Expectations:

Step 1	Gender	-.26	.32
	White	.12	.70
	Latino	-.21	.63
	Income	.66	.14
▲R ²		.02	
Step 2	W1 Parent Invol.	.18	.43
	W1 Teacher	-.37	.19
	Support		
	W1 School	.97	.01*
	Climate		
▲R ²		.03	
Step 3	▲Parent	.17	.35
	Involvement		
	▲Teacher	-.05	.78
	Support		
	▲School Climate	.19	.46
▲R ²		.02	
	W1 School	.31	.00**

	Engagement		
	▲ School	.23	.00**
	Engagement		
▲ R ²		.03	
Overall R ²		.11	.000***

p<.05*, p<.01**, p<.001***

In order to test for causal mediation, hierarchical linear regressions were run. In the model above, covariates were entered as the first step. The initial predictor of interest was entered in step 2, while the remaining predictors were entered in step 3. Changes in the predictor variables were entered in step 4 (excluding Educational Aspirations and Expectations for which there were only 3 steps). Finally, changes in School Engagement and Wave 1 School Engagement were entered in step 5.

Across Time Causal Mediation Results: The relationship between W1 Teacher Support and Changes in Grades over time was being mediated by School Engagement. The relationship between Changes in Parental Involvement and Changes in Academic Competence over time was also being mediated by School Engagement. There was partial mediation of the relationship between Changes in Parental Involvement and Changes in Depression. Lastly, the relationship between W1 School Climate and Educational Aspirations and between Changes in School Climate and Educational Aspirations were being mediated by School Engagement.

Sobel (1982) described a procedure whereby more complicated indirect effects could be tested. The utility and performance of the Sobel test has been discussed and demonstrated (Hoyle & Kenny, 1999; MacKinnon, 1994; Stone & Sobel, 1990). MacKinnon, Lockwood, Hoffman, West, and Sheets (2002), in their comparison of 14

methods of assessing mediation effects, concluded that the Sobel test was superior in terms of power and intuitive appeal.

A series of Sobel tests were conducted to test whether school engagement mediates the effects of parent involvement, teacher support, and school climate on the outcomes of interest. The Sobel test directly addresses the primary question of interest-- whether or not the total effect of X on Y is significantly reduced upon the addition of a mediator to the model. The Sobel test indicated whether full or partial mediation exists as well as revealed new and different relationships that the causal steps approach could not expose.

Table 16: Sobel Test Mediation of Predictors and Outcomes by School Engagement:

Predictor	Mediator	Outcome	Sig.	t	p
W1 Parent Involvement	W1 School Engagement	W3 Grades	No	.31	.75
W1 Parent Involvement	▲ School Engagement	W3 Grades	No	1.9	.05
▲ Parent Involvement	▲ School Engagement	W3 Grades	Yes	2.87	.00**
+W1 Teacher Support	W1 School Engagement	W3 Grades	Yes	2.12	.03*
W1 Teacher Support	▲ School Engagement	W3 Grades	No	1.76	.07
▲ Teacher Support	▲ School Engagement	W3 Grades	Yes	2.09	.03*
+W1 School Climate	W1 School Engagement	W3 Grades	Yes	2.51	.01*
W1 School Climate	▲ School Engagement	W3 Grades	No	.022	.98
▲ School Climate	▲ School Engagement	W3 Grades	No	.09	.33
W1 Parent Involvement	W1 School Engagement	W3 Academic Competence	No	.31	.75
#W1 Parent Involvement	▲ School Engagement	W3 Academic Competence	Yes	2.21	.02*
#▲ Parent	▲ School Engagement	W3 Academic Competence	Yes	4.07	.000***

Involvement		Academic Competence				
#W1 Teacher Support	W1 School Engagement	W3 Academic Competence	Yes	2.31	.02*	
W1 Teacher Support	▲ School Engagement	W3 Academic Competence	No	1.95	.05	
#▲ Teacher Support	▲ School Engagement	W3 Academic Competence	Yes	2.44	.01*	
+W1 School Climate	W1 School Engagement	W3 Academic Competence	Yes	2.86	.00**	
W1 School Climate	▲ School Engagement	W3 Academic Competence	No	.02	.98	
▲ School Climate	▲ School Engagement	W3 Academic Competence	No	1.00	.32	
W1 Parent Involvement	W1 School Engagement	W3 Depression	No	-.31	.76	
W1 Parent Involvement	▲ School Engagement	W3 Depression	No	-1.84	.06	
▲ Parent Involvement	▲ School Engagement	W3 Depression	Yes	-2.56	.01*	
W1 Teacher Support	W1 School Engagement	W3 Depression	No	-1.51	.13	
W1 Teacher Support	▲ School Engagement	W3 Depression	No	-1.67	.09	
#▲ Teacher Support	▲ School Engagement	W3 Depression	Yes	-1.96	.05	
W1 School Climate	W1 School Engagement	W3 Depression	No	-1.63	.10	
W1 School Climate	▲ School Engagement	W3 Depression	No	-.02	.98	
▲ School Climate	▲ School Engagement	W3 Depression	No	-.96	.34	
Predictor	Mediator	Outcome	Sig.	t	p	
W1 Parent Involvement	W1 School Engagement	W3 Educational Aspirations	No	.31	.75	
W1 Parent Involvement	▲ School Engagement	W3 Educational	No	.97	.33	

▲ Parent Involvement	▲ School Engagement	Aspirations W3	No	1.05	.30
+W1 Teacher Support	W1 School Engagement	Educational Aspirations W3	Yes	2.06	.04*
W1 Teacher Support	▲ School Engagement	Educational Aspirations W3	No	.95	.34
▲ Teacher Support	▲ School Engagement	Educational Aspirations W3	No	.99	.32
+W1 School Climate	W1 School Engagement	Educational Aspirations W3	Yes	2.41	.01*
W1 School Climate	▲ School Engagement	Educational Aspirations W3	No	.02	.98
▲ School Climate	▲ School Engagement	Educational Aspirations W3	No	.74	.46
W1 Parent Involvement	W1 School Engagement	Educational Aspirations W3	No	.31	.75
W1 Parent Involvement	▲ School Engagement	Educational Expectations W3	No	1.83	.06
#▲ Parent Involvement	▲ School Engagement	Educational Expectations W3	Yes	2.54	.01*
+W1 Teacher Support	W1 School Engagement	Educational Expectations W3	Yes	2.00	.04*
W1 Teacher Support	▲ School Engagement	Educational Expectations W3	No	1.67	.09
▲ Teacher Support	▲ School Engagement	Educational Expectations W3	No	1.95	.05
W1 School Climate	W1 School Engagement	Educational Expectations W3	Yes	2.33	.02*
W1 School Climate	▲ School Engagement	Educational Expectations W3	No	.022	.98

▲ School Climate	▲ School Engagement	Educational Expectations W3	No	.96	.34
		Educational Expectations			

p<.05*, p<.01**, p<.001***

+Compare to Causal Way (due to W1 SE, not Changes)

#Not Sig. Causal Steps way

Sobel Test for Mediation of Grades Results:

The relationship between changes in Parental Involvement and changes in Grades is being mediated by changes in School Engagement. The relationship between W1 Teacher Support and changes in Grades is being mediated by W1 School Engagement. The relationship between changes in Teacher Support and changes in Grades is being mediated by changes in School Engagement. The relationship between W1 School Climate and changes in Grades is being mediated by W1 School Engagement.

Sobel Test for Mediation of Depression Results:

The relationship between changes in Parental Involvement and changes in Depression is being mediated by changes in School Engagement. The relationship between changes in Teacher Support and changes in Depression is being mediated by changes in School Engagement.

Sobel Test for Mediation of Academic Competence Results:

The relationship between W1 Parental Involvement and Changes in Academic Competence, and Changes in Parental Involvement and Changes in Academic Competence is being mediated by Changes in School Engagement. The relationship between W1 Teacher Support and Changes in Academic Competence is being mediated

by W1 School Engagement. The relationship between Changes in Teacher Support and Changes in Academic Competence is being mediated by Changes in School Engagement. The relationship between W1 School Climate and Changes in Academic Competence is being mediated by W1 School Engagement.

Sobel Test for Mediation of Educational Aspirations Results:

The relationship between W1 Teacher Support and Educational Aspirations is being mediated by W1 School Engagement. The relationship between W1 School Climate and Educational Aspirations is being partially mediated by W1 School Engagement.

Sobel Test for Mediation of Educational Expectations Results:

The relationship between Changes in Parental Involvement and Educational Expectations is being mediated by Changes in School Engagement. The relationship between W1 Teacher Support and Educational Expectations is being mediated by W1 School Engagement. The relationship between W1 School Climate and Educational Expectations is being mediated by W1 School Engagement.

There were 6 mediated relationships found by the Sobel test that were not found by Causal Mediation. These were the relationship between: changes in Teacher Support and W3 Depression, W1 Parent Involvement and W3 Academic Competence, changes in Parent Involvement and W3 Academic Competence, W1 Teacher Support and W3 Academic Competence, changes in Teacher Support and W3 Academic Competence, and changes in Parental Involvement and W3 Educational Expectations.

Table 17: Relationships Mediated by School Engagement Revealed by the Sobel Test

<u>Predictor</u>	<u>Mediator</u>	<u>Outcome</u>
▲ Teacher Support	▲ School Engagement	W3 Depression
W1 Parent Involvement	▲ School Engagement	W3 Academic Competence
▲ Parent Involvement	▲ School Engagement	W3 Academic Competence
W1 Teacher Support	W1 School Engagement	W3 Academic Competence
▲ Teacher Support	▲ School Engagement	W3 Academic Competence
▲ Parent Involvement	▲ School Engagement	W3 Educational Expectations

Table 18: Sobel Test of Mediation of Gender, SES & Outcomes by School Engagement:

<u>Covariate</u>	<u>Mediator</u>	<u>Outcome</u>	<u>Sig.</u>	<u>t</u>	<u>p</u>
Gender	W1 School Engagement	W3 Grades	Yes	2.63	.00**
Gender	W1 School Engagement	W3 Academic Competence	Yes	3.03	.00**
Gender	W1 School Engagement	W3 Depression	No	-1.66	.10
Gender	W1 School Engagement	W3 Educational Aspirations	Yes	2.51	.012*
Gender	W1 School Engagement	W3 Educational Expectations	Yes	2.42	.015*
SES	W1 School Engagement	W3 Grades	No	1.94	.05
SES	W1 School Engagement	W3 Academic Competence	Yes	2.09	.03*
SES	W1 School Engagement	W3 Depression	No	-1.44	.15
SES	W1 School Engagement	W3 Educational Aspirations	No	1.89	.05
SES	W1 School Engagement	W3 Educational Expectations	No	1.85	.06

p<.05*, p<.01**, p<.001***

Sobel Test of Mediation of Gender and Outcomes by School Engagement: The relationship between Gender and W3 Grades, Gender and W3 Academic Competence was being mediated by W1 School Engagement. The relationship between Gender and W3 Educational Aspirations and Gender and Educational Expectations is being mediated by W1 School Engagement. There is only a single relationship between SES and an outcome that is being mediated by school engagement. The relationship between SES and W3 Academic Competence is being mediated by W1 School Engagement.

CHAPTER FIVE

Discussion

Introduction

In this chapter the interpretations of the findings are presented along with a rationale of their respective significance. This chapter begins with a general discussion of the major findings and their relevance to the existing literature. After the discussion of the major findings, more detailed results will follow. Recommendations for future research will be presented and followed by final conclusions. Throughout this chapter, the real world implications of this research will be demonstrated.

Major Findings

A unique contribution of this study was in its methodological design which allowed for both within and across time analysis. Thus, the major findings will be discussed for both of these approaches beginning with within time findings.

Within Time Analysis

The first goal of this study was to determine whether across all waves, Parental Involvement, Teacher Support, and School Climate would be significant predictors of School Engagement. It was predicted that higher levels of Parental Involvement, Teacher Support, and more positive School Climate would lead to higher levels of School Engagement. The demographic variables of Race, Gender, and Income were also examined.

The findings indicated that the predictors of School Engagement were not stable for 5th, 6th, and 7th graders in this sample. In fact, several interesting changes occur in the predictors of School Engagement. Gender was a significant predictor of School Engagement in waves 1 and 2. Income was a significant predictor of School Engagement in waves 1 and 2 and Parental Involvement was a predictor of School Engagement in waves 2 and 3. There were two significant predictors of school engagement across all three waves and they were Teacher Support and School Climate. It was quite interesting that the two long term predictors (Teacher Support and School Climate) were both “school based” predictors and were not what many would consider the most proximal influences of an adolescent’s School Engagement. Notably, in the existing literature far more attention has been focused on racial, gender, and parental factors as key influences

(Roeser, Eccles, & Sameroff, 2000, Stevenson & Baker, 1987, Furstenburg et. al., 1999). Yet, in this study, these were found to play a much more minimal role. It appears that the school based factors such as School Climate and Teacher Support are more important in predicting outcomes that relate to academics. Yet, Parental Involvement becomes a significant predictor of School Engagement at Wave 3 perhaps illustrating that the influence of parents and other factors may be exposed only over time. Lastly, the changing predictors of School Engagement demonstrate the fluidity of the adolescent and their changing needs and influences. This finding also demonstrates the value of the longitudinal design of this study.

The second goal of this study was to assess whether Parental Involvement, Teacher Support, and School Climate were significant predictors of Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations. It was predicted that adolescents who report higher levels of Parental Involvement, Teacher Support, and positive School Climate would have higher Grades, higher levels of Perceived Academic Competence, and higher Educational Aspirations and Expectations. The demographic variables of Race, Gender, and Income were also examined.

Similar to the finding above, there was considerable variation when it came to identifying which factors were significant at predicting developmental outcomes for adolescents. Again, there was marked variation at each grade level. Being Latino was a significant negative predictor of Grades for waves 1 and 2. Latinos, on average, had lower grades than Whites, but only at these two time points. School climate was a significant predictor for Grades in wave 3 only, where students who reported more

positive school climates tended to have higher grades. There were two significant predictors across all three grades and these were Income and Teacher Support. Students from wealthier families and those who reported more Teacher Support were more likely to have higher grades. In much research, the relation between higher SES and better school performance has been found (Stevenson & Baker, 1987). Thus, this finding is consistent with much of the existing research that demonstrates the existence of this powerful link. Since Teacher Support was a significant predictor of Grades across all three waves it is imperative to look carefully at this relationship. If Teacher Support is a key predictor of a student's performance one must carefully reflect on much of the findings presented in the literature on teacher expectations and achievement motivation, (for example, work by McKown & Weinstein, 2008; Auwater & Aruguete, 2008) whereby teachers often tend to provide less support to minority students and those from lower SES backgrounds. The implications that a strong middle and high school performance has for achieving long terms academic and financial success is well documented. Thus, as noted in previous research, teachers are capable of playing an important role in possibly facilitating their students for long term success (Patrick, Ryan, & Kaplan, 2007).

Overall, students' perception of Teacher Support appears to be an important predictor of Academic Competence, whereby students who report higher levels of Teacher Support report higher levels of Academic Competence across all three waves. This finding, taken along with the previous finding presented above, suggest that a

student's perception of Teacher Support may influence positive academic outcomes, including Academic Competence.

Income also was a significant predictor of Academic Competence. In both wave 1 and wave 2, students from higher SES families report higher levels of Academic Competence than those from lower SES families. This finding is consistent with previous research noting the critical relationship between high SES and positive academic outcomes for children and adolescents (Brooks-Gunn & Duncan, 1997).

Girls, on average, reported higher levels of Depression than boys in waves 1 and 2. This finding is consistent with previous research finding that girls report higher levels of Depression than their male peers (Lee, Croninger, Linn, & Chen, 1996). However, given that there was no gender difference at Wave 3, it would be important to further explore why there might be higher levels of Depression for girls in 5th and 6th grade but not in grade 7. After adjusting to middle school, it may be that levels of Depression decrease in girls.

The influence of Income on Depression was limited only to Wave 1. This too warrants further exploration as the link between lower SES and Depression has been found in numerous studies of this demographic (Rushton, Forcier & Schectman, 2002). One can only hypothesize as to why the influence of Income would be so limited. Perhaps the pressures that adolescents at this age are consumed with (physical changes and new romantic relationships, for example) take precedence over Income as a factor contributing to Depression. Those adolescents who reported higher Parental Involvement had lower levels of Depression in wave 3 only. This finding is somewhat surprising as

one might have expected that Parental Involvement would actually have been more critical in the younger years and become less important as adolescents move into the higher grades. This finding runs counter to that assumption and perhaps reinforces the notion that teens need their parents' involvement or that their parents' involvement actually becomes more important as teens move into the higher grades and are faced with new challenges.

Students who reported higher levels of Teacher Support in waves 1 and 2 had lower levels of Depression. This finding, if taken along with the previous one, may tell us more about the changing influences on teen Depression. It appears that Teacher Support (whether reported as high or low) is an important predictor of Depression (either higher or lower levels) in 5th and 6th grade, this then is no longer pertinent by 7th grade (wave 3), when Parental Involvement takes on a more important role in Depression. However, since students who reported a more positive School Climate in waves 2 and 3, reported lower Depression, the school based factors are exerting an important influence on adolescent Depression. It makes sense that the teacher's role might be diminished as many students shift from one or two teachers in the lower grades to several--seven or eight teachers (is not uncommon) as they move into the 7th or 8th grades. Thus, the opportunity to form meaningful relationships with individual teachers may very well be reduced. Yet, the overall feel of the school and whether students' feel that their school is a positive place becomes a more marked influence.

Girls, on average, had higher Educational Aspirations than boys. Those adolescents with more Parental Involvement and those who reported more positive School Climates also had higher Educational Aspirations than those who did not. Students from higher SES families, those who reported higher levels of Parental Involvement, and those who had a more positive School Climate had higher Educational Expectations than those adolescents who did not. This is consistent with previous research findings (Roeser & Eccles, 1998; Grolnick, 2003) noting the importance of Parental Involvement and School Climate on a student's academic goals. In addition, it is these two influences that impact both Educational Aspirations and Expectations. Both parents and schools play an important role in promoting further education for their children and students. Lastly, it is quite interesting that while females, on average, had higher Educational Aspirations than males, they did not have higher Educational Expectations. Thus, females aspired to attain higher levels of education. Yet, when asked what level of education they expected to attain, they had lower expectations for themselves. Perhaps this finding illustrates how while girls are aspiring to better themselves, external forces are influencing them to believe that their goals are not a reality.

The third goal of this study was to explore, within time, if the relationship between the predictors (Parental Involvement, Teacher Support, and School Climate) and the outcomes (Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations) was being mediated by School Engagement.

At wave 1, the vast majority of relationships between predictors and outcomes were being mediated by School engagement. For example, the relationship between Teacher Support, School Climate, Income and Grades were being mediated by School Engagement. So too was the relationship between Teacher Support, School Climate, Income, Gender, and Academic Competence. Lastly, Teacher Support, School Climate, Income, Gender and Depression were being mediated by School Engagement. At both waves 2 and 3, the relationship between all the predictors--Parental Involvement, Teacher Support, School Climate and the outcomes were being mediated by School Engagement.

Thus, within time, School Engagement was found to be an important and significant predictor of the relationship between numerous family and contextual predictors and developmental outcomes. It appears that school engagement is a primary mechanism through which parents, teachers, and schools influence adolescent's school performance, sense of selves as learners, mental health, and their plans and goals for their future educational attainment.

Across Time Analysis

The first goal of this analysis was to determine whether across all waves, Parental Involvement, Teacher Support, and School Climate would be significant predictors of School Engagement. It was predicted that higher levels of Parental Involvement, Teacher Support, and more positive School Climate would lead to higher levels of School Engagement.

Across time, students with lower scores on W1 School Engagement tended to have more positive changes in School Engagement. This makes sense, given that if a

student already had high levels of School Engagement, there is only so much more engaged that he or she can become. However, for a student with lower levels of engagement, there is much more potential for growth in their scores. The finding that Higher W1 Parental Involvement and W1 Teacher Support were both predictive of positive changes in School Engagement once again stress the importance of both parent-child and teacher-child relationships and the influence that these relationships can exert over a period of time. While immediate results may be more desirable for both parents and teachers to feel like they are having an impact on adolescents, this finding demonstrated how parents and teachers must be assured that their involvement and support is in fact benefiting their children and students, over the long term.

Changes in Parental Involvement and Changes in Teacher Support were also found to lead to more positive changes in School Engagement. Thus, positive changes in Parental Involvement lead to positive changes in School Engagement and positive changes in Teacher Support lead to positive changes in School Engagement as well.

The second goal of this study was to assess whether across time Parental Involvement, Teacher Support, and School Climate were significant predictors of Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations. It was predicted that adolescents who report higher levels of Parental Involvement, Teacher Support, and positive School Climate would have higher Grades, higher levels of Perceived Academic Competence, and higher Educational Aspirations and Expectations.

Students who did well academically in the 5th grade tended to do well academically in the 7th grade. Similarly, students who reported higher Teacher Support and higher changes in Teacher Support experienced positive changes in Grades. The only hypothesized predictor that was not found to be a significant predictor for Grades was School Climate.

Girls, on average, reported higher levels of Academic Competence than boys. Students who had higher levels of Academic Competence in 5th grade and those who had more positive changes in Parental Involvement tended to have positive changes in Academic Competence. Girls were more likely to be more depressed than boys. Both boys and girls who reported higher depression in the 5th grade were more likely to be depressed in the 7th grade. In addition, students who reported a negative School Climate in the 5th grade were more likely to be depressed in the 7th grade. Lastly, Parental Involvement played a role in Depression. As Parental Involvement went up, Depression went down. This finding reminds us, that although many adolescents push their parents away and seek more independence, they do still need their parents to be involved in their lives. Their parents' involvement is actually a protective factor for their mental health. It seems that the parents who do back off, might be doing a disservice to their children. Of course, the level of involvement and type of involvement must be developmentally appropriate and suitable for their child's needs.

The significant predictors of Educational Aspirations at W3 were W1 School Climate and Changes in School Climate, while W1 School Climate was predictive of Educational Expectations at W3. This was very surprising, as no parent or teacher factors

were predictive of what level of schooling a student planned on attaining or what level of schooling a student aspired to attain. Rather, a student's school and the climate it provided was the sole contributor to these two extremely important variables.

In general these across time findings indicate a very critical pattern for adolescents. How adolescents are doing academically and emotionally in the 5th grade is significantly predictive of how they are going to do in the 7th grade. This general finding is deserving of considerable attention. First, it encourages those researchers and practitioners who work with adolescents to focus on ensuring that children are getting the appropriate services and intervention, and that parents and teachers are provided with meaningful guidelines as to how they too can help their children early on (elementary age). The prominent role that School Climate played in terms of academic plans for students should put more of a responsibility on schools to foster students and life long learners and encourage them to pursue higher education. It also raises questions as to why parents and teachers are not influencing students' academic plans and dreams.

The third goal of this study was to explore, across time, if the relationship between the predictors (Parental Involvement, Teacher Support, and School Climate) and the outcomes (Grades, Perceived Academic Competence, Depression, Educational Aspirations, and Educational Expectations) was being mediated by School Engagement.

Across time, School Engagement served as a significant mediator between the family and contextual predictors and developmental outcomes for adolescents. School engagement mediated numerous relationships across time including, but not limited to, the relationship between changes in Parental Involvement and changes in Grades, W1

Teacher Support and changes in Grades, changes in Parental Involvement and changes in Depression, W1 Parental Involvement and Changes in Academic Competence. School Engagement also mediated the relationships between W1 Teacher Support and Changes in Academic Competence, W1 Teacher Support and Educational Aspirations, and W1 School Climate and Educational Expectations.

Through the utilization of an ecological framework (Bronfenbrenner, 1979), a Development Systems perspective (Ford & Lerner, 1992), and a longitudinal sample of adolescents, a more in depth understanding of the mechanisms and processes through which adolescents become engaged in school, how their level of engagement influences developmental outcomes, and how all of these complex interaction change over time was further explored and analyzed.

Conclusions

Thus, across time, School Engagement appears to be a mechanism through which family and contextual factors influence developmental outcomes for adolescents. This research contributed substantially to understanding the ways in which School Engagement influenced several important developmental outcomes for adolescents. There were numerous key findings. First, similar to previous research findings (Marks, 2000; Hauser-Cram et. al., 2007), School Engagement did decrease significantly from wave 1 (5th grade) to wave 3 (7th grade). Given the large longitudinal sample, this finding may provide researchers with more confidence in their cross sectional studies using smaller samples.

A unique contribution of this study was in its methodological approach. While there is extant research which examined whether School Engagement was a significant predictor of various emotional and behavioral outcomes for adolescents (Roeser & Eccles, 1998), this research examined School Engagement as a mediator rather than predictor. Exploring School Engagement as a mediator resulted in a more complex understanding of the pathways in which adolescent outcomes may be influenced. This finding also illustrates the importance of examining mediation as a way to better understand the various pathways through which adolescents are impacted by the people and places around them. Furthermore, the examination of change variables across time allowed for intraindividual differences to be revealed.

Another key methodological finding of this research was that relying on the causal steps approach to mediation was limiting. The Sobel Test was in fact a more

powerful test of mediation. The Sobel Test revealed several relationships that were not found by the Causal Mediation approach, thus demonstrating its greater statistical power. This study supports Mackinnon, Lockwood, Hoffman, West, and Sheets (2002) assertion that researchers should utilize the Sobel Test as a preferable means of testing for mediation.

The design of this research supported a systems model where not only was the immediate environment of the adolescent examined but also the interactions of the larger environments were as well. A developmental contextual perspective also guided this study in that dynamic relations between adolescents, their parents, and teachers were examined across time. Finally, results of this study support Eccles and Harold's (1993) finding that children and adolescents can develop into healthy young adults if provided with support, encouragement, and appropriate social contexts.

Limitations

The sample used for this study is not necessarily a representative sample. Attrition analysis revealed that attrition subjects differed from those included in this study based on SES and race. For SES, an independent sample t-test was run. Those who were included in this sample tended to be from significantly higher SES families than those excluded. For race, a Chi-Square test of association was run indicating that there was a significant difference between those included in the study versus those excluded from this study based on race (Chi-Square= 9.384, $p < .05$). The excluded group had fewer European Americans than expected and more Latinos than expected. In addition, these findings are only representative of those adolescents who completed data across all three waves. The sample is largely White and Hispanic and thus, the findings may not be applicable to African Americans and other ethnic groups.

The longitudinal design of this research allowed for the description of patterns of change over time and for stronger causal hypotheses to be made. However, there were several limitations of the constructs assessed. A primary limitation was that the students were in different school settings and therefore, making transitions between schools at different time points. Thus, the influence of school transitions on these students' sense of self and of their different school settings was not assessed in this research. In the future, it would be important to examine both the impact of the transition itself and the influence of the different school settings. In addition, the multicollinearity of predictors and outcomes is a considerable methodological limitation. It made it difficult to discern unique effects and determine the exact impact of each variable.

It is important to note that all measures used in this study were self-reported by the adolescent. Although Eccles and Roeser (1999) have discussed the importance of children's perceptions of school environment as stronger predictors of adjustment and adaptation to their school experiences than more objective measures, students' subjective perceptions of their home and school environment is an incomplete method. It limits the interpretive power as the data mostly present correlations between a student's perception of one variable and another. It will be important for further analyses to use multiple sources such as that of the parents and teachers to triangulate the current results.

Although the statistical methodologies used throughout this study were suitable and appropriately used, future research may utilize more advanced statistical methodology such as multi-level modeling, for example HLM, in order to understand the impact of clusters on this or a similar sample. Since these students exist in classrooms, multi-level modeling may better capture certain grouping variables.

Implications for Future Research

This study was guided by an ecological framework (Bronfenbrenner, 1979) and a Development Systems Perspective (Ford & Lerner, 1992). Following from this perspective, this study sought to examine family and contextual factors that worked to promote or inhibit School Engagement and contribute to developmental outcomes for adolescents. This research strongly supported a systems perspective as it allowed for the examination of multiple instances of the context of development. Its longitudinal design further allowed for a more thorough understanding of youth and the dynamic relations between individuals that are changing across time (Lerner, 2002).

The complex interaction of the adolescent and the school context had a significant relationship with the well being of the youth. Findings suggest that youth who are more engaged in their school environment are doing better overall. Based on these results, future research should focus on studying what factors contribute to a more positive school environment, because it serves as a critical factor in a student's well being. It would be important to examine both the impact of the transition itself and the influence of the different school settings. Finally, it will be important for further analyses to use additional sources of data from parents and teachers to triangulate the current results.

Appendix A: Variables of Interest

VARIABLE	CONSTRUCT	HOW MEASURED
Demographic Data	Age, grade level, gender, ethnicity, SES	Student Questionnaire Parent Questionnaire
Parent Involvement in School	Students report on the extent to which parents ask about what the child is doing at school (e.g., homework) and whether parents attend meetings and events at school.	Parental Involvement Scale (SEARCH/PSL-AB). Parental involvement is a subscale of the ecological assets construct (see Theokas, et al., 2005) consisting of four items. These items were derived from the PSL-AB (Search Institute; Benson, Leffert, Scales, and Blyth, 1998). Each item is measured using a five point Likert-type scale ranging from 0 = <i>Never</i> to 4 = <i>Very Often</i> with a higher score reflecting greater parental involvement. The scale is computed by taking the mean of at least three of the four items. An example of an item from this scale is “How often does one of your parents ask about your homework?” Cronbach’s alphas for this scale are 0.64, 0.78 and 0.78 for Waves 1, 2, and 3 respectively.

<p>School Climate</p>	<p>Students own perception of the overall environment of school and includes aspects of a school such as school size, how safe a school is, and how much support is available to students.</p>	<p>This scale was comprised of 5 items that were derived from the PSL-AB (Search Institute; Benson, Leffert, Scales, and Blyth, 1998). SEARCH -ABOUT MY SCHOOL SCALE. Participants were asked to report whether they agree or disagree with each statement and how much they agree/disagree. A score of “1” indicates that the participant strongly disagrees with the statement and a score of “5” indicates that he or she very agrees with the statement.</p> <ol style="list-style-type: none"> 1. Students help decide what goes on in my school. 2. Students in my school care about me. 3. In my school there are clear cut rules for what students can and can’t do. 4. At my school, everyone knows you’ll get in trouble for using alcohol or other drugs. 5. If I break a rule at school, I’m sure I’ll get in trouble.
<p>Teacher Support</p>	<p>The level to which adolescents report their teachers to provide clear expectations, strategic help, and involvement.</p>	<p>This scale was comprised of 3 items derived from the Search Institute’s PSL-AB Each item was measured with a 5-point Likert-type scale, indicating different levels of agreement to the statement. An example item</p>

		<p>was, “My teachers really care about me.”</p> <p>Participants were asked to report whether they agree or disagree with each statement and how much they agree/disagree. A score of “1” indicates that the participant strongly disagrees with the statement and a score of “5” indicates that he or she strongly agrees with the statement.</p> <ol style="list-style-type: none"> 1. My teachers really care about me. 2. I get a lot of encouragement at my school. 3. Teachers at school push me to be the best I can be.
School Engagement	Students reported on indicators such as hours spent doing homework, overall academic performance, and commitment to academic success.	<p>This scale was comprised of 7 items. 4 items were drawn from the School Engagement Scale. The school engagement scale was derived from the Search Institute’s PSL-AB 156 item questionnaire. An example question is: how often do you come to class without homework done?</p> <p>Participants were asked to respond to the 3-point Likert scale and reported whether they “seldom” “usually” or “never” do a certain type of behavior. The score of each item was reverse coded and higher scores indicate higher engagement levels. AND 3 additional items from the About Me Scale. Each item was measured</p>

		with a 5-point Likert-type scale, indicating different levels of agreement to the statement.
Academic Achievement	Students' own report of their academic performance	Grades Earned Item (4-H Study). This item was taken from the Search Institute's PSL-AB questionnaire. It was measured with an 8-point Likert-type scale. Participants are asked to report their grades in school. A score of "1" indicates that the participant gets "Mostly A's" in his/her school and a score of "8" indicates that a participant gets "Mostly below D's" in his/her school. This variable was reverse coded later (higher becomes better) and recoded to 0.5 to 4.0
Academic Competence	Students' own perception of how well they are doing academically.	Harter: Academic Competence The Cognitive Scale of the Self-Perception Profile for Children (Harter, 1982) is assessed self-reported academic performance (e.g., doing well at schoolwork, being smart). An example of an item of this scale is: "Some kids often forget what they learn BUT Other kids can remember things easily".

<p>Educational Attitudes/Aspirations</p>	<p>Students' own definition of the highest level of education they dreamed of completing and the highest level of education they believed they would actually complete.</p>	<p>Educational Aspiration To assess the highest level of education that youth <u>wish</u> to complete, participants responded to the following open-ended question created for the purpose of this study:</p> <p>“If it were totally up to you, what is the highest level of education that you <u>dream</u> of completing?” (Or, How far would you like to go in school?)</p> <p>Youth answers were transferred into an Excel file and assigned one of the following numerical codes: 1.00 = “8th grade or less,” 2.00 = “some high school,” 3.00 = “high school diploma,” 4.00 = “some college,” 5.00 = “2-year college – A.A./A.S. degree,” 6.00 = “4-year college – B.A./B.S. degree,” 7.00 = “M.A. or M.S. degree,” 8.00 = “doctoral degree.” These quantitative data were then transferred into an SPSS data file for ease of analytic computation.</p> <p>Expected Educational Attainment. To assess the highest level of education that youth <u>expect</u> to complete, participants responded to the following open-ended question created for the purpose of this study:</p>
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		<p>What is the highest level of education that you <u>believe</u> you will <u>actually</u> complete? (Or, How far do you believe you will go in school?)</p> <p>Youth answers were transferred into an Excel file and assigned one of the following numerical codes: 1.00 = “8th grade or less,” 2.00 = “some high school,” 3.00 = “high school diploma,” 4.00 = “some college,” 5.00 = “2-year college – A.A./A.S. degree,” 6.00 = “4-year college – B.A./B.S. degree,” 7.00 = “M.A. or M.S. degree,” 8.00 = “doctoral degree.” These quantitative data were then transferred into an SPSS data file for ease of analytic computation.</p>
<p>Depression</p>	<p>Depression is defined by the extent to which you report feeling sad, sleeping restlessly, or loss of appetite.</p>	<p>The Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977). A measure of depressive symptomatology. Includes 20 items about how respondents felt during the past week and about various behaviors (e.g., felt sad, sleep was restless). There are no subscales for this measure.</p> <p>Calculation: Items are summed for a total score. Data for at least 12 items are required to calculate the</p>

		scale. Four items were reverse coded. Higher scores indicate more depressive symptomatology.
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BIBLIOGRAPHY

Alexander, K.L., Entwistle, D.R. and Horsey, C.S. (1997). From first grade forward: Early foundations of High School Dropouts, *Sociology of Education*, 70, 87-107.

Anderman, L. H. (2003). Academic and social perceptions as predictors of change in middle school students' sense of school belonging. *Journal of Experimental Education*, 72(1), 5-22.

Auwarter, A.E., & Aruguete, M.S. (2008) Effects of student gender and socioeconomic status on teacher perceptions. *Journal of Educational Research*, 243-246.

Bankston, C.L. & Caldas, S.J. (1997). The American school dilemma: Race and scholastic performance. *The Sociological Quarterly*, 38, 423-429.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.

Battistich, V., Schaps, E., & Wilson, N. (2004). Effects of an elementary school intervention on students' "connectedness" to school and social adjustment during middle school. *Journal of Primary Prevention*, 24(3), 243-262.

Battistich, V., Watson, M., Solomon, D., Schaps, E., & Solomon, J. (1991). The child development project: A comprehensive program for the development of prosocial character. In W. M. Kurtines & J. L. Gewirtz (Eds.), *Handbook of moral behavior and development*, vol. 3 (pp. 1-34). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

Beck, M., & Malley, J. (1998). Creating quality schools by promoting a sense of belongingness. *International Journal of Reality Therapy*, 18(1), 18-22.

Bennett, S. (1987). New dimensions in research on class size and academic achievement. Office of Educational Research and Improvement (ED), Washington, DC.

Benson, P. L., Leffert, N., Scales, P. C., & Blyth, D. A. (1998). Beyond the “village” rhetoric: Creating healthy communities for children and adolescents. *Applied Developmental Science*, 2 (3), 138-159.

Berends, M. 1995 Educational stratification and student’s social bonding to school. *British Journal of Sociology of Education* 16(3), 327-351.

Brand, S., Felner, R., Shim, M., Seitsinger, A., & Dumas, T. (2003). Middle school improvement and reform: Development and validation of a school-level assessment of climate, cultural pluralism, and school safety. *Journal of Educational Psychology*, 95 (3), 570-588.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513-531.

Bronfenbrenner, U. (1979) *The ecology of human development: Experiments by nature and design*. Cambridge: Harvard University Press.

Bronfenbrenner, U. (1986). Ecology of the Family as a Context for Human Development. *Developmental Psychology*, 22, 723-742.

Bronfenbrenner, U., & Crouter, A. C. (1983). The evolution of environmental models in developmental research. In W. Kessen (Series Ed.) & P.H. Mussen (Vol. Ed.), *Handbook of child psychology: Vol. 1 History, theory, and methods* (4th ed., pp. 357-

414). New York: Wiley.

Bronfenbrenner, U., & Morris, P.A. (1998). The ecology of developmental processes. In W. Damon (Series Ed.) & R.M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol 1. Theoretical models of human development* (5th ed.). New York: Wiley.

Bronfenbrenner, U. (2001). The theory of human development. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (Vol. 10, pp. 6963-6970). New York: Elsevier.

Bronfenbrenner, U. & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.). *Theoretical models of human development*. Volume 1 of *Handbook of Child Psychology* (6th ed.). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken, NJ: Wiley.

Brooks-Gunn, J., & Duncan, G.J. (1997). The effects of poverty on children. *Future of Children, 7*, 55-71. (261)

Brown R. & Evans W. P. (2002). Extracurricular activity and ethnicity: Creating greater school connection among diverse student populations. *Urban Education, 37* (1), 41-58.

Cole, D.A. (1991). Preliminary support of a competency based model of depression in children. *Journal of Abnormal Psychology, 1*(2), 181-190.

Conchas G. Q. (2001). Structuring failure and success: Understanding variability in Latino school engagement. *Harvard Educational Review, 71* (3).

Conerly, R. C., Baker, F., Dye, J., Douglas, C.Y., Zabora, J. (2002). Measuring depression in African American cancer survivors: The reliability and validity of CES-D Scale. *Journal of Health Psychology, 7(1)*, 107-115.

Damon, W. (ed.). (1998). *Handbook of child psychology* (5th ed). New York: Wiley.

Dearing, E. & Hamilton, L.C. (2006). Contemporary advances and classic advice for analyzing mediating and moderating variables. *Monographs of the Society for Research in Child Development, 71(3)*, 88-104.

East, P.L., Lerner, R.M., Lerner, J.V., Talwar Soni, R., Ohannessian, C.M., Jacobson, L.P. (1992). Early adolescent-peer group fit, peer relations, and psychosocial competence: A short-term longitudinal study. *Journal of Early Adolescence, 12(2)*, 132-152.

Eccles, J. S. (1991). What Are We Doing to Early Adolescents? The Impact of Educational Contexts on Early Adolescents. *American Journal of Education, 99 (4)*, 521-542.

Eccles, J. S. (1999). The Development of Children Ages 6 to 14. *The Future of Children, 9*, 30-44.

Eccles, J.S. (2007). Families, schools, and developing achievement-related motivations and engagement. In J.E. Grusec & P.D. Hastings (Eds.), *Handbook of socialization* (pp. 665-691). New York, NY: The Guilford Press.

Eccles, J. A. & Roeser, R. W. (1999). School and community influences on human development. In Bornstein, Marc H. (Ed); Lamb, Michael E. (Ed). *Developmental*

psychology: An advanced textbook (4th ed.) (pp. 503-554). Mahwah, NJ, US: Lawrence Erlbaum Associates.

Eccles, J. S., Early, D., Frasier, K., Belansky, E., & McCarthy, K. (1997). The relation of connection, regulation, and support for autonomy to adolescents' functioning. *Journal of Adolescent Research. Special Adolescent Socialization in Context: Connection, Regulation, and Autonomy in Multiple Contexts, Part II, 12(2)*, 263- 286.

Eccles, J.S. & Harold, R.D. (1993). Parent-School Involvement during the early adolescent years. *Teachers College Record, 94*, 568-587.

Eccles, J.S. & Midgley, C. (1989). Stage-environment fit: Developmentally appropriate classrooms for young adolescents. In *Research on motivation in education. Vol 3, Goals and cognitions*. C. Ames and R. Ames eds. New York: Academic Press, 1989, pp. 13-44.

Eccles, J. S., Wigfield, A., Midgley, C., Reuman, D., Maclver, D., & Feldlaufer, H. (1993). Negative effects of traditional middle school students' motivation. *The Elementary School Journal, 93(5)*, 553 - 574.

Edwards, D., & Mullis, F. (2001). Creating a sense of belonging to build safe schools. *Journal of Individual Psychology, 57(2)*, 196-203.

Eggert, L. L., Thompson, E. A., Herting, J. R., & Nicholas, L. J. (1994). Preventing adolescent drug abuse and high school dropout through an intensive school-based social network development program. *American Journal of Health Promotion, 8(3)*, 202-215.

Elder, G. H., Jr. (1998). The life course and human development. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1*

Theoretical models of human development (5th ed., pp. 939-991). New York: Wiley.

Englund, M., Luckner, A., Whaley G., and Englund, B. (2004). Children's achievement in early elementary school: Longitudinal effects of parental involvement, expectations, and quality of assistance. *Journal of Educational Psychology, (96)*.

Fine, M. (1991). *Framing Dropouts: Notes on the Politics of an Urban Public High School*. State University of New York Press.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*(2), 117-142.

Finn, J. D., Gerber, S., Achilles, C.M., Boyd-Zaharias, J. (2001). The enduring effects of small class sizes. *Teachers College Record, 103* (2), 145-183.

Finn, J.D. & Rock, D.A. (1997). Academic stress among students at risk for school failure. *Journal of Applied Psychology, 82*, 221-234.

Ford, D. L. & Lerner, R. M. (1992). *Developmental systems theory: An integrative approach*. Newbury Park, CA: Sage.

Fredericks, J, Blumenfeld, P. & Paris, A. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research 74* (1), 59-109.

Fuligni, A. J. (1998). Authority, Autonomy, and Parent-Adolescent Conflict and Cohesion: A Study of Adolescents from Mexican, Chinese, Filipino, and European Backgrounds. *Developmental Psychology, 34*(4), 782-792.

Fuligni, A. J. & Zhang, W. (2006). Authority, Autonomy, and Family Relationships among Adolescents in Urban and Rural China. *Journal of Research on Adolescence, 16*(4), 527-537.

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*(1), 148-162.

Furstenberg, F., Cook, T., Eccles, J., Elder, G., & Sameroff, A. (1999). *Managing to make it: Urban families in adolescent success*. Chicago: University of Chicago Press

Garcia-Reid, P., & P., Reid, A. N. (2005). School engagement among Latino youth in an urban middle school context, valuing the role of social support. *Education and Urban Society, 37*(3), 257-275.

Goodnow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence, 13*, 21-43.

Goodnow, C. (1993b). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools,*

Griffiths, J. (1996). Relation of parental involvement, empowerment and school traits to student academic performance. *Journal of Educational Research, 90*, 33-41.

Grolnick, W.S. (2003). *The psychology of parental control: How well-meant parenting backfires*. Hillside, NJ: Erlbaum.

Harter, S. (1982). The Perceived Competence Scale for Children. *Child Development, 53*, 87-97.

Harter, S. (1983). *Supplementary description of the Self-Perception Profile for Children: Revision of the Perceived Competence Scale for Children*. Unpublished Manuscript. Denver, CO: University of Denver.

Hauser-Cram, P., Erikson Warfield, M., Stadler, J., & Sirin, S. R. (2007). School environments and the diverging pathways of students living in poverty. In A. Huston's (Ed.) *Development Contexts in Middle Childhood*. Cambridge University Press.

Hoy, W.K. & Sabo, D.J. (1998). *Quality Middle Schools: Open and Healthy*. Corwin Press: Thousand Oaks, CA.

Hull, J. (1990). Socioeconomic status and Native education in Canada. *Canadian Journal of Native Education*, 17(1), 1-13.

Jimerson, S.H., Campos, E. & Greif, J.L. (2003) Toward an Understanding of Definitions and Measures of School Engagement and Related Terms. *California School Psychologist*, 8.

Kenny, M. E., Blustein, D., Chaves, A., Grossman, J., & Gallagher, L. A. (2003). The role of perceived barriers and relational support in the educational and vocational lives of urban high school students. *Journal of Counseling Psychology*, 20, 142-155.

Kenny, M. E., Blustein, D., Haase, R.F., Jackson, J., & Perry, J.C. (2006). Setting the stage: Career development and the student engagement process. *Journal of Consulting Psychology*, 2, 272-279.

LaBahn, J. (1995). Education and Parental Involvement in Schools: Problems, Solutions, and Effects. *Educational Psychology Interactive*. Valdosta, GA: Valdosta State University.

Lee, V. E., & Smith, J. B. (1995). Effects of high school restructuring and size on early gains in achievement and engagement. *Sociology of Education*, 68(4), 241-270.

Lee, V.E. Croninger, R.G., Linn, E., & Chen, X (1996). The culture of sexual harassment in secondary schools. *American Educational Research Journal*, 33, 383-417.

Lerner, R. M. (Ed.). (1982). Child development: Life-span perspectives. *Human Development*, 25, 38-88.

Lerner, R. M. (1985). Constitutional psychology. In A. M. Kuper & J. Kuper (Eds.), *The social science encyclopedia*, (pp. 156-157). London: Routledge.

Lerner, R. M. (1985). Individual and context in developmental psychology: Conceptual and theoretical issues. In J. R. Nesselroade & A. von Eye (Eds.), *Individual development and social change: Explanatory analysis* (pp. 155-187). New York: Academic Press.

Lerner, R. M. (1991). Changing organism-context relations as the basic process of development: A developmental contextual perspective. *Developmental Psychology*, 27, 27-32.

Lerner, R. M. (1991). Editorial: Continuities and changes in the scientific study of adolescence. *Journal of Research on Adolescence*, 1, 1-5.

Lerner, R. M. (2002). *Concepts and theories of human development* (3rd ed.). Mahwah, NJ: Erlbaum.

Lerner, R. M. (2004). Innovative methods for studying lives in context: A view of the issues. *Research in Human Development* 1(1&2), 5-7.

Lerner, R. M. (2006). Developmental science, developmental systems, and contemporary theories. In R. M. Lerner (Ed.). *Theoretical models of human development*. Volume 1 of *Handbook of Child Psychology* (6th ed.). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken, NJ: Wiley.

Lerner, J. V., Baker, N., & Lerner, R. M. (1985). A person-context goodness of fit model of adjustment. In P. C. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy* (Vol. 4, pp. 111-136). New York: Academic Press.

Lerner, R. M., Dowling, & E. Chaudhuri, J. (2005). Methods of contextual assessment and assessing contextual methods: A developmental contextual perspective. In D.M. Teti (Ed.), *Handbook of research methods in developmental science* (pp. 183-209). Cambridge, MA: Blackwell.

Ma, X. (2003). Sense of belonging to school: Can schools make a difference? *Journal of Educational Research*, 96(6), 340-349.

Ma, X. & Klinger, D.A. (2000). Hierarchical Linear Modelling of Students and School Effects on Academic Achievement. *Canadian Journal of Education*, 25 (1), 41-55.

Mackinnon, D.P., Lockwood, C.M., Hoffman, J.M., West, S.G. & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7, 83-104.

Marks, H.M. (2000), Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Education Research Journal*, 37, 1, 153-184.

McNeal, R.B. (1999). Parental involvement as social capital: Differential effectiveness on science achievement, truancy, and dropping out. *Social Forces Research Library*, 78, 117-144.

McNeely, C. A., Nonnemaker, J. M., & Blum, R. W. (2002). Promoting school connectedness: Evidence from the national longitudinal study of adolescent health. *Journal of School Health*, 72(4), 138-146.

McKowan, C., & Weinstein, R.S. (2008). Teacher expectations, classroom context, and the achievement gap. *Journal of School Psychology*. 46, 235-261.

Murray, C., & Greenberg, M. T. (2001). Relationships with teachers and bonds with school: Social emotional adjustment correlates for children with and without disabilities. *Psychology in the Schools*, 38(1), 25-41.

Newman F. M. (Ed.). (1992). *Student Engagement and Achievement in American Secondary School*. New York: Teachers College Press.

Nye, B., Hedges, L.V., & Konstantopoulos, S. (2001). Are effects of small classes cumulative? Evidence from a Tennessee Experiment. *Journal of Educational Research*, 94 (6), 336-345.

Ogbu, J.U. & Simons, H. D. (1998) Voluntary and involuntary minorities: A cultural-ecological theory of school performance with some implications for education. *Anthropology and Education Quarterly*, 29, 155-188.

Osterman, K. E. (2000). Students' Need for Belonging in the School Community. *Review of Educational Research, 70*, 323–367.

Parkhurst, J.T. & Asher, S.R. (1992). Peer Rejection in Middle School: Subgroup Differences in Behavior, Loneliness, and Interpersonal Concerns. *Developmental Psychology, 28* (2), 231-41

Patrick, H., Ryan, A., & Kaplan, A. (2007). Early Adolescents' Perceptions of the Classroom Social Environment, Motivational Beliefs, and Engagement. *Journal of Educational Psychology; 99*(1), 83-98.

Phillips, M. (1997). What Makes Schools Effective? A Comparison of the Relationships of Communitarian Climate and Academic Climate to Mathematics Achievement and Attendance During Middle School. *American Educational Research Journal, 34* (4), 633-662.

Pong. S. (1997) Family structure, school context, and eighth-grade math and reading achievement. *Journal of Marriage and the Family, 59*, 734-746.

Pong. S. (1998) The school compositional effect of single parenthood on 10th – grade achievement. *Sociology of Education, 71*, 23-42.

Preacher, K.J & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects of simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36*, 717-731.

Preacher, K.J & Leonardelli, G.J. (2006). *Calculation for the Sobel test: An interactive calculation tool for mediation tests.*

<http://www.unc.edu/preacher/sobel/sobel.htm>

Radloff, L.S. (1977). The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement, 1*(3), 385-401.

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., & Jones, J. et al. (1997). Protecting adolescents from harm: Findings from the national longitudinal study on adolescent health. *JAMA: Journal of the American Medical Association, 278* (10), 823-832.

Roeser, R. W. & Eccles, J. S. (1998). Adolescents' perceptions of middle school: Relation to longitudinal changes in academic and psychological adjustment. *Journal of Research on Adolescence, 8* (1), 123-158.

Roeser, R. W., Eccles, J. S., & Sameroff, A.J. (2000). School as context of early adolescents' academic and social-emotional development: A summary of research findings. *The Elementary School Journal, 100*, 443-471.

Roeser, R. W., Midgely, C. & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88* (3), 408-422.

Rosenfeld, L.B., Richman, J.M., & Bowen, G.L. (1998). Supportive communication and school outcomes for academically "at-risk" and other low income middle school students. *Communication Education, 47*, 309-325.

Rushton, J.L., Forcier, M., & Schectman, R.M. (2002). Epidemiology of depressive symptoms in the National Longitudinal Study of Adolescent Health. *Journal of the American Academy of Child and Adolescent Psychiatry, 41* (2), 199-205.

Simmons, R.G. & Blyth, D.A. (1987). *Moving into adolescence: The impact of pubertal change and school context*. Hawthorne, NY: Aldine de Gruyter.

Simons-Morton, B. G., Crump, A. D., Haynie, D. L., & Saylor, K. E. (1999). Student-school bonding and adolescent problem behavior. *Health Education Research, 14*(1), 99-107.

Sirin, S. R. & Rogers-Sirin, L. (2004). Exploring school engagement of middle-class African American adolescents. *Youth & Society, 35* (3), 323-340.

Skinner, E. A. & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85* (4), 571-581.

Skinner, E. A., Wellborn, J. G., & Connell, J. P. (1990). What it takes to do well in school and whether I've got it: A process model of perceived control and children's engagement and achievement in school. *Journal of Educational Psychology, 82* (1), 22-32.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological Methodology* (pp. 290-312). Washington, DC: American Sociological Association.

Steinberg, L. (2001). We know some things: Parent-adolescent relations in retrospect and prospect. *Journal of Research in Adolescence, 11* (1), 1-19.

Steinberg, L., & Lerner, R. M. (2004). The scientific study of adolescence: A brief history. *Journal of Early Adolescence. Special Issue: Memorial Issue: Adolescence: The Legacy of Hershel and Ellen Thornburg, 24*(1), 45-54.

Stevenson, D., & Baker, D. (1987). The family-school relation and the child's school performance. *Child Development*, 58, 1348-1357.

Stipek, D. (2002). Motivation to learn: integrating theory and practice. Boston : Allyn and Bacon.

Stone, C.A. & Sobel, M.E. (1990). The robustness of estimates of total indirect effects in covariance structure models estimated by maximum likelihood. *Psychometrica*, 55, 337-352.

Strand, S. (1999). Ethnic Group, Sex and Economic Disadvantage: Associations with Pupils' Educational Progress from Baseline to the End of Key Stage 1. *British Educational Research Journal*, 25 (2), 179-202.

Sui-Chu, E.H. &, Willms, D.J. (1996). Effects of Parental Involvement on Eighth-Grade Achievement. *Sociology of Education*, 69 (2), 126-141

Talwar, R., Schwab, J., & Lerner, R. M. (1986). Early adolescent temperament and academic competence tests of "direct effect" and developmental contextual models. *Journal of Early Adolescence*, 9(3), 291-309.

Theokas, C., Almerigi, J., Lerner, R.M., Dowling, E., Benson, P., Scales, P. C., Von Eye, A. (2005). Conceptualizing and modeling individual and ecological asset components of thriving in early adolescence. *Journal of Early Adolescence*, 25(1), 113-143.

Theokas, C., Phelps, E., & Lerner, R. M. (2005). Developmental assets and the promotion of positive development: Findings from Search Institute data. *Focal Point*, 19 (1), 27-30.

Theokas, C., & Lerner, R. M. (2006). Observed ecological assets in families, schools, and neighborhoods: Conceptualization, measurement, and relations with positive and negative developmental outcomes. *Applied Developmental Science, 10*(2), 61-74.

Tucker, C.M., Zayco, R.A., Herman, K.C., Reinke, W.M., Trujillo, M., Carraway, K., Wallack, C., and Ivery, P.D. (2002). Teacher and Child Variables as Predictors of Academic Engagement among Low-Income African American Children. *Psychology in the Schools, 39*(4), 477-488.

Voelkl, K.E. (1997). Identification with School. *American Journal of Education, 105* (3), 294-318

Waxman, H. C., Huang, S. L., & Padrón, Y. N. (1997). Motivation and learning environment differences between resilient and nonresilient Latino middle school students. *Hispanic Journal of Behavioral Sciences, 19*(2), 137-155.

Way, N. & Robinson, M. G. (2003). A longitudinal study of the effects of family, friends, and school experiences on the psychological adjustment of ethnic minority, low-SES adolescents. *Journal of Adolescent Research, 18* (4), 324-346.

Weissman, M. M., Sholomskas, D., Pottenger, M., Prusoff, B. A., & Locke, B. Z. (1977). Assessing depressive symptoms in five psychiatric populations: A validation study. *American Journal of Epidemiology, 106*, 203-214.

Whitlock, J.L. (2006). Youth perceptions of life at school: Contextual correlates of school connectedness in adolescence. *Applied Developmental Science, 10*(1).

Windle, M., Hooker, K., Lerner, K., East, P.L., Lerner, J.V., & Lerner, R.M. (1986). Temperament, perceived competence, and depression in early and late adolescents. *Developmental Psychology*, 22(3), 384-392.

Zimmerman, B., Schunk, D. (2001). Theories of self-regulated learning and academic achievement: an overview and analysis. In *self-regulated learning and academic achievement (2nd ed.)* (pp. 1-37). Mahwah, NJ; Erlbaum.